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## PIERO SRAFFA ON INCOME DISTRIBUTION

### PIERO SRAFFA VE GELİR DAĞILIMI

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#### ABSTRACT

Distributional aspect of Economics is very complex due to having many different dimensions such as social and cultural, economic and the most importantly political dimensions of it. Piero Sraffa is the one of the most exciting contributors of the economics science. However, his contribution doesn't contain an explicit theory of income distribution. While his open ended book Production of Commodities by Means of Commodities Prelude to a Critique of Economic Theory does not cover distribution of social surplus, his abandonment of subsistence wage together with his reference to the pool of profit concept derived from his archive interpreted from Marxian exploitation of labor perspective. Nevertheless that abandonment and pool of profit concept might have been interpreted from technical perspective related to the problematic nature of necessities too. In our study Sraffa's theory and methodology is investigated with the help of archival material to analyze distributional implications of it from Political Economy perspective.

**Keywords:** Classical Political Economy, Income Distribution, Piero Sraffa.

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## ÖZ

Gelir dağılımı mefhumu sosyal, kültürel, ekonomik ve politik yönleriyle İktisat biliminin en kompleks konularından biridir. Bu noktada Piero Sraffa İktisat bilimine katkı sağlayan en önemli bilim adamlarından olmakla birlikte, başyapıtı olan Malların Mallarla Üretimi, İktisat Kuramını Eleştiriye Açış adlı kitabında gelir dağılımına ilişkin açık bir teori ortaya koymamıştır. Her ne kadar kitabında gelir dağılımına ilişkin somut bir teori olmasa da Sraffa'nın Klasiklerin aksine geçimlik ücreti ele almaması ve kar havuzu yaklaşımı dolayısıyla, teorileri Marx'ın emeğin sömürüsü çerçevesinde incelenmektedir. Fakat Sraffa'nın bu yaklaşımının başta geçimlik ücreti oluşturan zorunlu malların doğası noktasındaki problemler olmak üzere diğer bir takım teknik problemler sebebiyle de oluştuğu söylenebilir. Çalışmamızda Sraffa'nın gelir dağılımına yönelik yaklaşımı Politik Ekonomi çerçevesinde ve Sraffa'nın arşiv çalışmaları yardımıyla incelenmiştir.

**Anahtar Kelimeler:** Klasik Politik Ekonomi, Gelir Dağılımı, Piero Sraffa.

## INTRODUCTION

Distributional aspect of Economics is very complex due to having many different dimensions such as social, cultural, economic, technical and the most importantly political dimensions of it. Income distribution has been the concern of scholars as far as prominent Muslim scholar Ibn Haldun. Ibn Haldun saw the source of unjust income distribution at the transfer of social surplus flowing from working class to upper classes of societies (<https://islamansiklopedisi.org.tr/ibn-haldun>).

At the following centuries income distribution became a major research topic for Classical Economics too. Adam Smith is one of the Classical Economist who made important contribution to the theory of income distribution through his efforts to construct the Labor Theory of Value. Subsequently Ricardo with his Theory of Rent and Malthus with his Theory of Population Growth both expanded and differentiated the theory of Classical income distribution. Marx despite being considered from surplus value approach tradition his theory is totally different from other Classics. Other Classics consider the socially necessary labor time as a universal and objective measure of value, Marx, on the other hand, saw labor both as a measure of value and pure source of value.

The Classics' surplus approach was main theoretical tool until the Marginalist approach to theory of value and income distribution at the late 19<sup>th</sup> century.

Sraffa's contribution to the theory of income distribution through his open ended book *Production of Commodities by Means of Commodities Prelude to a Critique of Economic Theory* is, however, substantially different than Marginalists'. Marginalist approach basically constructed on equilibrium through maximizing behavior of agents and price signals emerged from that behavior in the markets. So through that price mechanism labor and capital accrues its share proportionally to their contribution to production simultaneously which is very different than Sraffa's methodology.

On the other hand Sraffa's methodology is different than Classical's surplus approach too. In the Classical's perspective physically and socially determined minimum provisioning remuneration of workers is called subsistence wage. With the center of gravity concept and Malthus' Theory of Population Growth in the long term wages assumed to come equilibrium at the subsistence level (Stinati 1994: xv). The remaining portion of social surplus is divided between profit and rent. However Sraffa considered the share of workers in the social surplus, besides the subsistence wage. Sraffa notes:

*"We have up to this point regarded wages as consisting of the necessary subsistence of the workers and thus entering the system on the same footing as the fuel for the engines or the feed for the cattle. We must now take into account the other aspect of wages since, besides the ever-present element of subsistence, they may include a share of the surplus product. In view of this double character of the wage it would be appropriate, when we come to consider the division of the surplus between capitalists and workers..."* (Sraffa 1960: 9).

Departing from here and from Sraffa's reference to Marxist pool of profit concept some scholars link up Sraffa's methodology and open ended arguments to Marxian conclusions in terms of income distribution. However, according to Sraffa income division is determined outside of the economic system and he didn't specify any explicit mechanism for distribution of income among classes of society. Sraffa notes: *"The rate of profits.... is susceptible of being determined from outside the system of production..."* (Sraffa 1960: 33).

So to have a better understanding of his methodology we will first explore briefly the contributions of Classical economist Such as Smith, Malthus and

Ricardo in terms of income distribution. At the second part Sraffa's theory and methodology is investigated to analyze its distributional implications.

## **CLASSICAL ECONOMISTS IN TERMS OF INCOME DISTRIBUTION**

Adam Smith is one of the earliest Classical who grounded basic principles of Labor Theory of Value. Smith was influenced from other British scholars such as Locke who was arguing for importance of value created by labor power. According to Locke labor is an important source of value. Locke Notes: "... *how much labour makes the far greatest part of the value of things we enjoy in this world*" (Locke 1980:26). According to Smith labor is first price of everything, and

*"...the value of any commodity, therefore, to the person who possesses it, and who means not to use or consume it himself, but to exchange it for other commodities, is equal to the quantity of labor which it enables him to purchase or command. Labour, therefore, is the real measure of the exchangeable value of all commodities"* (Smith 1998: 50).

Smith claims that source of wealth is not precious metals, gold silver etc., as Physiocrats claimed, rather source of wealth is productive ability of labor that compounds with the division of labor. Then Smith introduces the distinction between use value notion and exchange value notion. He explains that *"The word value, it is to be observed, has two different meanings, and sometimes expresses the utility of some particular object, and sometimes the power of purchasing other goods which the possession of that object conveys. The one may be called "value in use"; the other, "value in exchange"* (Smith 1998:48).

Smith first introduces exchange value by means of labor in production of commodities, he then added capital and other natural resources as a cost of production. However, in the rude state of society when property rights haven't been settled and consequently capital accumulation hasn't taken place, only measure of value is amount of labor necessary to produce particular good. Smith illustrates this by stating that *"If among a nation of hunters, for example, it usually costs twice the labor to kill a beaver which it does to kill a deer; one beaver should naturally exchange for or be worth two deer"* (Smith 1998: 73). Therefore, in rude state of society the exchange value and use value coincides and both of those values reflects hours of labor spent for a particular good or service.

However, the conflicting nature of distribution in literature arises when we have moved to a society where ownership of land and accumulation of capital have started to take place. In that case there is no longer pure labor theory of value, at least in terms of exchange. According to Smith, now value have been consisting of rent, wages and profits. It must be noted that, though, Smith deems profit as a sort of wage for inspection and direction of capital (Smith 1998: 77).

It is important to remember that rent has a different characteristic than wages and profits. According to Smith rent is a part of price formation. However, it is not a direct cause of price, oppositely price causes formation of rent as Ricardo claimed against Smith: *“If the high price of corn were the effect, and not the cause of rent, price would be proportionally influenced as rents were high or low, and rent would be a component part of price”* (Ricardo 2001:46). Thus, rent seems to be *“...regulated by the productiveness of the portion of capital last employed on the land, and paying no rent”* (Ricardo 2001:46). It is because capitalist farmer first tends to farm the highest quality of soil. Soil with a higher fertility yields higher profit and that higher profit allows the landowner to ask a higher rent.

While to some Classical economist such as Smith and Malthus essential topic of economics, Political Economy then, was inquiry into principles of wealth of nations or conditions of material provisioning of public and states, for Ricardo it was dynamics of income distribution among different classes of societies. Ricardo notes in his correspondence with Malthus:

*“Political Economy you think is an enquiry into the nature and causes of wealth — I think it should be called an enquiry into the laws which determine the division of the produce of industry amongst the classes who concur in its formation. No law can be laid down respecting quantity, but a tolerably correct one can be laid down respecting proportions. Every day I am more satisfied that the former enquiry is vain and delusive, and the latter only the true objects of the science”* (Hollander 1997: 1000).

Ricardo’s aim was to explore dynamics of rent, profit and wage as well as their share in the future of capitalist economic systems. Ricardo’s methodology to achieve his subject matters has some important elements. First element is his assumption that economies reflects decreasing returns to scale. This analogy based on corn model of him. Mainly land is a limited natural source and all land

is not homogenous in quality. This decreasing return to scale scheme can be categorized into some subsections.

One cause of decreasing return to scale is Ricardo's acceptance of Malthus Demographic growth theory. Namely, whenever wages achieve to or surpass subsistence level of reproduction, human population is expected to increase. Therefore, with the rising human population labor supply supposed to increase or vice versa. Thus, it can be said that Malthus has an equilibrium theory of population and labor supply is determined by wage endogenously (Henderson 1997: 587).

The second element is related to reduction of efficiency of labor, due to applying more labor on the scant amount of soil. As a result, as economy grows capitalist expansion of business on less fertile lands creates second round of reduction of the productive efficiency. It should be emphasized that according to Ricardo profit expectation is an important element in capitalist mode of production causes transformation of society economically, socially and politically.

An important addition of Ricardo to economics science is his definition of distinction between labor bestowed and labor commanded value which have opened a never settled debate in economics. Smith implicitly defined labor value in labor commanded form and he takes it as a standard measure of value. However, Ricardo was aware that labor commanded value can never be a standard measure of value in capitalist economies. He illuminates the problem by emphasizing difference between those concepts of the wage:

*“If the reward of the labourer were always in proportion to what he produced, the quantity of labour bestowed on a commodity, and the quantity of labour which that commodity would purchase, would be equal, and either might accurately measure the variations of other things: but they are not equal”* (Ricardo 2001: 10).

Therefore, Ricardo defines labor bestowed value (or labor embedded in Marxian terminology) as a natural and invariable standard of value, while labor commanded value is a variable that fluctuates around the bestowed value by the forces of comparative price relations of commodities in capitalist economies. From here it is observed that Marx is definitely influenced from Ricardian distinction between labor bestowed and labor commanded value.

As population of society increases less fertile lands be opened up to agriculture. Due to scarcity of higher quality of land, prices of higher quality land increases. Thus, rent increases not because specific type of land is more fertile, rather fertile land is scarce. This is the different nature of rent in Ricardian theory. Scarcity of natural resources and land is important concept for Ricardo that gives shape to his income distribution theories. Neoclassical theories took its shape according to Ricardo's marginalist approach in his theory of rent (Peach 2009).

However, there is a nuance between Ricardo's definition of rent and Malthus' definition of rent. Malthus rejects the Ricardian reasoning of rent namely, according to Malthus rent is due to special character of land, a gift from God to human:

*“The qualities of the soil and of its products, here noticed as the primary causes of the high price of raw produce, are the gifts of nature to man. They are quite unconnected with monopoly, and yet are so absolutely essential to the existence of rent, that without them, no degree of scarcity or monopoly could have occasioned that excess of the price of raw produce, above the cost of production, which shows itself in this form”* (H. Hollander 1903: 16).

Therefore Ricardo's most important contribution to classical income distribution theory is explaining the share of rent with a marginalist approach which was different than surplus approach of his contemporaries. However, in explaining the share of profit and wages between capitalist and worker class Ricardo makes use of the classical surplus approach. With that approach as the capital accumulation rises, demand to labor increases in the long term together with the wages. This creates an impulse to speed of reproduction of population and in the long term all over again a rise in labor supply and reduction of the wages eventually. Finally population will come to a settlement point that worker gets natural wage.

As a result of this, Ricardo believes that wages will settle in a subsistence level in the long term. While wages are given in a subsistence level, the competition out of net product occurs between capitalist and land owner. As economy grows and employment increases, profit is expected to decrease while rent is increasing due to scarcity of land.

Thus, the income distribution in Ricardian term can be summarized as follows. Wages are determined by the Malthusian demographic model and in the



long term wages will settle at a subsistence level. However, rent is determined independently of wages. Rent is related to technical conditions of production that bounded by the decreasing return to scale due to scarcity of land. Finally, profit is a residual concept in that model. Whatever left after wages and rent deduced from net output is considered as profit. Profit has a dual nature that it is both the aim of capital accumulation and the result of capital accumulation. As economy moves to less fertile land, profit rates will decrease and this will yield a reduction in the growth rate of capital. Eventually, economy settles down in a stationary state that there is no economic growth, no population growth and no economic profit. Therefore, profit is the source of accumulation and the accumulated capital determines the income distribution between wage and profit. As a result of this decreasing return to scale assumption Ricardo had a pessimistic expectation about the future of capitalism.

John Stuart Mill is another important figure in classic income distribution theory. Unfortunately, in comparison to other Classics paid less attention in the literature to Mills thoughts in respect to income distribution. Mill notes that:

*“The laws and conditions of the Production of Wealth partake of the character of physical truths. There is nothing optional or arbitrary in them. It is not so with the Distribution of Wealth. That is a matter of human institution solely. The things once there, mankind, individually or collectively, can do with them as they like. They can place them at the disposal of whomsoever they please, and on whatever terms”* (Mill 1848:257-258, Gallaway – Vedder 2002:57).

According to Mill national income and wealth depends to the technic of production and it is determined by the degree of current state of the knowledge. However, the distribution of wealth in distinction to the national income solely depends on culture or in a wider concept to the institutions of societies. Therefore, according to Mill laws of production and rules of distribution should be considered from separate perspectives (Sundrum 2004: 8-9).

Similarly, Marx also thinks that distributive relations are separate from production processes as Mill. However, according to Marx those distributive relations in societies are shaped according to power relations among different classes of societies. Moreover, Marx thinks that those distributive relations are not constant over time. Rather distribution of wealth, has been shaped accord-

ing to historical evolution of socio-productive relationships between different classes of societies. As socio-productive relations change so changes the terms of income distribution. Accordingly, for Marx there is not any global economics law in terms of income distribution that will be valid in all societies and all the times. Those modes of production are based on ownership of capital and property relationships. Thus, Marx accused Classical economists who precedes him by only describing economics laws in terms of a specific mode of production and not being able to see that each society historically creates its own special dynamics based on the mood of production.

Classical economists who precede Marx had three different classes in their income distribution theories. However, in Marxian income distribution perspective rent lost its importance. It is because, with the development of capitalism and industrial sectors agricultural sectors and consequently the rentier class has fallen from the importance. Therefore, distributive struggle occurs between capitalist class and workers class.

Even though for Marx Labor Theory of Value is an important tool, he has used that concept differently from other Classicals. For Marx socially necessary labor time that required for production of every good and services is fundamental measure of value, but beyond that Marx has reached to conclusion that labor is essence of all value too. Therefore, departing from here Marx argued that profit is simply stolen value added of the labor.

When workers work for a particular length of time, they are able to create goods that is enough for subsistence level to sustain and reproduce itself. However, capitalist class makes the workers to work longer hours than the necessary. As a consequence, value added due to over worked time stolen from the workers as a profit. This total exploited value accumulates in the pool of profits. Subsequently, this exploited value is distributed as profit to the capitalists according to value of capital held which is most problematic part of Marxian theory known as Transformation Problem (Fine 1986).

## **PIERO SRAFFA'S CONTRIBUTION TO INCOME DISTRIBUTION**

Sraffa's analytical methodology in his book *Production of Commodities By Means of Commodities* Prelude To a Critiques of Economic Theory is an controversial issue in Economics science. *"In spite of the very extensive liter-*

ature which has accumulated over time concerning Piero Sraffa's theoretical system, several significant issues pertaining to the interpretation of the work of this distinguished economist are still unresolved" (Cavaliere 2001: 1). Moreover, Sraffian scholars are still investigating his unpublished papers to have a better understanding of his legacy. Sraffa revives the old perspective on prices, capital and distribution theory. Eatwell Notes:

*"Piero Sraffa's work on problems of the theory of value..., amounts to a restatement of the classical theory of distribution. This involves an analysis of the relationship between wages, profits, and the rate of profit by means of a physical analogue freed from the complications introduced by the interdependence of prices and the distribution of income"* (Eatwell 1975: 543).

Sraffa's point of departure is commodities that are produced by commodities and labor. It is very different than Neoclassical school's production function model which takes one way flow from inputs to outputs for each industry. In Sraffian system commodities are considered as both inputs and outputs, therefore Sraffa refrains from using neoclassical distinction between factors of production and outputs.

Moreover, in Sraffian methodology demand has neither impact on distribution nor on the exchange ratios. At the very introduction Sraffa warn us: *"Anyone accustomed to think in terms of the equilibrium of demand and supply may be inclined, on reading these pages, to suppose that the argument rests on a tacit assumption of constant returns in all industries. ... In fact, however, no such assumption is made"* (Sraffa 1960: v).

On the other hand usage of commodities in their production renders exchange of commodities as a technological necessity. Because at the end of the production process all commodities concentrate at the command of productive industries. Those commodities must be distributed among industries according to technological necessities of production method. However, exchange ratios of commodities are not only depend on productive technology, but also, distribution of net output among different classes. Therefore, in Sraffian terminology wage-profit relations has a significant role. However, in spite of that importance the distribution parameter that determines the share of wage and profit seems to be left open by Sraffa. Further, it seems that there is not any explicit theory of income distribution at all in Sraffian technic. What clearly obvious in Sraffian

methodology is all inputs and outputs are produced in an interdependent system and given distribution between different classes determines the exchange ratios/prices.

Given this brief introduction to Sraffian method we will discuss the terms of wage-profit distribution in Sraffian terminology. We will first try to depict the conception of wage and its place in political economy and Sraffian methodology. It is because, to be able understand distribution of income between different classes we should have a solid understanding of the nature and components of the wage.

Sraffa starts to his theory with a subsistence model of economic system where each year's total production is exactly equal to the amount of input needed for next year's production. Production for Subsistence model is a theoretical device to show an imaginary system that do not produce any net product. In this case prices has only one duty that is restoring the system. After the round of production is completed all the commodities are concentrated at the command of the productive sectors. But to be able to system reproduced at the next round of production, those newly produced outputs should be redistributed according to the technic of production or productive consumption. This is done by unique ratio of exchange which is directly sprung from method of production (Kurz 1998: 444).

Sraffa didn't consider the labor explicitly in the production process until Chapter Two of Production with a Surplus. Rather, Sraffa considers wage at the just enough degree to reproduce the worker and worker's family, as wage goods implicitly embedded in the inputs system. This is because lack of surplus in the system to be distributed in the first place. Pasinetti describes labor at that stage as: *"..labor required in the process of production come to be treated in the same way as any commodity. Men are like horses so to speak. The inputs to the production process including the workers, are all represented by the mere cost of production. This is obviously a slave economy"* (Pasinetti 1977:78).

Up until now a subsistence wage concept that is similar to Classics' natural wage concept is viewed. However, *"If the economy produces more than minimum necessary for replacement and there is a surplus to be distributed, the system becomes self-contradictory"* (Sraffa 1960: 6). Sraffa notes in his archival notes that in the case of surplus production:

*“Wages however partake of a double nature and while always containing the element of subsistence they may, in certain social conditions, contain secure also a share of the surplus product. And it is indeed the stress and strain arising from this possibility that has given economic theory its shape”* (Carter 2011: 1125).

So Sraffa’s important discovery was that *“...there were two notions of costs—one concerned with ‘necessaries’ and the other concerned with ‘motives’—which gave rise to two theories of distribution and two conceptions of wages and profits—one as ‘surplus’ of the product over necessities and the other as ‘shares’ in the product* (Cozzi - Marchionatti 2001: xxii).

That subsistence and share wage concept brought about never settled dispute in the literature. Classicalists like Malthus and Ricardo emphasize to the reproduction of system. By doing so they take workers’ subsistence in the means of necessities. Accordingly, labor becomes part of capital subject to profit rate. But Sraffa at the production with surplus chapter left out the subsistence wage approach. Sraffa notes: *“We shall, nevertheless, refrain in this book from tampering with the traditional wage concept and shall follow the usual practice of treating the whole of the wage as variable”* (Sraffa, 1960:10).

However, some scholars interpret Sraffa’s emphasis to share wage and reference to the pool of profit concept derived from his archive from Marxian exploitation of labor approach. While for a long period of time some scholars interpreted Sraffa’s revival of Classicalists circular approach from Marxian perspective, some other scholars such as Carter by investigating Sraffa’s archive at the Cambridge University moves forward those interpretations. Carter notes that:

*“The Marxian theory of exploitation underlies the concepts of surplus and deficit industries that appear in Sraffa’s (1960) Production of Commodities by Means of Commodities. This is seen from archival research of the unpublished papers of Piero Sraffa housed at the Wren Library, Trinity College, University of Cambridge”* (Carter 2011: 1125).

But, Sraffa may have taken that approach because of some technical issues. What were the problems associated with subsistence wage Sraffa left them out is important to mention. Even in chapter I one of Production of Commodities by Means of Commodities, Sraffa was aware of problems associated with

it. Difficulties embedded with the bundle approach becomes more visible at the surplus model, though. These difficulties are due to complexity of necessities.

Once we start to think about the notion of “subsistence” the issue becomes problematic. Since modern capitalist systems with an immense productive ability to create enormous amount of surplus product, brings into question meaning of “necessities” of workers in advanced capitalist economies. The problem arises from the difficulties tied to definition of the necessary bundle. So the question is; what are the necessities for reproduction of worker class? Are there any global bundle that will be consistent in all societies and at all times? As Chiodi explained:

*“The necessities for the workers are physically selected, commodity by commodity. This process of ‘selecting’ the commodities used is the reflection of the specific environment in which the economy operates. This means that the set of commodities used and produced ‘incorporates’ not just the ‘technology of production’, but all the social, political, educational and institutional characteristics of the community actually considered”* (Chiodi 2008: 192).

If Economics is considered as an inquiry in the search of materialist provisioning of societies, the term of subsistence wage gets very complicated. Therefore, the notion of necessities is a dynamic phenomenon and necessities are proportional with the improvement of technic of production. Adam Smith’s early rude stage of economic system is very different then current financialized capitalist mode of economy. From here it can be seen that subsistence wage or bundle wage can’t be a universal measure of value, rather it is very subjective notion and depends on from which perspective looked.

Leaving out the subsistence wage in favor of share wage has an important drawback too. This drawback is related to term of reproduction and dynamics at the wage goods sector. A price change at any basic good that both enter into production of other goods as a means of production and appears as outputs affects whole price system. For example if a special technic improves the production technic of food, such as use of genetically modified plants that yields higher rates of harvest than natural plants, the pure effect of this change on prices can not be observed. Sraffa notes his concerns as:

*“The drawback of this course is that it involves relegating the necessities of consumption to the limbo of non-basic products. This is due to their no*

*longer appearing among the means of production on the left-hand side of the equations: so that an improvement in the methods of production of necessities of life will no longer directly affect the rate of profits and the prices of other products” (Sraffa 1960:10).*

So, it can be seen that even though removing subsistence wage from the system has some drawbacks, Sraffa has chosen to leave the income distribution aspect to be determined from outside of the system.

Sraffa, therefore, by ignoring the subsistence wage approach abandons Marx’s distinction between necessary labor required for production and surplus labor that is essence of exploitation. Sraffa describe both wage and profit as surplus. Thus surplus labor cannot be claimed to be source of value. As a result Sraffa diverge from both Marx and Ricardo in terms labor theory of value (Hunt 2002: 492).

If so labor value is not considered as common medium of value as it has been over centuries for classic economists, what can be used as common medium of value? This question goes far back in Politic Economy. Adam Smith suggested the labor commanded value as invariable measure of value. But labor commanded value depends on wage rates and prices. If the price system changes labor commanded values will change as well. Ricardo was aware of this problem because he was very concerned with the income distribution among social classes. Ricardo have struggled throughout his life to find an invariable measure of value. His solution against Smith’s Labor commanded value was Labor bestowed or labor embedded value. Labor embedded defines the amount of labor required directly or indirectly to produce a particular good.

However, Ricardo’s attempt to construct invariable measure of value has problems associated with it as well. Those problems can be categorized in two groups. The first issue is about identification problem of price changes when technology of production changes. The second issue is about identification of price changes when distribution of surplus changes. The first concern related to labor to capital ratio. For example if technological abilities improves over time and capital usage increases relative to labor usage, labor embedded values will be disrupted. Second concern is simply related to effect of distribution on prices and Sraffa was well aware about this problem. Sraffa refers to this problem in his unpublished papers:

*“In such a world, where everything moves in every direction; where wages can increase more than profits fall; where the value and indeed the composition of the nat. rev. can change merely because it is divided in different ways; where the prices of commodities rise or fall, and we cannot express in simple words (or any words) the conditions under which they rise or fall; where ... one sympathises with Ricardo in his search for an ‘invariable measure of value’. In a universe where everything moves we need a rock to which to cling to, a horizon to reassure us when we see a brick falling that it is not us who are going up, nor that we are falling when we see a balloon rising” (Carter 2014: 59).*

Bellino defines this problem in a little different way;

*“The necessity of expressing the relative price of a commodity in terms of another commodity makes it impossible to distinguish that part of any change that can be ascribed to the characteristics of the commodity itself from the part of that change that is to be ascribed to the characteristics of the commodity of reference, i.e., the numéraire” (Bellino 2004: 121).*

It was Sraffa’s duty to handle this confusion stacked to the second problem. He developed the standard commodity which is robust to changes in the distribution. By using standard commodity, which is mixture of different commodities consist of net output normalized at value equal one, Sraffa found an invariable notion of value in his system (Flamant 2015).

After the invention of the invariable measure of value Sraffa arrives to the distribution function  $r=R(1-w)$ . Here  $r$  is the rate of profit of capitalist class.  $R$  is the maximum rate of profit that is derived before prices are determined, solely from the technic of production. Sraffa adopts Classics assumption of uniform profit rate across industries. Long period interpretation of uniform profit rate is competitive conditions of supply and demand or gravitation toward zero economic profit will equalize profit rate across industries. However, according to Ajit Sinha uniform rate of profit is just a logical tool for Sraffa without any reference supply and demand.

*“Sraffa’s prices are completely independent of demand considerations or the condition of equilibrium of demand and supply. The requirement of the uniform rate of profits in Sraffa’s price equations is argued to be a logical consequence of the assumption that wages are uniform and fixed from outside the system” (Sinha, 2012:1323).*



Moreover,  $w$  is the wage share of worker class and “*any differences in quality to have been previously reduced to equivalent differences in quantity so that each unit of labour receives the same wage*”(Sraffa 1960: 10). In this function  $r=R(1-w)$   $R$  is known directly from technic of production. Therefore, to be able to solve for all parameters either  $r$  or  $w$  should be known previously. If  $r$  is given,  $w$  can be found and vice versa. Old Classical and Marx chooses wage bundle therefore they close the system from the wage side. For example in the Malthusian demographic theory which was adapted by Ricardo as well, the subsistence wage rate is determined partly in relation to population growth. For Post-Keynesians, however, profit side is driving force.

Sraffa very obviously left the distribution side open to be determined outside of the system. But Sraffa in his archival notes mentions the difficulties tied to necessities and gives some hints about his thoughts related to income distribution.

*“The study of the “surplus product” is the true object of economics: the great difficulty of the matter is that this object either vanishes or remains unexplained. It is a typical problem to be handled dialectically. This notion is connected with that of “necessity”, and “necessity” has only a definite meaning from a given point of view, which must be explicitly stated and adhered to consistently”* (Carter 2011: 1124).

In short, definition of wage and income distribution are very complex problems to define both analytically and politically. Therefore Sraffa considered it outside of his modellings.

## CONCLUSION

Distribution of income has been matter of consideration for all Political Economics scholars. But with the emergence of Marginalist approach the direction of the Economics research has changed. According to this stream of inquiry, most commonly accepted definition of Economics is: “*the science which studies human behavior as a relationship between ends and scarce means which have alternative uses*” (Backhouse – Medema 2009: 225). With this approach importance of subsistence of the societies has diminished.

On the other hand for Classical Political Economists, Economics is an inquiry about the subsistence of the public. This perspective can be traced back to the Adam Smith. According to Adam Smith Political Economy has two important goals.” *first, to provide a plentiful revenue or subsistence for the people, or more properly to enable them to provide such a revenue or subsistence for themselves; and secondly, to supply the state or commonwealth with a revenue sufficient for the public services.*” (Smith 1776; Robertson 1983: 451).

For Sraffa too, income distribution was an important topic, but complexity of necessities and difficulties tied to subsistence wage was a very big problem to solve for him. Moreover, Sraffa differently than Marx didn’t add the subsistence wage in the cost of production. Why Sraffa didn’t add subsistence wage inside production function and rather used approach is not clear. However, adding an extra new variable to be determined creates an extra one degree of freedom that makes harder to solve the Sraffian price system.

Another reason maybe his obsession to the Neoclassical or Marshallian Theory at the first part of his carrier that slowed him down in his studies. Even though he changed his approach to the science and started to revive the old Classical Economics approach, his health conditions didn’t let him to continue provide a solid theory. His book *Production of Commodities by Means of Commodities* took almost 40 years to publish for him. Sraffa just couldn’t deeply cover these problems and couldn’t analyze the dynamics of income distribution. As he states at very preface of his book: “*If the foundation holds, the critique may be attempted later, either by the writer or by someone younger and better equipped for the task*” (Sraffa 1960: vi).

Therefore for Sraffa distribution of income between social classes must be handled dialectically. Moreover, tied to concept of necessities, labor share from

surplus product must be determined at the social context which implies importance of institutions. This is very similar to the old Classical circular approach that Sraffa attempted to revive. According to this approach reproduction of economic system must be considered at the effective social context and institutions which is product of complex relationship among the capitalists, workers, state, and other parties of societies.

As it cited earlier Sraffa underlines the importance of “*given point of view*” at the determination of subsistence and consequently share wage concept. Thus from here it can be claimed that among all other Classics, Sraffa in terms income distribution may be closer to J. S. Mill who, as stated earlier, argues that while social surplus is commensurate with degree of technological know-how, distribution of that surplus among different classes is a solely matter of preference

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