

# Adam Smith's Causal Explanations of the Variations in the Value of Commodities in the Progress of Improvement: Rent Theory and Value Analysis (1)\*

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## 1. Introduction

According to recent studies, Adam Smith, in 'Digression concerning the Variations in the Value of Silver during the Course of the Four last Centuries' (hereafter, to be cited as 'Digression') in chapter 11 of book 1 of *An Inquiry into the Nature and Causes of the Wealth of Nations* (Smith 1976; 1776; hereafter, to be cited as WN), supposes the time of 1350 to his day in Great Britain as the period of the progress of improvement (in effect, the progress of economic development, the progress of social development). And Smith attempts to grasp the variations of the real value of silver during that period, using the labour-commanded measure as a real measure of value and the corn-commanded measure as a proxy for it. Smith also, traces the variations in the value of a variety of commodities, in addition to silver. From the analysis, Smith argues, for example, that the fall of the value of silver since the dis-

covery of the mines of America (Second Period; about 1570-about 1636 or 1640), has been owing to that discovery, not to the increase of the real wealth of Europe. Smith insists that the increase of the quantity of gold and silver in Europe has arisen from the accidental discovery of the mines, whereas on the other hand, the increase of the real wealth and the increase of manufactures and agriculture in Europe (the progress of improvement in Europe) have arisen from the fall of the feudal system, and from the establishment of a government which affords to industry, the only encouragement which it requires, i.e., some tolerable security so that it shall enjoy the fruits of its own labour. In Smith's thoughts, the notion which represents national wealth as consisting in the abundance, and national poverty in the scarcity of gold and silver, i.e., the notion which provides the basis for the mercantile policies, must be false. Through the above research, Smith also gets the results showing that the value of corn has been stable over every stage of improvement, the value of a group of commodities has moved upward, the value of a group of commodities has moved downward, and another group of commodities has moved without any correlation with the progress of improvement. Based on this analysis, Smith presents the idea that the degrees of increase or decrease of the value of commodities which have the correlation with the

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progress of improvement can be indexes of the progress of improvement (see Sylos-Labini 1976; O'Donnell 1990, chap. 5; Hueckel 2000a; Hueckel 2000b; Nakagawa 2016, app. II).

However, book 1, chapter 11 'Of the Rent of Land' is a part of Smith's discussion of income distribution. Why did Smith analyze the trends of variations in the real exchangeable value of a variety of commodities in the progress of improvement, assuming such political implications, in chapter 11 which treats a problem of the distribution, the rent of land?

In this paper, I will try to make clear why Smith did it. In the process, I will clarify some essential features of Smith's rent theory (secs. 2-5). Then I will also try to clarify the contents and nature of Smith's causal explanations of the variations in the value of commodities (sec. 6), and I will seek the way to understand Smith's causal explanations as a consistent argument of value theory (sec. 7).

As the space of this paper is limited, the implications of Smith's causal explanations will be discussed in my other paper. Are Smith's causal explanations in the above consistent with the arguments in chapters 5, 6, and 7 of book 1? Do those of Smith's discussions have any connection to Ricardo's and Malthus's? There, I will discuss them.

## 2. Why does 'Digression' exist in Chapter 11?

In chapters 8, 9, and 11, Smith approaches the problems of the distribution, basically, in relation with the riches or poverty of the society, the advancing, stationary, or declining condition of the society, and, especially, the advancement and the progress of improvement of the society,

as stated at the end of chapter 7 (WN I.vii.33).

However, when Smith lists the themes which he will treat in chapters 8, 9, and 11, at the end of chapter 7 (WN I.vii.34-37), there is a difference in the manner to describe the contents of themes between chapters 8, 9 and chapter 11.

Although Smith says that in chapters 8, 9, and 11 he will explain what circumstances regulate the wage rate, the profit rate, and the rate of land rent, he also promises, in the cases of chapters 8 and 9, to explain in what manner those circumstances are affected by the riches or poverty, and the advancing, stationary, or declining state of the society. On the other hand, in the case of chapter 11, Smith does not mention the likes of the variations in the state of the society. Instead, he promises to show what are the circumstances which either raise or lower the real price of all the different substances which are produced by the land.

Why does Smith have to show them in chapter 11, which treats a problem of the distribution, the rent of land?

Why does 'Digression' exist there?

The key to solving those problems is in Smith's idea of the origin of the land rent in chapter 11.

In Smith's explanation of the origin of the land rent, first, the price (real price) of the produce of land is determined by some factors, and when that price surpasses the amount sufficient to recover the stock which was invested into the production with the ordinary profit, the surplus becomes the rent, under the free competition.

Therefore, if we want to know the amount of rent, and its variations affected by the progress of improvement of the country or the area, we must know, first, the price of the land's produce,

and its variations.

'Digression' which occupies a large part of chapter 11, treats the price of the land's produce, assuming the above task. And, the next section, 'Effects of the Progress of Improvement upon the real Price of Manufactures' (hereafter, to be cited as 'Effects') treats the price of the manufactured goods as a different range of goods from the land's produce.

In the examinations of the price (real price, real value, real exchangeable value<sup>1)</sup>) of the produce, and its variations, Smith takes up, first, silver as the subject.

There, Smith uses the labour-commanded measure as a real measure, and the corn-commanded measure as a proxy for it<sup>2)</sup>. He begins the discussion with tracing the 'Variations in the Value of Silver during the Course of the Four last Centuries', then proceeds to 'Variations in the Proportion between the respective Values of Gold and Silver', and 'Grounds of the Suspicion that the Value of Silver still continues to decrease'. In this context, Smith explains, for example, the fall of the value of silver in 'Second Period' (about 1570-about 1636 or 1640) as being caused by the increase in silver supply due to the discovery of the mines of America, which is larger than the increase in silver demand due to the progress of improvement (see 6.1 of sec. 6 and n. 3).

Then, Smith proceeds to 'Different Effects of the Progress of Improvement upon the real Price of three different Sorts of rude Produce', and he investigates the subject in the order of 'First Sort' (the rude produce which it is scarce in the power of human industry to multiply), 'Second Sort' (the rude produce which human industry can multiply in proportion to the demand), and 'Third Sort' (the rude produce in

which the efficiency of human industry, in augmenting the quantity, is either limited or uncertain). Through the investigation, Smith makes some points clear. For example, he makes clear that the variations in the real price (real exchangeable value) of the first two sorts of rude produce can have the correlation with the progress of improvement and can provide the indexes of the progress of improvement. Also, he makes clear that the discovery of new mines or the exhaustion of old mines which supply the precious metals as a kind of the third sort of rude produce, the increase or decrease of the supply of precious metals because of the above conditions, and the decrease or increase of the value of precious metals because of it, all have no correlation with the progress of improvement, and have almost no significance to it.

Based on the preceding arguments, Smith, in next 'Conclusion of the Digression concerning the Variations in the Value of Silver', makes criticisms against the mercantilism which were mentioned in the introduction of this paper. And, Smith confirms, for example, that the variations over time in the real exchangeable value of the particular goods measured in labour-commanded or corn-commanded (the money price of the particular goods to the money price of corn, in that sense, the ratio of prices, relative price) have the correlation with the progress of improvement, and these variations can provide the indexes of the progress of improvement. He also confirms that the variations over time in the real exchangeable value of gold, silver, and precious metals measured in labour-commanded or in corn-commanded do not necessarily correspond to the progress of improvement (WN I.xi.n.1-11; see, also, Nakagawa 2016, pp. 620-25, 669-70).

Smith, in next 'Effects', treats the manufactured goods, as a different range of goods from the land's produce. Smith thinks that the progress of improvement will generally reduce the real price (the real exchangeable value) of manufactured goods, and he tries to explain it (and in next 'Conclusion of the Chapter', Smith uses this argument to make a claim that the declining of the real price of manufactured goods will increase the real purchasing power of the rent, and increase the wealth of the landowners, in the indirect way of the increasing the purchasing power over the manufactured goods of the rude produce owned by landowners. WN I.xi.p.4).

In the case of Smith, first, the price (real price) of the land's produce is determined by some factors, and when that price surpasses the amount sufficient to recover the stock which was invested into the production with the ordinary profit, the surplus will be the rent of land. Therefore, if we want to know the amount of rent, and its variations affected by the progress of improvement of the country or the area, we must know, first, the price of the land's produce, and its variations. Smith discusses the price of the land's produce in 'Digression' to satisfy this necessity. Smith also discusses the price of the manufactured goods, as a different range of goods from the land's produce, in next 'Effects'. Smith thinks that he can, now, return to the main issue, 'Of the Rent of Land', on the ground of the above discussions. He then proceeds to 'Conclusion of the Chapter' of chapter 11.

### 3. 'Conclusion of the Chapter' of Chapter 11

According to Smith's arguments, in the following case: [the ordinary price of the produce] =

[the amount of stock required per unit of produce + the amount of profit at the ordinary rate per unit of produce], the stock owner has an incentive to produce and supply the produce, only at the zero rent. Securing both the recovery of the amount of stock required at the zero rent and the profit at ordinary rate is the minimum requirement for the continual production and supply. The produce of which the left side of the above equation is always larger than the right side, always provides rent, and the produce of which the left side is sometimes larger than the right side, sometimes provides rent.

Therefore, the factors which bring about the increase of rent are, on one hand, the increase of price of the produce, and, on the other hand, the decrease of the amount of stock required plus the amount of profit at the ordinary rate per unit of produce. Even in the case where the price of the produce declines, the rent can exist, if the amount of stock required plus the amount of profit at the ordinary rate per unit of produce can decline at a larger rate than the price of the produce. The land rent can grow through the development, i.e., the progress of improvement of the country including the population growth.

In some parts of chapter 11, preceding 'Digression', Smith mentions that the rent of land varies with its fertility and its location, and with the original expense of improvement (WN I. xi.b.3-5, 24-28), but one of the main issues of chapter 11 is the rent under the progress of improvement in a country or an area. In the country or area which is under the progress of improvement, differing from the original rude state, there is abundant food (which always provides rent) because of the improvement and the expansion of cultivation, and the abundant

food has the sequence as following: the increase of food → the growth of population → the increase of the demand for food, the increase in the price of food, and the increase of the demand for a large part of land's produce other than food (which sometimes can and cannot provide rent) and the increase in their price. As a result, not only the food, but also a large part of other sorts of land's produce can provide rent (see WN I. xi.c.1-3, d.1).

In effect, based on the above reasoning, Smith writes in 'Conclusion of the Chapter', 'The whole annual produce of the land and labour of every country, or what comes to the same thing, the whole price of that annual produce, naturally divides itself, it has already been observed, into three parts; the rent of land, the wages of labour, and the profits of stock; and constitutes a revenue to three different orders of people; to those who live by rent, to those who live by wages, and to those who live by profit. These are the three great, original and constituent orders of every civilized society, from whose revenue that of every other order is ultimately derived' (WN I.xi.p.7).

In this 'Conclusion', Smith also develops his other arguments, on the grounds of the results of investigations into the prices (real prices) of products under the progress of improvement, i.e., the investigations which were made in 'Digression' and 'Effects' (see WN I.xi.p.1-10).

For example, Smith points out that the rate of rent changes with an advantageous manner to it, and the proportion of the share of rent income to the whole income of the society increases, in the progress of improvement.

Smith also observes that in addition to the rate of rent, wage rate also has a positive correla-

tion with the progress of improvement: The wage rate is at the highest level when the wealth of the society is advancing, in which the demand for labour, and the level of employment are increasing — the capital accumulation (= labour demand↑) which is faster than the growth of population (= labour supply↑), can make wage rate increase —. When the wealth of the society is stationary, the wage rate is at the subsistence level, including the cost to maintain the family, and, when the wealth of the society declines, the wage rate falls even below the subsistence level.

On the other hand, the profit rate, Smith thinks, has a negative correlation with the progress of improvement: The profit rate falls because of the intensified competition among stock owners, i.e., capitalists (see WN I.ix.2).

Then, he claims that the interest of landowners and labourers is the same with that of the society, and the interest of stock owners is not the same with that of the public.

#### **4. The Rent as an Effect of the Price and the Determinants of the Price**

In some parts of chapter 11, preceding 'Digression', Smith discusses the price of the produce of land which explains the origin of the rent of land. One of the characteristics of his discussions is that he tends to treat the problem rather in relation to the supply and demand for the land's produce.

In the context of the explanation of the origin of the land rent, Smith says that high or low wages and profit are the causes of high or low price, but high or low rent is the effect of high or low price (WN I.xi.a.8). In his case, if the price (real price) of the land's produce surpasses the amount suf-

ficient to recover the stock which was invested into the production with the ordinary profit, the surplus becomes the land rent. And whether the price surpasses that amount or not, depends on the demand for the produce. In effect, here, the causal explanations of the price of the land's produce are not given only in terms of the quantity of labour-input required for the production of the produce, but also not in terms of the total sum of amounts of wages, profit, and rent required for the production. The idea of high or low wages and profit as the causes of high or low price can be understood as meaning that high or low wages and profit affect the price through affecting the supply condition, rather than a cost-of-production theory of price. In effect, here, it is Smith's thought that the price of the land's produce is determined by supply and demand for the produce, and the surplus which is calculated by deducting the amount sufficient to recover the stock with the ordinary profit per unit of the produce from the price of the produce, becomes the rent.

In Smith's discussion, in effect, what supports the production and supply is the demand with the actual purchasing power, and the condition for the continual production is that the ordinary price of the produce is high enough to recover the stock which is required to produce and bring it to the market with the ordinary profit. Unless the continually realized price is high enough to cover the cost payments from stock (capital) per unit of produce and to realize the profit at ordinary rate, the stock owner has no incentive to produce and supply it. In the case where a commodity, under the cost composition which does not include the rent as a cost item — the cost composition which, for the stock

owner, includes the wage cost at the ordinary rate to be paid to workers employed, but, does not include the rent cost —, has an ordinary price which is just enough to cover the cost and to realize the profit at ordinary rate, the stock owner has the incentive to produce and supply the commodity using the land of zero rent. When the demand for the commodity is increased by, for example, the population growth, the expansion of the scale of economy, and so on, it then becomes impossible to properly supply the commodity using only the land of zero rent, and the ordinary price of the commodity increases so that the stock owner can cover the cost composition which includes not only wage cost but also rent cost, getting the profit at the ordinary rate, the stock owner has the incentive to produce and supply the commodity using the land which claims the rent. As long as this situation continues, the commodity can provide the rent to the landowner, and the produce of land which always realizes this situation is 'the produce of land which always affords rent' (food). The produce of land which sometimes does, and sometimes does not, realize this situation is 'the produce of land which sometimes does, and sometimes does not, afford rent' (for example, the materials of clothing and lodging, the fossils and minerals contained in the bowels of the earth, the precious metals, and the precious stones) (see WN I. xi.b-c).

As to the ordinary rate or the natural rate of rent, after mentioning the ordinary or average rates of both wages and profit in the first paragraph of chapter 7 of book 1, Smith says, in the second paragraph, 'There is ... in every society or neighbourhood an ordinary or average rate of rent, which is regulated ... partly by the general

circumstances of the society or neighbourhood in which the land is situated, and partly by the natural or improved fertility of the land', and in third paragraph, 'These ordinary or average rates may be called the natural rates of wages, profit, and rent, at the time and place in which they commonly prevail' (WN I.vii.1-3). Afterward, in part I of chapter 11, Smith, as referred in section 3, remarks that the land rent varies with its fertility and situation (location) (WN I.xi.b.4), and also points out that although there are products which require a greater original expense of improvement of land, and can provide a greater rent, such a superiority in the rent will seldom be found to amount to more than a reasonable interest or compensation for this expense (WN I.xi.b.24-28).

In the case of Smith, when the price of the produce of land is higher than the price which covers, under the zero rent, the cost of production including wage cost, with the profit at ordinary rate (at natural rate), a rent occurs in the land. The ordinary rate or the natural rate of rent itself is also regulated partly by the general circumstances of the society or neighbourhood in which the land is situated, and partly by the natural or improved fertility of the land. Also, the rent of land varies with its situation and fertility.

As to food, i.e., the produce of land which always provides rent, Smith says, 'As men, like all other animals, naturally multiply in proportion to the means of their subsistence, food is always ... in demand', and 'land, in almost any situation, produces a greater quantity of food than what is sufficient to maintain all the labour necessary for bringing it to market, in the most liberal way in which that labour is ever maintained. The surplus too is always more than sufficient to replace the stock which employed that labour, together with

its profits. Something, therefore, always remains for a rent to the landlord' (WN I.xi.b.1-2).

As to the materials of clothing and lodging, i.e., the produce of land which sometimes does, and sometimes does not, provide rent, Smith presents the following ideas. Land in its original rude state can afford the materials of clothing and lodging to a much greater number of people than it can feed. Therefore, there is always a super-abundance of those materials, which are frequently, upon that account, of little or no value. In this state a greater part of them is thrown away as useless, and the price of what is used is considered as equal only to the labour and expense of fitting it for use, and can, therefore, afford no rent to the landlord. On the other hand, the land in its improved state can sometimes feed a greater number of people than it can supply with those materials. In this state there is often a scarcity, which inevitably augments their value. Those materials are all made use of, and there is frequently a demand for more than can be had. There, their price increases to the level which exceeds what is enough to pay the expense of bringing them to the market. Their price, therefore, can always provide some rent to the landlord (WN I.xi.c.3).

In the above discussions, the determination of the value (price) itself is treated in the perspective of the supply-demand relations. And, according to them, in the improved state of society, the value of the land's produce can generally provide rent.



## 5. The Progress of Improvement, and, the respective Values of that Sort of Produce which always affords Rent and of that which sometimes affords Rent, and the Value of Silver

In Smith's discussion, the value of food (the produce of land which always provides rent) tends to increase with the increasing improvement and cultivation, being supported by the further increase of demand for it. Also, the increasing abundance of food increases the demand for every part of the produce of land which is not food, and which can be applied to use or to ornament (the land's produce which sometimes does, and does not, provide rent; the materials of clothing and lodging, the useful fossil and minerals of the earth, the precious metals and precious stones), and raises the value of that part of produce in comparison with the value of food (WN I.xi.d.1).

However, in Smith's discussion, for example, the value of silver (the precious metals and precious stones), a sort of land's produce which is not food, and which can be applied to use or to ornament, does not necessarily vary in corresponding with the increasing improvement and cultivation, i.e., the progress of improvement.

Differing from other products of which the main market is the area where they are produced, the market for silver may extend over the whole known world. Therefore, the increase of demand for silver becomes possible through the improvement and population growth of the whole known world rather than those of the area. Even if the demand for silver increase through the improvement and population growth of the whole known world, the supply condition of silver itself varies

through, for example, the discovery of abundant silver mines which has no direct relation to the improvement and population growth. As a result, the variations in the value of silver do not necessarily have correspondence with the improvement and population growth of a particular area, nor with those of the whole known world (WN I.xi.d.2).

However, we can say that in both cases of silver and other produce of land, the determination of the variations of their value (price) itself is treated in the perspective of the supply-demand relations.

As we have seen, according to Smith's arguments, 'the progress of improvement' causes, for example, the increase of the demand for commodities through the population growth, the increase of income, and so on, and the increase of the demand for commodities tends to increase the ordinary prices (ordinary real exchangeable values) of commodities. On the other hand, the production (supply) is adjusted to the demand. In the process of 'the progress of improvement', the ordinary rate of wages tends to increase through the accumulation of stock (capital accumulation). However, by the increase of labour productivity which surpasses the increase in wages, the wage cost per unit of commodity might decrease, and so might the amount of the stock which is needed per unit of commodity. Also, the ordinary rate of profit tends to decline in the process of 'the progress of improvement' because of the intensified competition among stock owners. The decrease of the amount of the stock which is needed per unit of commodity and the decline of profit rate might decrease the amount of profit at ordinary rate per unit of commodity. These conditions tend to increase the rent as a



surplus which is the remainder after deducting the amount sufficient to recover the stock needed per unit of commodity with the ordinary profit from the ordinary price of the commodity.

Even in the case where the ordinary price of the commodity tends to decrease in the process of 'the progress of improvement', if the decrease in the sum of the amount of stock required plus the amount of profit at the ordinary rate per unit of commodity surpasses the decrease in the ordinary price of the commodity, the increase of rent is possible.

Smith writes in chapter 8, which treats wages, 'this original state of things, in which the labourer enjoyed the whole produce of his own labour, could not last beyond the first introduction of the appropriation of land and the accumulation of stock. It was at an end, therefore, long before the most considerable improvements were made in the productive powers of labour, and it would be to no purpose to trace farther what might have been its effects upon the recompence or wages of labour' (WN I.viii.5).

Smith's interest is not in the 'original state of things', but in the civilized society where the progress of improvement proceeds. There, the produce of land generally provides rent. Rent is established as a fundamental category of incomes, together with wages and profit. However, rent is not a cause of the price of produce, but it occurs as an effect of the price of produce.

## **6. The Progress of Improvement and the Prices of Commodities**

According to Smith, the produce of land in the civilized society generally provides rent, and the rent itself occurs as an effect of the price of produce. Therefore, for the consideration of the

variations in rent in the civilized society, in which the progress of improvement proceeds, the identification of the variations in the prices of products becomes an important element of the investigation.

In chapter 11 of book 1, and also in some other chapters, Smith seeks to explain the trends of the variations in the prices of products.

In treating Smith's arguments there, we take up, first, his discussion relating to the real value (real price) of silver.

### **6.1 In the Case of Silver**

In Smith's discussion, the price of precious metals is fixed by supply and demand for them, and their price can rise according to the scarcity of them, without any effect from the prices of other products (the prices of substitutional goods). On the other hand, their lowest price (the lowest ordinary price sustainable during some considerable time) is the price which is sufficient to replace the stock which must commonly be employed, i.e., the food, clothes and lodging which must commonly be consumed in bringing them from the mine to the market, with the ordinary profits (WN I.xi.c.29-30).

Now, in the case of silver, as we saw in section 5, the market for silver may extend over the whole known world. Therefore, the increase of demand for silver becomes possible through the improvement and population growth of the whole known world rather than those of the area where silver is produced. Even if the demand for silver increases through the improvement and population growth of the whole known world, the supply condition of silver itself varies through, for example, the discovery of abundant silver mines which has no direct relation to the improvement and

population growth (for example, 'Even though the world in general were improving, yet, if, in the course of its improvement new mines should be discovered, much more fertile than any which had been known before, though the demand for silver would necessarily increase, yet the supply might increase in so much a greater proportion, that the real price of that metal might gradually fall; that is, any given quantity, a pound weight of it, for example, might gradually purchase or command a smaller and a smaller quantity of labour, or exchange for a smaller and a smaller quantity of corn, the principal part of the subsistence of the labourer'. WN I.xi.d.2). Therefore, the variations in the value of silver do not necessarily have the correspondence with the improvement and population growth of a particular area, nor with those of the whole known world.

The value (price) of silver itself, Smith thinks, does not necessarily vary in corresponding with the increasing improvement and cultivation, and, the long-run variations in the real exchangeable value (real price) of silver cannot necessarily correspond to the progress of improvement of an area concerned. Therefore, the long-run variations in the real exchangeable value of silver are not able to be the index of the progress of improvement of the area.

In discussing the long-run variations in the real exchangeable value of silver, Smith treats them in the perspective of the increase of demand and the increase of supply, in part III of chapter 11. Smith's remark cited above is from there.

Smith continues the argument in the same way.

The great market for silver, Smith argues, is the commercial and civilized part of the world. If, by the general progress of improvement, the

demand in this market increases, while the supply does not increase in the same proportion, the value of silver will rise in comparison with the value of corn (the rise of the corn-command of silver; the fall of the money price of corn). If, by some accident, the supply increases in a greater proportion than the demand, the value of silver will fall in comparison with the value of corn, despite all improvements. If the supply increases at nearly in a same proportion as the demand, the value of silver will continue to be nearly the same in comparison with the value of corn, despite all improvements. Then, Smith says, 'These three seem to exhaust all the possible combinations of events which can happen in the progress of improvement; and during the course of the four centuries preceding the present, if we may judge by what has happened both in France and Great Britain, each of those three different combinations seem to have taken place in the European market, and nearly in the same order too in which I have here set them down' (WN I.xi.d.3-7).

Smith, in next 'Digression', points out that the real exchangeable value (command over labour; command over corn) of silver has risen in 'First Period' (about 1350-about 1570), has fallen in 'Second Period' (about 1570 - about 1636 or 1640), and has risen somewhat in 'Third Period' (about 1636 or 1640 to Smith's day). Smith thinks that the development of economy, the progress of improvement has caused the increase of the demand for silver. And, he reasons, for example, that the rise of the value of silver in 'First Period' has been caused by the increase of the demand for silver due to the progress of improvement and the decrease of the supply of silver due to the exhaustion of the mines which

then supplied the European market with silver (WN I.xi.e.14). He attributes the fall of the value of silver in 'Second Period' to the increase in silver supply due to the discovery of the mines of America, which is larger than the increase in silver demand due to the progress of improvement (WN I.xi.f.2-5). And, as to 'Third Period', he observes that the effect of the discovery of the abundant mines of America in reducing the value of silver, appears to have been completed, between 1630 and 1640, or about 1636 (WN I.xi.g.1)<sup>3</sup>.

Then, in the next section of 'Digression', 'Variations in the Proportion between the respective Values of Gold and Silver', Smith points out that after the discovery of the mines of America, gold and silver had sunk in their real value (command over labour; command over corn), but silver had sunk more than gold, and he says, 'Though both the gold and silver mines of America exceeded in fertility all those which had ever been known before, the fertility of the silver mines had, it seems, been proportionably still greater than that of gold ones' (WN I.xi.h.1).

However, also in chapter 5, for example, although Smith mentions the discovery of the abundant mines of America, in this case, he means, in effect, to explain the fall of the value of gold and silver, as 'it cost less labour to bring those metals from the mine to the market' (i.e., the reduction of the quantity of labour required to bring those metals from the mine to the market) due to the discovery of the abundant mines (WN I.v.7), rather than the fall of the value of gold and silver because of the higher rate of the increase in supply than the rate of the increase in demand (see, also, WN I.v.16).

Also, in chapter 2 of book 2, for example,

although Smith mentions the richness or poverty of the mines, he writes it in relation to the more or less quantity of labour required to bring gold and silver from the mine to the market. And, he says, 'The proportion between the value of gold and silver and that of goods of any other kind ... depends upon the proportion between the quantity of labour which is necessary in order to bring a certain quantity of gold and silver to market, and that which is necessary in order to bring thither a certain quantity of any other sort of good' (WN II.ii.105).

However, as an element which explains the fall of the value of gold and silver, the increase in supply of gold and silver at a less quantity of labour input per unit of them because of the discovery of abundant mines, might be conceivable.

## 6.2 In the Case of other Products

In addition to silver, Smith seeks to explain the trends of the variations in the real exchangeable value (real price) of a variety of products in the progress of improvement.

Smith, for example, makes a comparison between the price fall of the manufactured products and that of agricultural products as effects of the development of the division of labour, in chapter 1 of book 1 (WN I.i.4), also, he refers to the price fall of garden stuff (vegetable food) as a result of the agricultural improvements, in chapter 8 (WN I.viii.35).

It is too difficult to deal with the full range of Smith's discussion in the limited space of this paper. In Nakagawa 2016, I reconstructed, in a concise form, Smith's analysis relating to the long-run trends of the variations in the value (price) of a variety of products in the process of

the progress of improvement. In this part, I use the result of the above reconstruction which was formed with the essential parts of Smith's discussion (see Nakagawa 2016, pp. 697-99. For details, see Nakagawa 2016, sec. IV of app. II).

Though, as to some products, there are some overlaps, they are treated as so in Smith's discussion.

(1) Real Exchangeable Value (Real Price) of Corn

[Long-run Trend]: Stays stable in every stage of improvement

[Causal Explanation]: (a) The supply of corn can correspond to the changes in the demand through the changes in the human industry.

(b) The increase of the productive power of labour, in the same soil and climate, is counter-balanced by the increasing price of cattle, i.e., the principal instrument of agriculture, and in that sense, the quantity of labour-input per unit of product can be regarded as stable (in the perspective of the cost, this case is identical with the case of the stable quantity of labour-input per unit of product) (WN I.xi.e.28).

\* As corn is the principal part of subsistence of the labourer, the command of corn over labour is, in the long-run, stable, and, as corn is the subsistence of the labourer, the money price of labour (money wage rate), in the long-run, corresponds to the money price of corn, therefore, the command of corn over labour is, in the long-run, stable. This means that the real exchangeable value of corn is stable in the progress of improvement (WN I.v.15-22, xi.e.29).

(2) Real Exchangeable Value of Wild-birds and Wild-animals; the greater part of rare and singular Birds and Fish, many different sorts

of Game, almost all Wild-fowl, all Birds of Passage in particular

[Long-run Trend]: Rises to any degree of extravagance, and seems not to be limited by any certain boundary

[Causal Explanation]: (a) It is scarce in the power of human industry to multiply. (b) The growth of wealth and luxury which accompanies the progress of improvement, increases the demand. Therefore, the competition to purchase them continually increases their price (WN I.xi.k.1).

(3) Real Exchangeable Value of Livestock and Poultry, Deer; Cattle and Butcher's-meat, Hogs, Dairy Product, Deer and Venison

[Long-run Trend]: Rises in the progress of improvement but has a certain higher limit

[Causal Explanation]: (a) Human industry can multiply in proportion to the demand, but, in uncultivated countries, nature produces with such profuse abundance, that they are of little or no value (an explanation by the supply-demand). (b) Therefore, as cultivation advances, they are forced to give place to some more profitable produce. As a result, (c) during a long period in the progress of improvement, the quantity is continually diminishing (a decrease of supply), while at the same time the demand for them is continually increasing. Therefore, (d) their real value gradually rises. (e) At last (under the increase of production cost) it gets so high as to render them as profitable a produce as anything else (corn) which human industry can raise upon the most fertile and best cultivated land. Then (f) if it has got a higher level than that, more land and more industry would soon be employed to increase their quantity (an increase of supply).

Therefore, (g) when their real value has reached that level, it cannot go any higher (WN I.xi.l.1-2).

- (4) Real Exchangeable Value of Wool and Hide; Fish; Minerals and Metals (Precious Metals particularly)

[Long-run Trend]: Tends to rise in the progress of improvement, but does not necessarily correspond with it

[Causal Explanation]: (a) Different accidents happen to render the efforts of human industry more or less successful in augmenting the quantity. Therefore, (b) the efficiency of human industry, in augmenting the quantity (i.e., in increasing the supply), is either limited or uncertain (WN I.xi.m.1).

\*As to wool and hide, as the market for them extends to the whole commercial world, the variations in the real exchangeable value of them necessarily do not correspond with the progress of improvement of any particular country or area (WN I.xi.m.7).

\*As to fish, as the quantity of fish that is brought to the market depends heavily on the geographical conditions of fishing grounds of the country or area concerned, the variations in the real exchangeable value of fish do not necessarily correspond with the progress of improvement of any country or area (WN I.xi.m.15-16).

\*As to minerals and metals (precious metals particularly), as long as the output of them depends on the fertility or barrenness of mines, the discovery of new mines, and the exhaustion of old mines, the variations in the real exchangeable value of them have no necessary connection with the state of industry, or the progress of improvement of any country or area and that

of the world in general (WN I.xi.m.17-21).

<Animal Food, Vegetable Food, and Manufactures>

- (5) Real Exchangeable Value of Animal food

[Long-run Trend]: Tends to rise in the progress of improvement

[Causal Explanation]: (a) The real exchangeable value of animal food increases, then its supply also increases, in the same manner as in the above case (3). As a result, (b) a great part of the land which produces it, is rendered fit for producing corn. Therefore, (c) the price of animal food must provide the rent and profit of corn-land (the rent itself is the effect of the price, not the cause of the price) (WN I.xi.n.10).

- (6) Real Exchangeable Value of Vegetable Food

[Long-run Trend]: Tends to fall in the progress of improvement

[Causal Explanation]: (a) By increasing the fertility of the land, the supply (output) increases. (b) The improvements of agriculture introduce many sorts of vegetable food, requiring less land and not more labour than corn, so, coming much cheaper to the market (reduction in the production cost per unit of product). (c) The improvements of agriculture introduce new more efficient technology in the cultivation (reduction in the production cost per unit of product) (WN I.xi.n.10).

- (7) Real Exchangeable Value of Manufactures

[Long-run Trend]: Tends to fall generally in the progress of improvement (In all cases in which the real price of the rude materials either does not rise very much, or at all, that of the manufactured commodity sinks very considerably.)

[Causal Explanation]: (a) By the improvements in manufacturing, the quantity of labour-input required per unit of product is reduced. (b)

Though, in consequence of the flourishing circumstances of the society, the real price of labour rises, yet the diminution of the quantity generally much more than compensates the rise which can happen in the price (the reduction of the production cost by the reduction of wage-cost) (WN I.xi.o.1-3).

According to Smith's argument, if we measure the real exchangeable value (real price) by the command over labour or the command over corn, and, if the real exchangeable value of a commodity which tends to move upward in the progress of improvement, is actually moving upward, while the real exchangeable value of a commodity which tends to move downward, is actually moving downward, these moves indicate the country or area concerned is in the process of the progress of improvement. The variations of the real exchangeable value of those commodities can give the indexes of the progress of improvement.

And, we can say that Smith's causal explanations of the determination of commodities' values and the changes of commodities' values which we have seen above are generally carried out in terms of the supply and demand relations.

However, at the same time, one of the characteristics of Smith's analysis is that in his explanations, he uses the factors which could be linked, if we say from today's viewpoint, for example, to, so-called, the supply-demand theory of value, the cost-of-production theory of value, or the labour-input theory of value (the labour-embodied theory of value).

## 7. The Explanation of the Variations in the Real Exchangeable Value of Commodities from the Perspective of the Changes in the Long-run Supply and Demand Relations: Supply Function and Demand Function

In his discussions on the rent as an effect of the price of the produce of land and the determinants of the price, also in his discussions on the respective prices of that sort of produce which can always provide rent, and of that which sometimes can provide rent, and the value of silver, in the relation to the progress of improvement, Smith tends to explain the determination of the price of the land's produce in terms of the supply and demand relations (see secs. 4, 5). Also, Smith discusses the progress of improvement and the prices of commodities, along with the long run variations in the real exchangeable value of a variety of commodities. In the discussion, Smith uses the command over labour as the real measure, and the command over corn as the proxy for labour measure. And the explanations which he gives there are basically in terms of long run changes in the supply and demand relations (see sec. 6).

In Smith's discussion given there, the production (the supply) of commodity is organized in the manner to adapt to the demand for the commodity, and, the level of real exchangeable value of the commodity is regulated by the long run supply and demand relation. Also, the long run variations in the real exchangeable value of commodity are explained by the elements which affect the long run demand and supply.

At the same time, one of the characteristics of Smith's discussion is that in his explanations,

he uses the factors which could be linked to, for example, if we say from today's viewpoint, the supply-demand theory of value, the cost-of-production theory of value, or the labour-input theory of value (the labour-embodied theory of value). In this sense, Smith's discussion, as such, has aspects which might puzzle readers from the viewpoint of the above three theories of value. His causal explanations might seem confusing and inconsistent.

However, this issue might be the matter in which later generations are interested. Smith himself does not seem to see any inconsistency in his discussion. He analyzes the changes of the real exchangeable value (real price) of various commodities, freely using concepts which might imply the supply-demand theory of value, the cost-of-production theory of value, or the labour-input theory of value. He seeks to causally explain the changes of the real exchangeable value of commodities by the changes in population, income, production cost, necessary labour-input and so on which could have effects on the supply and demand for those commodities.

For example, the price theory in the modern microeconomics is a kind of the supply-demand theory of value. In that theory, for example, the regulations of the (short run) commodity price in the competitive markets are explained in the following manner:

We include, for example, the price of the commodity concerned, the prices of other commodities, the income of the consumer, the taste of the consumer and so on, as independent variables, in the individual consumer's demand function. We also analyze the consumer behavior in seeking the maximization of utility. Then, we derive the individual consumer's demand curve

which shows the relation between the changes of the commodity's price, and the changes of the commodity's quantity demanded *ceteris paribus*. Next, we derive the demand curve of the market by adding up all demand curves of individual consumers who participate in the market.

On the other hand, we include, for example, the price of the commodity concerned, the input-output relation in the production of the commodity concerned, the prices of production factors and so on, as independent variables, in the individual firm's supply function. We also analyze the firm behavior in seeking the maximization of profit. Then, we derive the individual firm's supply curve which shows the relation between the changes of the commodity's price, and the changes of the commodity's quantity supplied *ceteris paribus*. Next, we derive the supply curve of the market by adding up all supply curves of individual firms which participate in the market.

Then, we can explain the regulation of the commodity's price by the demand curve and the supply curve of the market. The changes of independent variables in the individual consumer's demand function, except the changes of the price of the commodity concerned, are reflected in the changes of the shape or the shifts of the consumer's demand curve. The changes of independent variables in the individual firm's supply function, except the changes of the price of the commodity concerned, are reflected in the changes of the shape or the shifts of the firm's supply curve. These changes in consumer side and in firm side, along with the changes in the numbers of consumers and firms which participate in the market and so on, are reflected in the changes of the shapes or the shifts of both the demand and supply curves of the market. These



changes of the shapes or the shifts of the demand and the supply curves of the market explain the changes of the commodity's price.

When Smith, in book 1, chapter 11, seeks to causally explain the changes of the real exchangeable value (real price) of particular commodities, he might have, in effect, an idea something similar to the market demand functions and the market supply functions of commodities. He might attempt to explain the changes of the real exchangeable value of commodities in the long run by the changes in independent variables, which are contained in the functions and are suitable to explain the price changes. If this is the case, Smith's argument might take the position of a predecessor of the price theory in the modern economics.

In Smith's discussion, the condition for the continual production is that the ordinary price of the produce is high enough to recover the stock which is required to produce and bring the commodity to the market with the ordinary profit. Unless the continually realized price is high enough to cover the cost payments from stock (capital) per unit of produce, and to realize the profit at ordinary rate, the stock owner (the capitalist) has not any incentive to produce and supply the produce (see sec. 4). These ideas have some parallel elements to the ideas of the break-even point, and the plant closure point on the firm's short run goods supply curve.

It was necessary to make clear the price of the land's produce and its variations, in order to consider the origin of rent, the amount of rent, and its variations affected by the advancement of the society, or the progress of improvement of the country or the area. In this context, Smith, in book 1, chapter 11, discussed the variations in

the real exchangeable value (real price) of commodities in the long span of time. Among its main purposes was to clarify the relation between the progress of improvement and the long run trends of the variations in the real exchangeable value of particular commodities (see sec. 2). The background of his analysis is Europe having realized the progress of improvement for a long time, especially Britain. The progress of improvement increases the demand for commodities in the market through the long run population growth, the increase of income and so on (the supposed commodities are, in effect, superior goods). On the other hand, the supply of commodities is organized to adapt to the increasing demand. There are some kinds of commodities of which production costs per unit decrease because of the changes of the production conditions, for example, the increase of labour productivity, innovation, or the decrease of labour-input required per unit of product. Producers (Capitalists) continue production as long as the real exchangeable value of their products is not lower than the lowest price which is determined by the sum of the production costs including the wages at ordinary rate, and the profits at ordinary rate (the ordinary rates of wages and profit themselves are variable in the long span of time like the progress of improvement). In the long run, if other things remain the same, the real exchangeable value of their products which is compared with the lowest price, will rise when the increase in supply is less than the increase in demand, will fall when the increase in supply is larger than the increase in demand, and will remain the same when the increase in supply is equal to the increase in demand (as in the case of silver, see 6.1 of sec. 6). There, we also saw Smith's idea parallel to the

concept of substitutional goods). It might be possible to think that Smith, in effect, developed his arguments in this framework.

## 8. Conclusion

In chapters 8-11 of book 1 of WN, Smith approached the problems of the distribution, as stated at the end of chapter 7. In chapter 11, Smith treated the problem of the rent of land.

Although the main subject of Chapter 11 is the land rent, Smith put the long 'Digression' in chapter 11. 'Digression' itself contains his analysis relating to the trends of variations in the real exchangeable value of a variety of land's produce in the progress of improvement.

Why did Smith analyze the trends of these variations in chapter 11, which treats a problem of the distribution, the land rent?

As far as I know, there is no study which makes clear why Smith put the long 'Digression' in chapter 11. I challenged this problem first.

According to my understanding, Smith's interest, which runs throughout WN, is in the riches or poverty of the society, the advancing, stationary, or declining condition of the society, and, especially, in the advancement and the progress of improvement of the society. The rent of land, in Smith's discussion, varies with its fertility and its location, and with the original expense of improvement, but, the rent itself occurs when the price (real price) of the produce of land surpasses the necessary amount of stock plus the ordinary profit per unit of produce, and, the surplus (the differential) becomes the land rent, under the free competition. Therefore, if we want to know the amount of rent, and its variations affected by the progress of improvement of the country or the area, we must know, first, the

price of the land's produce, and its variations. This is the reason why Smith put 'Digression' in chapter 11 of which the main subject is a problem of income distribution, the land rent. Smith could then, via the discussions in 'Digression' and 'Effects' (the latter treats the real price of manufactured goods in the progress of improvement), proceed to 'Conclusion of the Chapter' in order to complete chapter 11 and his whole discussion of the distribution, as we saw in section 3.

Ricardo, for example, separately discusses the rent and the rent of mines (Ricardo 1951; 1817, chaps. 2, 3). In Ricardo's discussion of the rent, corn represents the produce of land. On the other hand, Smith intends to explain the rent from the different types of the produce of land. Indeed, Smith discusses many kinds of the produce, including the produce from mines. This fact is a phase of Smith's rent theory and contributes to make 'Digression' a long digression.

Smith analyzed the price and its long-run variations of a variety of products including silver, by measuring the price in terms of the labour-commanded or the corn-commanded. In section 6 of this paper, I attempted to clarify the contents and nature of Smith's causal explanations of the variations in the value of commodities. Although Smith's analysis of the variations in the value (price) of a variety of products in the progress of improvement is remarkably interesting, his discussion itself is a quite complicated discussion, as a whole.

I discussed Smith's analysis in the form of the part relating to silver and the part relating to other products.

In the process of the first part including note 3, I made clear Smith's idea that the silver value is affected by the accidental factor, i.e., the dis-

covery of the mines, and this is one of the reasons why the variations in the silver value cannot have a stable correlation with the progress of improvement. I also clarified the logic of Smith's criticism to the accepted opinion that the value of silver continued to diminish from ancient times till the discovery of the mines of America, the criticism to the popular notion that as the quantity of silver increases in every country with the increase of wealth, so its value diminishes as its quantity increases, and the criticism to the mercantilism which represents national wealth as consisting in the abundance, and national poverty in the scarcity of gold and silver.

In the part relating to other products, I showed the list which was reconstructed from Smith's analysis relating to the variations in the value (price) of a variety of other products in the progress of improvement.

Based on Smith's discussion which is clarified in the list, I made clear Smith's ideas that the real exchangeable value of corn is stable in the progress of improvement, and that although the variations in the silver value cannot provide the index of the progress of improvement, the variations in the value of some kinds of products have the correlation to the progress of improvement and therefore the variations in the value of such products can be the indexes of the progress of improvement.

I also pointed out that in Smith's analysis of the value (price) and its long-run variations of a variety of products including silver, he tends to explain the determination and the changes of commodities' values (prices) in terms of the supply and demand relations.

At the same time, I pointed out that in his explanation, Smith used the factors which could

be linked to, so-called, the supply-demand theory of value, the cost-of-production theory of value, or the labour-input theory of value (the labour-embodied theory of value). In this sense, Smith's discussion, as such, has aspects about which readers might be puzzled, from the viewpoint of the above three theories of value.

In section 7 of this paper, I sought the way to understand Smith's causal explanations as the value theory which assumes the above character.

According to my understanding, although the above issue might be the matter in which later generations are interested, Smith does not seem to see any inconsistency in his discussions. He analyzes the changes of the real exchangeable value (real price) of various commodities, by freely using concepts which might imply the supply-demand theory of value, the cost-of-production theory of value, or the labour-input theory of value. He seeks to causally explain the changes of the real exchangeable value of commodities by the changes in population, income, production cost, necessary labour-input and so on, which could have effects on the supply and demand for those commodities. It might be possible to say that he has, in effect, an idea something similar to the market demand functions and the market supply functions of particular commodities, and, he intends to explain the changes of the real exchangeable value of commodities in the long run by the changes in independent variables, which are contained in the functions and are suitable to explain the price changes.

The main object of Smith's analysis is Europe having already realized the progress of improvement for a long time, especially Britain. In the case of Smith, the progress of improvement increases the demand for commodities in the

market through the long run population growth, the increase of income and so on (the supposed commodities are, in effect, superior goods). On the other hand, the supply of commodities is organized to adapt to the increasing demand. There are some kinds of commodities of which production costs per unit decrease because of the changes of the production conditions, for example, the increase of labour productivity, innovation, or the decrease of labour-input required per unit of product. Producers (Capitalists) continue the production as long as the real exchangeable value of their products is not lower than the lowest price which is determined by the sum of the production costs including the wages at ordinary rate, and the profit at ordinary rate (the ordinary rates of wages and profit themselves are variable in the long span of time like the progress of improvement). And in the long run, if other things remain the same, the real exchangeable value of their products which is compared with the lowest price, rises when the increase in supply is less than the increase in demand, falls when the increase in supply is larger than the increase in demand, and, remains the same when the increase in supply is equal to the increase in demand. It might be possible to think that Smith, in effect, developed his arguments in this framework.

In my next paper, I will consider the consistency of Smith's causal explanations in the above with his arguments in chapters 5, 6, and 7 of book 1. Also, I will clarify the relationships which those of Smith's discussions have to Ricardo's and Malthus's.

## Notes

- 1) In Smith's discussion, in effect, the real price is a

price which is expressed in terms of labour, i.e., the real measure of value. It is synonymous with the real value, and the real exchangeable value (the real value in exchange; the real exchange value), except the case of the real price in the 'popular sense'. The nominal price is a price which is expressed in terms of money. It is synonymous with the nominal value, and the nominal exchangeable value (the nominal value in exchange; the nominal exchange value). For details, see Nakagawa 2016, pp. 581-83, 704-5n. 20. See, also, WN I.v.8-9.

- 2) If we list the uses of Smith's real measure of value (and the proxy for it), we can say that Smith intended to apply his real measure to at least 6 purposes, (1) to use as an instrument in investigating the principles which regulate the exchangeable value of commodities, by measuring the real exchangeable value of commodities, (2) to measure the annual produce of a country or a society, (3) to measure the potential amount of capital accumulation by a capitalist, and a society, (4) to measure the income, (5) to measure the standard of welfare, and, (6) to measure the changes of real exchangeable value of commodities over time. For details, see Nakagawa 2016, secs. III-VI of app. II, and pp. 677-700.
- 3) According to Smith, in the accepted opinion, which is different from Smith's, the value of silver continued to diminish, in the period of 'from the Conquest, perhaps from the invasion of Julius Caesar till the discovery of the mines of America'. One of the causes of this wrong opinion is, Smith supposes, the influence of the popular notion that as the quantity of silver increases in every country with the increase of wealth, so its value diminishes as its quantity increases. This popular notion is, Smith thinks, connected with the mercantilism, the system of political economy which represents national wealth as consisting in the abundance, and national poverty in the scarcity of gold and silver (see WN I.xi.e.15, i.1, n.1).  
According to Smith, in 'First Period', the quantity of silver is relatively stable, while the demand for silver increases because of the progress of improvement (for example, a larger scale of economy needs a larger volume of money). Then, silver value rises. In this sense, as to this period, the rise of silver value can have a certain degree of the correlation with the progress of improvement. In 'Second Period', the increase in silver supply due to the discovery of the mines of America is larger than the increase in silver demand due to the progress of improvement. Then, silver value falls. In this case, the fall of silver value cannot have any stable correlation with the progress of improvement. The fall of silver value is a result of the accidental factor, i.e., the discovery of the mines. In 'Third Period', the increase in silver supply roughly matches the increase in silver demand due to the progress of improvement. Then, silver value is rela-

tively stable (rises somewhat). In this case, silver value cannot reflect the progress of improvement. According to Smith's discussion, as long as the variations of silver value cannot have a stable correlation with the progress of improvement, the former cannot provide the index of the latter.

Smith argues that the fall of the value of silver in 'Second Period' has been owing to the discovery of the mines of America, not to the increase of the real wealth of Europe. Smith insists that the increase of the quantity of gold and silver in Europe has arisen from the accidental discovery of the mines, whereas on the other hand, the increase of the real wealth and the increase of manufactures and agriculture in Europe (the progress of improvement in Europe) have arisen from the fall of the feudal system, and from the establishment of a government which affords to industry, the only encouragement which it requires, i.e., some tolerable security so that it shall enjoy the fruits of its own labour. In Smith's thoughts, the mercantilism which represents national wealth as consisting in the abundance, and national poverty in the scarcity of gold and silver, and also the above popular notion which has a connection with the mercantilism, are wrong (see WN I.xi.n.1, and sec. 1 of this paper).

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