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David Ricardo's Theory of Value

1 Introduction

This essay examines David Ricardo's Theory of Value as presented in his work *Principles Of Political Economy and Taxation*, and as interpreted by modern writers.

A Theory of Value tries to explain what regulates exchange of commodities, what determines wages, where does profit come from, what is rent, and why do natural and market price differ? To put it concisely: What "factors regulate and govern value?" (Schumpeter, 590).

Ricardo's theory rests on the assumption that a commodity's exchangeable value is determined by two circumstances. First, it is the relative amount of labour that is embodied in production (Ricardo, 17). This comprises labour directly applied and the labour necessary to produce capital input goods. Secondly, exchangeable value depends on the time that it takes to bring the good to market (Cassels, 49, Hollander, 34-35, Sraffa, xxxix-xl). Ricardo examines the causes of changes in relative values. They vary if the amount of labour embodied in production changes. Moreover, they can also change owing to increasing or decreasing wages. The crucial point of Ricardo's analysis is to find out when two commodities change in relative value which one has been affected by the cause of the change.

Only labour and capital enter production as inputs. Ricardo studied the issue of rent

separately because he wanted to show that rent is not a component part of price, and that it is solely determined by productive differences of fields owing to the fertility of land.

The last section deals with natural and market prices. Because of changes in demand for goods, prices charged in markets deviate from natural prices.

Ricardo had different objectives when he wrote his *Principles*. First, he wanted to find out how changing relative values influence the well-being of labourers, capitalists, and landlords (Cassels, 45, Hollander, 23). Secondly, he contended that a change in wages causes profits to fall, and rents to rise, and does not necessarily mean a change in price (Ricardo, 88, Hollander, 31-32, Stigler, 155). Further, the search of the perfect invariable measure of value was constantly on Ricardo's mind. This is closely linked to the problem of modification of the fundamental assumption. The section after the presentation will take up these issues.

2 Theory Of Value

2.1 Ricardo's Theory Of Value

2.1.1 Value - Commodities - Fundamental Assumption

To clarify the notion of *value*, Ricardo (18-19) considers two properties of commodities: Some have value in use, termed utility, and some have value in exchange. Utility is a necessary condition for exchange value. It is a necessary but not a sufficient condition because, as the water-diamond paradox shows, water is indispensable, thus, it has high utility, but "under ordinary conditions" (Ricardo, 17) it has no exchange value. On the other hand people trade only goods that have some utility since nobody wants to obtain a good that yields no utility.

Given utility, value in exchange is determined by two circumstances: first, the value of some goods is determined by scarcity alone. It is not possible to increase their number by exerting more labour. However, only a small part of the market amounts for goods of this kind. Secondly, the exchange value of the majority of goods traded is determined by the “quantity of labour required to obtain them.” (Ricardo, 18). The characteristic of these goods is that the effort of human labour can increase their number in contrast to the former. Ricardo only focussed on these goods while assuming perfect competition.

2.1.2 Different Rewards For Labour

The assumption that the relative value of goods is solely determined by the relative quantities of labour necessary for their production (Ricardo, 23) does not take into account different qualities of labour. Sure enough, the production of some goods requires labour of differing quality. “The higgling and bargaining of the market” (Smith, 35) gives a yardstick that allows for comparison of different qualities of labour (Ricardo, 24). During the course of time it will stay roughly fixed, that is, relative productivity stays nearly constant. Provided this, we may treat labour as of equal quality (Cassels, 50)

2.1.3 Relative Value: The “Rude State” - Use Of Assisting Implements

In undeveloped societies exchange value is “almost exclusively” (Ricardo, 18) determined by the relative amount of labour necessary for production. In this case, “exchangeable value” is almost proportional to labour input. But even in such a society producers need some capital as input. If producers use only one capital good next to human labour, we can total the labour that was necessary to produce the capital and the labour directly applied. This allows for a comparison

of different goods. Capital goods may vary in durability. Then goods produced by means of less durable capital are more valuable than those created with help of more durable capital because in the former case more labour is transferred to the final good than in the latter. Under these conditions changes in wages leave relative values unaffected no matter what the supply and demand for capital and labour are, or what the profit rate is (Ricardo, 25-26).

Ricardo modifies the assumption when he considers a more advanced society. Here final goods are the outcome of a long chain of different production stages. Then the value “depends on the total quantity of labour necessary to manufacture them and to bring them to market.” (Ricardo, 26) We can still apply the concept displayed above, however now it is a bit more complicated to attribute the different sources of labour. In response to that adding up the different amounts of labour at each production stages gives the value.

Referring again back to the undeveloped society, Ricardo declares that the relative value of two goods is fixed no matter what wages and profits are. A rise of wages does not affect in any way the amount of labour employed in production. But “it must be seen that profits would be high or low exactly in proportion as wages were low or high”. (Ricardo, 27-28) That is, wages and profits move in opposite directions. What follows then is an attempt to trace out the source of a change in relative value. For that we need an invariable measure of value (Ricardo, 29).

2.1.4 Relative Value: Fixed Capital And Circulating Capital

In a more developed society commodities are produced by means of capital goods that possess distinct features. These features have an effect on relative values due to alterations in wages.

A side note. Ricardo first mentioned the cause of a change in wages on page 37: “...an

increase in the price of provisions which raises wages...” In chapter V he claims that the wage rate depends on the quantity of food needed to provide subsistence for labourers and their families. Hence, it rises if these necessities become more valuable. Ricardo accepts Malthus’ subsistence wage theory where subsistence means a cultural minimum and not a biological one (Stigler, 145, 148).

The first difference of capital goods is durability. More durable capital goods are termed fixed capital whereas less durable capital goods are called circulating capital (Ricardo, 30). This distinction is not always accurate. Wages are part of the circulating capital.

Moreover, circulating capital may also vary in its turnover rate. It is like fixed capital if it is used for a very long period.

The ratio of fixed and circulating capital used in production is significant when examining how a change in wages influences relative values (Ricardo, 31). The exchangeable value stays commensurate with the amount of labour applied if circulating capital of equal durability and production time only is used. If we now make additional use of fixed capital of equal value and durability in production of goods, labour input is still proportional to capital input in all business, that is, the labour-capital ratio is constant. Hence changes in wages leave relative values unchanged if these goods are produced with the same labour-capital ratio.

But the relative value is not solely determined by the labour capital used. Those individuals who supply the capital receive some compensation for the time their capital is bonded in production (Ricardo, 32). In this sense, there is no difference between varying degrees of durability and the time that it takes to bring a good to market. In the first case, more interest has to be paid if the capital goods are to be replaced more frequently, whereas in the latter case more interest is charged if it takes more time to bring the good to market.

We mentioned above that “There can be no rise in the value of labour without a fall of profits.” (Ricardo, 33) A change of wages causes labour intensive goods to rise in value relative to capital intensive goods. Ricardo (33-34) then argues that the percentage fall in profits due to a rise in wages can be at most “6 or 7 percent; for profits could not, probably, under any circumstances, admit of a greater general and permanent depression to that amount.” However, input changes can result in great variations of relative values.

2.1.5 Relative Value: Varying Durability Of Fixed Capital

Fixed capital of smaller durability is like circulating capital. It has to be replaced more often. Thus, the more often a fixed capital is to be replaced, the more labour is transferred to the final good. As a result, its value increases. When wages rise the value of goods where fixed capital of less durability predominates increases relative to goods where fixed capital of greater durability is used and vice versa (Ricardo, 35-36).

There is an important distinction between machines and human labour. For example a machine is of the same value as the wage bill of some workers and both produce an equal output, then the machine must be the product of less labour because the profit had to be added up to the wages. If not, there were no profit left which is impossible. When wages rise, prices rise in proportion where labour is the only input, but they stay constant where labour next to machinery is used because a wage rise always causes a drop in profits (Ricardo, 37). The price in this case cannot increase because this would change the rate of profits which is impossible since there is only one rate of profit.

Machines are the product of a fewer number of labourers versus they substitute though the money value may be equal. Hence commodities made by machines fall in relative value the more

durable capital inputs are used.

To conclude, in undeveloped societies relative values are always in proportion to the labour embodied. As fixed and circulating capital of varying durability are added to production, matters change decisive. Goods produced by a great amount of long-living fixed capital fall in relative value to goods produced by a lot of fast-consumed circulating capital when wages rise.

2.1.6 Invariable Measure Of Value

When prices change we want to find out whose commodity's change in value is causal for a change in relative value. Thus, we may not treat "value" merely as a relation, but as something that is inherent in each commodity (Meek, 87). To make a comparison possible, a commodity of invariable value is necessary (Ricardo, 28, 29, 38). It is defined as follows: Its value does not change when wages respectively profits rise or fall. Production always requires the same amount of labour. Fixed and circulating capital are found in proportion such that a change in wages does not affect the price (Ricardo, 38-42). It must be produced under average conditions regarding ratio of fixed and circulating capital, durability, turnover rate, and production time.

But Ricardo (38) quickly noticed that there in no mean possessing these characteristics. He also recognises that some commodities could also rise owing to a change in wages (Meek, 108).

Assuming possession of such a commodity, if we observe a change in relative value of a commodity being measured to the commodity serving as the measure, we can deduce that some cause has solely worked on the commodity being measured (Meek, 87, 107). In fact, if the measure is perfect in the sense as outlined above, "it would not reflect the effect of a change in wages at all." (Meek, 112) Additionally, it permits to gauge not only changes in relative value but also absolute changes in value (Kaushil, 341)

Ricardo (40) now makes use of his claim that a change in profits or wages has a minor effect on the change in relative values and therefore assumes this cause away. He then takes gold or money made of gold as an invariable measure of value because it is produced with the average capital of all commodities and always requires the same amount of labour.

When such a yardstick is available, every change in national income measured in terms of the yardstick can be traced back to a change in labour necessary to produce this income (Cassels, 47).

2.1.7 Influence Of A Change In The Value Of Money

To fully understand what causes relative values to vary, Ricardo studies the change in the value of money. In the analysis so for we have elaborated that relative values vary because a different amount of labour is applied, or because the value of money has varied.

If the value of money falls, wages rise. In turn this affects the prices of all goods but the relative number of labourers to produce the commodities has not changed. Thus relative values stay the same, only the scale of measurement is changed (Ricardo, 41-42). Wages can also rise due to two different circumstances. First, labourers receive a higher salary, or, secondly, to obtain subsistence goods becomes more difficult. In the first case less labour is needed in production whereas in the second case a larger number of labourers is devoted to the production of necessaries consumed by them. The effect is not a rising price but a falling profit because a smaller part of the output is left to be allocated to the capitalists.

2.1.8 Determination Of Rent

As Blaug (75) and Stigler (149-154) point out Ricardo was only one among West, Torrens, and Malthus who published nearly the same theory of rent within a very short period of time in 1815. The *Principles* basically borrow from these works.

This section studies whether private ownership of land, and thus the obligation to pay rent to landlords, has any impact on the variations of relative values.

The rent is a share out of the total output for providing “use of the original and indestructible powers of the soil” (Ricardo, 45). It only refers to the soil and not to any buildings, machines etc. a tenant uses.

In the rude state of a society, when the population is small, and fertile land can be found in abundance, nobody can claim rent. It is the “common principle of supply and demand” (Ricardo, 46) that brings about that nobody pays for a good that exists in abundance.

Rent is due because land “is not unlimited in quantity and uniform in quality” (Ricardo, 47). An increasing population then forces farmers to intensify or to make more extensive use of land. As will be shown farmers first intensify tillage operations and then utilise land of less favourable conditions. Rent is always determined by the productive differences of the ground in question and the least fertile plot. Hence, rent on the most fertile spot is highest and then decreases with declining fertility. To be more precise, rent is the difference between the net output of the field in question and the net output of the least fertile field. Here net output it total output less than advances to labourers; profits are not included. As a result, a farmer is indifferent between tilling some ground and paying rent or tilling the least fertile ground and paying no rent. But sometimes it is worth to intensify cultivation of land already in use before going over to a less

fertile spot, that is, there is an intensive margin. It is reached when the increase of net return is less than what one can obtain by application of the same amount of labour and capital on the least fertile field. The return of the least fertile land determines the extensive margin. A farmer uses such a spot only if the total output is high enough to pay his labourers. Thus, the profit of the least fertile land can be zero. For that there cannot be different rate of profits, it is determined by what a farmer gets from cultivating the least fertile land. Hence, farmers who till more fertile land obtain an excess return. This excess goes to the landlords in the shape of rent.

There is no rent if land can be found in abundance relative to what the population needs. Equivalent to this is the condition that there is no rent if the law of diminishing returns does not hold because there is rent only if a additional dose of capital and labour produces a proportionally smaller return. (Ricardo, 49). As seen above, a farmer has to resort to less fertile land if the marginal product he gets from intensifying cultivation is less than what he can obtain from tilling under the least favourable conditions (Stigler, 151). One may not mistake diminishing marginal product for diminishing average product for that the latter implies the former but not vice versa (Blaug, 76). Another equivalent to the law of diminishing returns is that the ratio of rent and total product is decreasing (Stigler, 151).

When farmers have to cultivate less fertile land, the exchangeable value of their output rises because more labour is necessary to produce it. What regulates the value of corn is the amount of labour not the fact that landlords get rents. “Corn is not hight because rent is paid, but a rent is paid because corn is high.” (Ricardo, 50) This also shows that rent is not a component of price.

As a nation’s wealth increases, rent rises because it becomes harder to produce food for the expanding population. Thus the increase of rent is the effect of spreading wealth and not its

cause (Ricardo, 52). The other way around, if capital employed in agriculture is reduced which means that the population is shrinking, the last dose of capital and labour is more productive, therefore rent is lower. Another cause of a falling rent is when technological advances make agricultural production more efficient. Then it is possible to let idle the last plot of land in use (Ricardo, 53). But as a consequence, if there is less labour used, thus less labour is paid, profits increase. Rising profits then augment capital that in turn demands for more labour. Higher demand for labour causes wages to rise, the population increases and thus the demand for food. It is then when the field just abandoned has to be taken into cultivation again, but this ‘just’ can mean a long period of time.

Ricardo (54) distinguishes two kinds of agricultural improvements. Technological progress can make the land more productive, or advancing machinery requires less labour to obtain the same output. The first point is land saving whereas the second one is labour saving. As Stigler (153) mentions, the first improvement causes the marginal product curve of labour to shift upwards a constant amount. In other words, the last dose of labour yields a greater return than before.

The analysis so far considered rent as a share of output. It is not measured in exchangeable value. But a greater difficulty to cultivate land increases the output’s value and thus its exchangeable value. Ricardo (56) puts emphasis on the instance that then landlords benefit in two ways. First, rent increases, and secondly the good they receive as rent has increased in exchange value (Hollander, 22).

2.1.9 Natural and Market Price

(Ricardo, 61) remarks that commodities are not always exchanged in quantities as they ought to according to the rules described above. There are “accidental and temporary deviations” from the market price to the natural price. The natural price depends on the cost of production, wages plus profits, and the time necessary to bring the good to the market (Hollander, 23, Kaushil, 336-37). Relative values determined by the amount of labour embodied in production constitute natural prices. Deviations form the market price to the natural price happen because the supply of goods does not equal precisely the demand at all times. Price changes then affect the formation of capital. If they rise, profits increase and more capital flows in this industry and vice versa. Capitalists always get the urge to find an industry where they can invest their funds most profitable. This tendency then leads to an equalisation of the rate of profits across all industries. Ricardo (62) considers two groups of people who have funds available for investments. First, there are manufacturers who draw off some of their capitals in response to a price change. Only some because they do not leave business entirely. Secondly, there are people who live on lending money and thus earning interest on that. These funds together form a circulating capital. Ricardo conjectures that there are no manufacturers who do business without resorting to circulating capital. The amount of this additional capital is governed by the demand for his commodities. When demand is low, a manufacturer lays off some of his employees and also lowers his demand for circulating capital. It happens the other way around if a manufacturer faces an increasing demand for his goods. Then a movement of circulating capital takes place. It flows from the firm facing low demand to the firm facing high demand.

So far we assumed that rate of profits are equal among industries. But some capitalists

may be willing to forego some part of their profits if this allows them to rest easy. The employment of capital differs across industries, that is “security, cleanliness, ease, or any other real or fancied advantage which one employment may posses over another.” (Ricardo, 62) When the profit rate changes in one industry, it returns to its natural rate or profit rates across all industries change commensurately.

Ricardo (63) then goes on and examines a change in demand across two industries. An increase of demand in one industry and a fall of it in another industry causes the market price to rise in the former and to fall in the latter. Labour necessary for production has not changed thus relative values are unaltered. The rise of the market price in the one industry then brings about a rise in profits whereas in the other industry they fall. The change in profits induce manufacturers in the industry facing falling profits and lay off some workers and to cut down capital investments. Both input factors flow to the industry with higher demand. The increase for labour in that industry leads to a rise of the wage rate. As the higher demand disappears profits return to their natural rates.

Market prices also return to their natural prices. The transfer of less profitable businesses to more profitable businesses results in that the market price does not deviate from its natural price for a very long time. Competition then ensures that the “overplus”, value that is left after paying wages and replacing depreciation, will be “in proportion to the value of the capital employed.” (Ricardo, 63)

In the end Ricardo highlights that whenever he speaks about natural prices he refers to the exchangeable value of goods or to the purchasing power (Ricardo, 64).

The chapter shows an important difference between the natural and the market price. The market price is determined by demand and supply, the natural price is not. The analysis of value

did not pay attention to market prices. This was possible because Ricardo deemed deviations from the natural price as “temporary and accidental” and soon adjusted for by the means as described above. The laws that regulate natural prices are therefore independent of these variations and thus left out (Kaushil, 338, Ricardo, 64).

It looks peculiar to Kaushil (338) that Ricardo started his examination of value without first discussing the natural price. But this was possible since Smith (62-72) has already treated this matter sufficiently, and the chapter served merely as a supplementary justification for his concept of natural price used in the chapter on value.

2.2 Further Discussion And Remarks

2.2.1 Scope Of Ricardo’s Analysis

As mentioned shortly in the introduction, Ricardo’s aim was to know which class gets what from the pie owing to a change in relative values. In particular he was interested in the share that goes to the capitalists. In his days, the majority of his colleagues believed that the accumulation of capital is the main source of increasing wealth. The Classical economists wanted to find out about these mechanisms in order to provide policy makers with the necessary knowledge to adopt actions accordingly (Meek, 83-84, Sraffa, xlviii). That is why he was primarily concerned with changes in relative values, and not with how values are determined (Cassels, 44-46, Hollander, 23). To accomplish this mission, he had to prove the relationship between a change in exchangeable value and a change in the amount of labour necessary to produce the goods (Cassels, 46-47).

2.2.2 The Fundamental Assumption Reviewed

From the time of the first publication of Ricardo's work to the final edition it was subject to several changes. Most controversies centred around the question to which special cases the labour embodied theory can also be applied. In particular highly contended were the cases of different ratios of fixed and circulating capital, and of unequal periods of time where capital is used. Ricardo then modified his assumption and declared that not only the relative amounts of labour determine relative values but also "the greater length of time that which must elapse before the most valuable [good] can be brought to market." (Ricardo, 32, Hollander, 32-34) He suggested that all these exceptions could be reduced to one of time (Sraffa, xlv). However, he did not include this problem as part of the fundamental assumption, perhaps because he felt inapt to weave this fact into his theory (Hollander, 35, Sraffa, xxxix-xl). Ricardo's attempts to modify his assumption accompany his search for a more precise definition of an invariable measure of value (Sraffa, xli).

2.2.3 Law Of Distribution

One of Ricardo's big tasks was to show that rising wages mean lower profits and not necessarily higher prices (Hollander, 22, 25, 30). Stigler refers to this as the law of distribution. He focuses on the relationship between wages, profits, and rents. On page 157 he gives then a numerical example to demonstrate Ricardo's theorem. As the population increases, wages rise, and in order to cater for the population, farmers have to resort to less fertile land. As a consequences, landlords can claim interest on the most fertile land. Since more labourers are employed in agriculture, the prices of these products rise causing a higher wage bill and thus a lower rate of profit. That is what was to be demonstrated. But the proof depends on the choice of the invariable measure of

value. Meek (102-105) tackles the problem somewhat differently. Not taking rent into consideration, he moves on to exemplify that a change in wages owing to a change in the price of corn has no effect on the prices of commodities whatsoever. Only the profit wage ratio changes. On the contrary, goods produced with fixed capital fall greater in price than goods produced with a smaller fixed circulating capital ratio. As a byproduct, Ricardo saw that goods change in relative value even though no change in the production process had taken place (Meek, 105, Sraffa, xxxv). That is why Ricardo states on page 18 that the exchangeable value depends “almost exclusively” on the relative amounts of labour embodied (Sraffa, xxxix).

2.2.4 Separate Examination Of Rent

Ricardo’s fundamental assumption only depends on the relative costs of production. He treated the subject of rent separately in order to demonstrate that it has no influence on exchangeable value respectively plays no role when examining the distribution between capitalists and workers (Sraffa, xxiii). The approach worked by establishing a theory of differential rent.

3 Concluding Remarks

In the course of time Ricardo’s work was subject to many changes. Major ones concerned the question what exceptions to the fundamental assumption had to be accounted for. We saw that Ricardo was very aware of the fact that it is not only labour embodied in production that determines relative value but also the production time that plays a significant role. He knew also about the problems of his invariable measure of value. Until his last days of his life he was occupied with the question of absolute and relative value where he enhanced the concept of an

invariable measure seeking a perfect one. Finally Ricardo achieved to show that increasing wages mean falling profits and almost always rising constant prices. This is the solution to the principal problem of Political Economy, to know about the distribution of a nation’s income between classes.

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