

Quesnay and the Analysis of the Surplus in an Agrarian Capitalist Economy*

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Abstract

In order to discuss the “rational foundation” of some aspects of Quesnay’s theory we use a simple formalization of the necessary connections between assumptions about the techniques in use, the distribution of income between the classes and sectors, the system of relative prices. We argue that Quesnay’s system was a truly capitalist agrarian economy and that he was indeed a pioneer of the classical political economy/surplus approach to economics as identified first by Marx, Sraffa and Garegnani, the physical surplus of grains being the necessary basis for his analysis of the distribution and relative prices.

Key Words: Physiocracy, Capitalist Agrarian Economy, Surplus Approach, Classical Political Economy.

Resumo

Usamos uma formalização simples das conexões necessárias entre as hipóteses sobre as técnicas em uso, a distribuição da renda entre as classes e os setores assim como o sistema de preços relativos para discutir os “fundamentos racionais” de alguns aspectos da teoria de Quesnay. Afirmamos que o sistema de Quesnay era uma verdadeira economia capitalista agrícola e que ele era na verdade um pioneiro da abordagem da economia política clássica e do excedente como Marx, Sraffa e Garegnani o haviam já identificado, sendo que o excedente físico era a base necessária para sua análise da distribuição e dos preços relativos.

Palavras-chave: Fisiocracia, Economia Capitalista Agrícola, Abordagem do Excedente, Economia Política Clássica.

JEL codes: B11; B12.

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I. Introduction

The interpretation of Quesnay's contributions to economics has always been (and remains) highly controversial. On a more general plane they range from one extreme, where Quesnay and the Physiocrats are seen as defenders of "feudalism" and the *Ancien Regime* to the other extreme where they are depicted as promoters of unbridled economic liberalism under capitalism. Between these extremes there are all sorts of intermediate positions and also those who point out that the physiocratic system of ideas is fundamentally contradictory.¹

Matters are not made any easier by the fact that the scope of what one means by Physiocracy can be and is defined in at least five different levels, often not made totally explicit by commentators. Here we have at one extreme the Physiocratic movement being very broadly defined to include a set of economists that may range from Cantillon, who preceded Quesnay, to Turgot, who came much after Quesnay and his contemporaries. A second definition goes from Quesnay and his contemporaries, who presented themselves as Physiocrats, all the way to Turgot. A third would be more narrow and include in the proper Physiocrats only Quesnay and his contemporaries. A fourth one would deal strictly with Quesnay's own writings. And, at the other extreme, there is a fifth view that discusses the issues only in terms of what can actually be found in the various versions of Quesnay's famous *Tableau Économique*. Marx appears at times to follow the first of these views and we are more inclined towards defining Physiocracy according to the second. But all of them can be useful in a particular context, as long as the adopted view is used consistently and stated explicitly. In this work are concerned strictly with Quesnay's own writings but not exclusively with the Tableaux (contrary to the fourth option above). This paper is an attempt, necessarily modest due to the intrinsic difficulty of the topic and the vast and controversial literature, to shed some light on the "rational foundation" of some aspects of Quesnay's theory. We want to discuss the question of Quesnay's view of the capitalist character of modern agriculture and also particularly concerned with some issues raised by Sraffa (and much earlier by Marx) concerning the central role of the physical surplus (of grains) in

¹ For a critical survey of these disparate views see McNally(1990).

Quesnay's theory, a role that is sometimes denied by commentators given the fact that the "produit net" is actually defined as a value magnitude.

As a tool, we make use of a simple formalization of the necessary connections between assumptions about the techniques in use, the distribution of income between the classes and sectors and the system of relative prices. We argue that Quesnay's system depicted a truly capitalist agrarian economy with nothing feudal about it. And we try to show that he was indeed a pioneer of the classical political economy/surplus approach to economics as identified first by Marx, Sraffa and Garegnani, the physical surplus of grains being the necessary basis for his analysis of distribution of income and relative prices. The rest of the paper is organized as follows. Section II deals briefly with the historical background of Quesnay's work. Section III recalls the main ideas of the physiocratic system. Section IV discusses the analytical role of the physical surplus of grain. Section V deals with relative prices. Section VI examines the distributive variables in the context of a vertically integrated grain sector. Section VII discusses the role of profits and capital accumulation. Section VIII offers brief final remarks.

II. Historical Background.

Quesnay's economic writings were written between 1756 and 1774 during the reign of Louis XV. At that time France is increasingly lagging behind England from both the economic and political point of view. Indeed, France's 1763 defeat against England in the Seven Years War was a clear demonstration of the decline of French power. Economically, France at the time was relatively underdeveloped economically, going through endemic food scarcity and periodic famines. Quesnay himself estimated that the population of the country had fallen from 24 to 16 million people from 1650 and 1750. Though the reliability of his exact figures may be open to question, there seems to have been a declining trend.

Quesnay and the Physiocrats were concerned with the issue of good governance that would allow France to regain its supremacy in Europe from political, military or economic point of view. In the conception of the Physiocrats, wealth was the basis of the power of a nation. In their view, the only way for France to compete with its powerful English neighbor was, then, to increase the country's wealth. Quesnay saw wealth as being the result of production, not of trade. For him the main purpose of the French government should be the

implementation of reforms that could increase the size of the surplus product of the economy, which he called *produit net* (net product). In this sense Quesnay is clearly following the tradition that started much earlier in England with William Petty².

Quesnay and the Physiocrats consider that Political Economy is the study of the functioning of society, according to the principles of the *Ordre Naturel* (natural order), a principle seen as having a permanent intrinsic logic and optimal nature. The name of Physiocrat³, which they attributed to themselves, clearly indicates that natural laws should prevail. So there are immutable natural laws that should be studied and taught. It is only by respecting these rules that the economic system of a country can reach its full potential. The diversity of human institutions would only be a reflection of the lack of knowledge of the natural order by both the people and the rulers. In the physiocratic approach, the social order is immutable, natural and physical. For the Physiocrats, Political Economy should study this "social physical order" as guided by natural laws. They define Political Economy as "*a physical science, accurate, clear and complete, the science of law, order, and natural government*" (Dupont de Nemours in Kuntz, 1982, p. 106 – our translation). Quesnay and the Physiocrats had a materialist and scientific conception of society. In their view, material production determines both the structure and the mode of functioning of societies. Quesnay (1958, p. 734), in a manuscripted note on a text by Mirabeau text writes that "*pour nous, tout est physique, et le moral en dérive*"⁴.

The ambition of the Physiocrats was always to influence the course of French history, in terms of the adoption by its rulers of "good policies" that can secure a prosperous and powerful future to their country. Even if the work of Quesnay and the Physiocrats was the object of strong criticism and even some sarcasm⁵, that did not stop its wide diffusion at the time. Turgot, for example, became Controller-General of Finances (the minister in charge of

² It is interesting to note that, when Petty wrote his major works, in the mid-seventeenth century, he was also concerned with the means to ensure the prosperity of England and a prominent place for his country at the European level. England at the time, which had not even been invited to the peace negotiations of Westphalia in 1648, was clearly behind economically and militarily if compared with Holland and France, the two great powers in this period. The major concern of Petty was the threat for British sovereignty that represented the constant development of French power. When Quesnay writes a century later, the situation is radically different.

³ The name Physiocrat is formed from the Greek words *fûsis* (nature) and *cratéin* (dominate).

⁴ "*For us, everything is physical, and the moral comes from it*" (our translation).

⁵ Voltaire said, speaking of the work of the Physiocrats, that "*many useful things were written about agriculture, but, everybody read them, unless the farmers*" (Rioux, 1989, p. 38 – our translation).

finances in France during the *Ancien Régime*) of Louis XVI in 1774 and tried to implement a program largely inspired by physiocratic theses, which will be repealed later⁶.

Besides, wanting to discover and expose the laws of natural order, the Physiocrats had the political ambition to implement these rules in the economy and in the society when they were not respected. They defended the idea of adopting a *despotisme légal* (legal despotism), where the absolutist king should know and follow the laws of natural order and disseminate it in his kingdom, through education and the creation of a suitable legislative framework. The *despotisme légal* of the Physiocrats, a notion that led to a lot of confusion among analysts of their work, must be understood as a translation and dissemination of the laws of nature in the society so that it reaches a higher level of development. In the natural order, for example, private property is an essential *droit naturel* (natural right) because Quesnay was convinced that without private property the lands would not be cultivated, for example. §

Quesnay dreams of an “Agricultural Kingdom”, where compliance with the laws of natural order and a prosperous agriculture, using the most efficient techniques and organization, would ensure France a prominent place in the concert of nations. Given the scientific conception of the natural order, this "government of nature" was actually "a government of science", where “*le flambeau de la raison [...] éclaire le gouvernement, toutes les lois positives nuisibles à la société et au souverain, disparaîtront*”⁷ (QUESNAY, 1958, p. 741). He believes that absolutism is the best political system, but it must respect the rules of natural economic order, which was not the case in the France of Louis XV. Therefore, the absolutist government must help the introduction of capitalism in agriculture. By capitalism in agriculture, we here mean a system in which, in that sector there is production for money profit and workers work for a wage using techniques which use a lot of produced means of production (and are owned by the capitalist farmers). It is important to note that we are not including in our definition of capitalism the free mobility of capital among different sectors and perhaps not even necessarily between different products within the same broad sector.

⁶ The book of Edgar Faure, “*La Disgrâce de Turgot*” (the disgrace of Turgot) offers an extremely detailed description of the experience as a statesman of Turgot and the aborted attempts to implement policies of physiocratic inspiration (FAURE, 1961).

⁷ “*the flame of reason [...] illuminates the government, all positive laws detrimental to society and to the king, will disappear*” (our translation).

Free capital mobility would characterize fully competitive capitalism for the whole economy, which of course was neither what Quesnay wrote about, nor existed at the time in France.

It is interesting to note that the Physiocrats themselves set the rules of the game, i.e., “discovered” the natural laws. In this sense, despotism serves the purpose of Physiocrats because it ensures that these natural laws are respected and that the mechanisms of the “machine of prosperity” designed by the Physiocrats can function correctly. Unlike Petty, Quesnay established a clear distinction between the tasks of the state and the role of civil society, even if Petty probably gave more emphasis to the role of the State. In fact, Petty often spoke indiscriminately of the State and the economy, not always being clear to distinguish the role of each one (MILGATE & STIMSON, 2004).

The accusation sometimes made against Quesnay of wanting to keep intact the feudal order, is then unjustified. Quesnay is clearly part of the movement of the Enlightenment in the sense that he realizes the need for a reform of social and economic structures. Indeed, he wrote several articles for the *Encyclopédie* (Encyclopedia) of Diderot and d'Alembert⁸.

Quesnay and the Physiocrats thus had a radical but reformist agenda, they wanted a “revolution from above”, in which the legal despot would stimulate the full development of capitalism in agriculture in order to increase the wealth and military power of the French state. As pointed out by McNally(1990) the point was not that the Physiocrats represented the interests of the existing agrarian bourgeoisie, since at that time this class did not really exist yet in France as a true political force. Quesnay's point was that a massive expansion of capitalist farming in agriculture would be in the interests of the State and ultimately also of the landowners.⁹

III . The Physiocratic System.

Notwithstanding the limited diffusion of capitalism in French agriculture at the time, Quesnay's theoretical system clearly describes a capitalist agrarian economy. Quesnay divides

⁸ The entries "*Evidence*" (evidence), "*Fermiers*" (farmers), "*Grains*" (grain), "*Hommes*" (men) and "*Impôts*" (taxes) were written to be inserted in the *Encyclopédie*, anonymously, because Quesnay feared reprisals by the real power that he served as court doctor.

⁹ Perhaps it is the political failure of the physiocratic reforms before the revolution that had more to do with the weakness of agrarian capitalist interests at the time.

society into classes to explain the functioning of the economic system. The division of classes used by Quesnay does not reflect the economic or social hierarchy as it is usually presented. In the physiocratic scheme, each class takes a particular role in the process of production and consumption. There are thus three classes, which interact with each other in a way that make the economic system work. The class Quesnay called "productive", composed of the peasants, the agricultural workers and the capitalist farmers is in charge of agricultural production. The "sterile" class refers to the artisans, merchants, firm owners and workers in manufacturing. It is responsible for all non-agricultural production, as well as trade. Finally, the class of "landowners" brings together the owners of land, the "decimators" (the Church, which collects the tithe) and the king. These landlords make up a class that does not participate directly in production, but plays an important role in the economic system.

The farmers are part of the same "productive" class as the agricultural workers, but they do not share the same interests. The antagonism between these two groups has been well illustrated by the early phase of the French Revolution.

According to Quesnay and the Physiocrats, agriculture was the only sector where a physical surplus is produced. They claimed that in the other sectors products were only transformed but not created. Throughout his economic works, Quesnay demonstrated, then, a strong interest in the issues related to agricultural production. This is not surprising because France was still a fundamentally rural country¹⁰.

Quesnay's originality was to identify the various methods of production that co-existed in French agriculture of the time to show that each corresponds to a very different level of productivity. In the entry *Fermiers* (farmers) written for the *Encyclopédie*, Quesnay insists on the importance of the methods used in agriculture to determine the level of output that can be achieved:

“Les différentes manières de traiter les terres que l’on cultive, et les causes qui y contribuent, décident des produits de l’agriculture; ce sont les différentes sortes de

¹⁰ The most widespread estimates show that about 80% of the French population of the second half of the eighteenth century was rural (FURET, 1989, p. 57).

*cultures, qu'il faut bien connaître pour juger de l'état actuel de l'agriculture dans le royaume*¹¹ (QUESNAY, 1958, p. 427-428).

The three types of cultivation identified by Quesnay were subsistence agriculture, the *Petite culture* (small-scale cultivation) and the *Grande culture* (large-scale cultivation). Quesnay believes that subsistence agriculture is still present in many isolated regions of the kingdom (in mountains, for instance). This agriculture does not produce a surplus and only allows the survival in miserable conditions for those who practice it. It is not integrated in the market and Quesnay quickly eliminates it from his analysis because it is unrepresentative of French agricultural reality. Thus, Quesnay's theory of agricultural production is based on the fundamental distinction made between the *Petite culture* and the *Grande culture*. The difference between these two modes of cultivation is linked to both the scale and the type of relationship between the landlords and the agricultural producers.

In the model of *Grande Culture*, present mainly in the northern regions of France, the farms are extensive and the leasehold is the dominant mode of production. The leasehold is a method of agricultural production where the landlord entrusts the operation of the farm to a *fermier* (farmer) who organizes the production as he wants and pays a fixed rent, regardless of the level of production. Modern techniques such as crop rotation for the land to rest are generally used.

In the model of *Petite Culture*, however, the farms are small and the dominant mode of production is *métayage* (sharecropping), where the *métayer* (sharecropper) cultivates the land and delivers generally half of the product to the landlord. In this system there is strong pressure from the landlord to use ancient techniques that deplete the land.

But the big difference between the two types of cultivation, according to Quesnay, is in the respective levels of productivity. In fact, the *Grande culture* is much more productive than the *Petite Culture* because it uses more capital, produced means of production which Quesnay called *avances* (advances).

Quesnay notes that the cycle of agricultural production takes time, one year for example, in the case of cultivation in France. But, before getting the product, i.e., the harvest, there is a need to pay for many expenses, necessary for the production process to happen.

¹¹ « The different ways to treat the land we cultivate and the causes that contribute to it, decide the products of agriculture. You must thoroughly know the different types of cultivations to judge the current situation of agriculture of the kingdom » (our translation).

These expenses constitute what Quesnay calls advances. Quesnay then shows that the advances are essential to the production process. The advances are the wages of agricultural workers for their livelihood, expenses to improve the quality of the land, the tools and the animals used for cultivation, as well as the food given to these animals.¹² It is interesting to note that advances also exist in manufacturing and in the production of handicrafts, according to the same principle (wages, tools, machines, factories, etc.).

Aspromourgos (1996, p. 121) states that Quesnay “*develops in his writings a definite conception of capital employed in the production system as ‘advances’ prior to the resulting output, both in agriculture and manufacture; though given the special role assigned to agriculture as the only surplus-producing sector, it is natural that he concentrates on the significance of capital advances in that sector*”.

In the physiocratic typology, the advances are of various types, with the *avances annuelles* (annual advances) the *avances primitives* (primitive advances) and the *avances foncières* (land advances). “*Les avances annuelles consistent dans les dépenses qui se font annuellement pour le travail de la culture*¹³ » (QUESNAY, 1958, p. 795). They consist of Wages set at a subsistence level and the raw materials, what we now call circulating capital. The *avances primitives* are the durable means of production, such as horses, tools, what we now call the fixed capital, used to prepare the soil and improve production. The *avances foncières* are used for the improvement of the land. They are “the initial expenditures on clearing, draining, fencing, building” (SCHUMPETER, 1954, p. 236). The *avances foncières* are considered permanent and the deterioration of this capital is usually neglected.

In the physiocratic system, the basis of efficiency and high productivity are the advances. The more intensive use of these advances in the economy is the fundamental key to its growth. This is why Marx considers that Quesnay and the Physiocrats were the first to have a satisfactory definition of capital and argued that the Physiocrats can be considered pioneers in the study of capitalism.

In the *Grande Culture*, the farmer, who is “rich”, finances the annual and primitive advances, for a value far greater than in the *Petite Culture*. Only the *avances foncières* are to be financed by the landlord (or the State). The farmer is the organizer of production. He uses

¹² The article of Trabucchi (2008) highlights the importance of animal food as part of the circulating capital of the farmers in Quesnay theory (but not in the Tableau).

¹³ “*The avances annuelles are the expenses made every year with the work of cultivation*” (our translation).

wage workers to cultivate the land. In the *Petite Culture*, which corresponds to a quasi-feudal mode of production, the advances are financed by the landlord, usually an aristocrat, who is not concerned with the introduction of new techniques. The consequence of the low capital intensity resulting from this attitude is low productivity.

The *Grande Culture* use of horses, much more efficient, whereas the *Petite Culture* only uses oxen. This is representative of the difference in capital intensity between the two types of cultivation. In the words of Quesnay (1958, p. 671):

*“Dans la grande culture, un homme seul conduit une charrue tirée par des chevaux, qui fait autant de travail que trois charrues tirées par des bœufs, et conduite par six hommes : dans ce dernier cas, faute d’avances pour l’établissement d’une grande culture, la dépense annuelle est excessive, et ne rend presque point de produit net ».*¹⁴

The *Grande Culture* should then replace the *Petite Culture* for the country increase its prosperity and be able to compete with England which has a more productive agriculture in spite of much less favorable natural conditions than in France.

The *produit net* is a key concept in physiocratic theory. In the words of Quesnay (1958, p. 928), the *produit net* is defined as follows:

*“produit [...] qui excède les dépenses du travail de la culture, et les dépenses des autres avances nécessaires pour l’exploitation de cette culture. Toutes ces dépenses étant restituées par le produit qu’elles font naître, le surplus est produit net, qui forme le revenu public et le revenu des propriétaires*¹⁵ ».

The *produit net* is what an economic system produces beyond the level necessary for its reproduction. This definition corresponds to the concept of surplus, present in all the classical tradition¹⁶. Unlike the surplus in Petty, the *produit net* is not a just a physical surplus,

¹⁴ “In the *Grande Culture*, a single man leads a horse-drawn ploughshares which do the same work as three ploughshares pulled by oxen and driven by six men: in the latter case, for lack of advances in order to establish a large-scale cultivation, the annual expenditure is excessive and almost does not give any net income” (our translation).

¹⁵ « product that exceeds the expenses of the work of cultivation, and the expenses of the other advances necessary for the operation of that cultivation. All these expenses are refunded by the product that they generate, the surplus is net product, which forms the public revenue and the income of landlords” (our translation).

¹⁶ We adopt the classical conception of the economy developed by Marx and deepened by Sraffa and his followers.

since it is measured in monetary terms, as the difference between the value of production and the value of the necessary expenses. We then have the following identity:

Produit Net = Total production - advances

Quesnay argues that only the agricultural sector is able to create a *produit net*. He estimates that, in the scheme of *Grande Culture*, the *produit net* is always equal to 100% of annual advances. Obviously, the *produit net* is much larger in the *Grande Culture* than in the *Petite Culture*. This surplus goes to the landlord class in the form of land rent and taxes and to the farmers in the form of profit.

The advances, which are essential to agricultural production, are partly manufactured products. Similarly, manufacturing production requires advances in the form of agricultural products and raw materials for the production process. So there is a total interdependence between the city and the countryside, between manufacturing industry and agriculture. The recognition of this interdependence was a great improvement on Richard Cantillon's theory, who is generally (and correctly, in our view) considered as being the main predecessor of Quesnay's (GILIBERT, 1979, ASPROMOURGOS, 1996).

Like Quesnay and the Physiocrats, Cantillon believed that the surplus is produced only by agriculture, in the countryside. But, in the theory of Cantillon, cities could only survive with the production of food from the countryside, while the countryside was basically self-sufficient. Because of that, Cantillon argued that for the city (and manufacturing) to prosper, it was necessary for the landowners to develop a strong taste for luxury goods. Only this would make the countryside want to increase output and produce more food than their own needs and use that extra output to buy luxuries made in the cities.

The Physiocrats are much more sophisticated in their analysis because they show the linkage effects between agriculture and other sectors, which are concentrated in the cities. They are aware of the necessity of permanent interdependence between the sectors to implement an economic system of high productivity in the countryside, like the *Grande Culture*. The high productivity in agriculture is only possible with the incorporation of equipment and tools produced by the artisans and manufacturers. Likewise, artisan and manufacturing sector can only grow with the increase of agricultural production.

Therefore the real key to Quesnay's system is neither land nor agriculture as such but the *Grande culture*. The crucial point is the perceived vast technical superiority of capitalist agriculture.

Capitalist in both the social and the technical sense. Socially, in that production should be organized by farmers that advance the capital and hire free labor for wages. And technically, in that methods of production that used more produced means of production per worker are seen as being much more efficient.

IV. The Social Surplus as a physical quantity of grains.

With this historical and theoretical background in mind, we shall make use of a very simple and drastically simplified analytical scheme to help us discuss some important aspects of Quesnay's work. Let us assume that we are studying an economy that produces four goods: grains and wine in the agriculture sector and iron and carriages in the manufacturing (and trade) urban sector. Production of each of the four goods is made using a single method of production that uses only circulating capital, with wages also included in the circulating capital advanced (*avances annuelles*).

In agriculture, grains are produced using grains as seed and iron (for ploughshares and horseshoes) as an input. Wine is produced using the same inputs but in different proportions. In the urban sector both the method that produces iron and the one that produces carriages use only iron as a direct input.

Real wages are given at subsistence level and consist only of grains. Real profits per unit of output are also given exogenously, for simplicity as a traditional "capitalist subsistence" amount of corn, presumably a much higher amount of corn than that of the subsistence of the workers (after all Quesnay spoke of "rich" farmers. The amount of real wages per worker and real profits per unit of output is assumed to be the same in agriculture (grains and wine). But they could be different in the manufacturing and possibly "Colbertist" urban sector. The important thing is that there is no capital mobility between agriculture and manufacturing, and also inside either the agriculture or manufacturing sector, while there may be some mobility we cannot assume that there is enough mobility of capital to equalize total profits as a proportion of capital between the production of wine and grains or between the production of iron and carriages. We shall assume that landowners receive the surplus as homogenous rents paid in grains in the agricultural sector both in the production of wine and or grains (we shall assume all taxes and church tithes are later paid out also in fixed amounts in grains from rents).

In this economy the technical conditions of production can be described as the following four methods of production:

grains	$a_{11}, a_{31} \rightarrow 1$
wine	$a_{12}, a_{32} \rightarrow 1$
iron	$a_{33} \rightarrow 1$
carriage	$a_{34} \rightarrow 1$

where a_{ij} are the technical coefficients and in which both wine and carriage are luxury (non-basic) consumption goods since they are not used as inputs. We shall assume that only the production of grain is “productive” in the literal physiocratic sense and thus, by conveniently choosing the units of measure of gross outputs in such a way that the vector of gross outputs is composed by one unit of each of the four goods, we have :

$$(1) \ a_{11} + a_{12} < 1$$

Note that although Quesnay in some writings considered the whole agricultural (and mining and fishing) sectors as “productive” some products in this sector, like our “wine”, may be only a transformation of matter (grains into wine) and thus cannot possibly produce a physical surplus of itself.

Accordingly, we shall have to assume that the production of iron , even though it is a basic input for grains and hence an indispensable input for (*Grande Culture*) agriculture is technically viable but nevertheless still “sterile” in the sense of not producing a physical surplus of itself Therefore¹⁷:

$$(2) \ a_{31} + a_{32} + a_{33} + a_{34} = 1$$

¹⁷ In most formalizations of the Physiocrats (by Gilibert(1972), Cartelier(1976), Vaggi (1985) and others) only two goods are produced and thus one by logic is forced to assume a surplus of manufactured goods in order to meet the final demand for manufactured luxuries coming from the landlords. This simplifies the model but is not compatible with the physiocratic idea of the physically “sterile” character of manufacturing.

In order to economize on mathematical notation we shall bundle together in the augmented technical coefficients of grain a^*_{1j} all the grain per unit of output need not only as inputs (a_{11} and a_{12}) but also the subsistence wages of the workers and the subsistence profits of the capitalists. We then get the following augmented set of production coefficients:

$$\text{corn:} \quad a^*_{11}, a_{31} \rightarrow 1$$

$$\text{wine:} \quad a^*_{12}, a_{32} \rightarrow 1$$

$$\text{iron:} \quad a^*_{13}, a_{33} \rightarrow 1$$

$$\text{carriages:} \quad a^*_{14}, a_{34} \rightarrow 1$$

This economy with its given technique and social norms of subsistence for the productive classes can only produce a physical surplus above that and thus pay rent if we further assume that the technology for producing grain is capable of producing a surplus at least big enough so that :

$$(3) \quad a^*_{11} + a^*_{12} + a^*_{13} + a^*_{14} < 1$$

Given all these social and technical conditions grain and iron are basics in the Sraffa sense of being both necessary, directly or indirectly, as inputs or “subsistence” goods, for the production of all the four goods in both sectors.

In our view, conditions (2) and (3) are the best way to reconstruct Quesnay’s argument that the method that produces grain is the only one that produces a physical surplus. Despite recent commentators attempts to say otherwise Quesnay seems quite clear about this issue when he writes that “*l’origine, le principe de toute dépense, et de toute richesse, est la fertilité de la terre, dont on ne peut multiplier les produits que par ses produits mêmes*”¹⁸ (QUESNAY, 1958, p. 892 – quoted in GILIBERT, 1972, p. 6). Marx (1861-3, p.234) also found this great quote from Paoletti a late Italian follower of the Physiocrats “*Give the cook a measure of peas, with which he is to prepare your dinner; he will put them on the table for you well cooked and well dished up, but in the same quantity as he was given, but on the other band give the same quantity to the gardener for him to put into the ground; he will return to*

¹⁸ “*The origin, the principle of each expense and of each wealth is the fertility of the soil, whose products only can be multiplied by its products themselves*” (our translation).

you, when the right time has come, at least fourfold the quantity that he had been given. This is the true and only production”.

This physical surplus of grains appears “most palpably” as a higher quantity of the same use values used as inputs.¹⁹ Note that is precisely because of the physical nature of the surplus of grains that some Physiocrats could, when necessary, rationalize the *produit net* (that is usually measured in terms of value) for politico-ideological purposes as a “gift of nature”.²⁰ Note that this does not mean that agriculture produces a single homogeneous good (it does not because here we have both wine and grains). It does not mean that capital is homogeneous in the production of grains (it is not because grain also uses iron as an input) either. Nor involves denying that the “produit net” is measured in terms of value. It means only that agriculture of grains is seen as the only sector that can produce a physical surplus of its own products.

V. Prices of Production, Bon prix and Prix Fondamental.

¹⁹ Marx (1861-3, p. 224) writes “*The difference between the value of labour-power and the value created by it — that is, the surplus-value which the purchase of labour-power secures for the user of labour-power — appears most palpably, most incontrovertibly, of all branches of production, in agriculture, the primary branch of production. The sum total of the means of subsistence which the labourer consumes from one year to another, or the mass of material substance which he consumes, is smaller than the sum total of the means of subsistence which he produces. In manufacture the workman is not generally seen directly producing either his means of subsistence or the surplus in excess of his means of subsistence. The process is mediated through purchase and sale, through the various acts of circulation, and the analysis of value in general is necessary for it to be understood. In agriculture it shows itself directly in the surplus of use-values produced over use-values consumed by the labourer, and can therefore be grasped without an analysis of value in general, without a clear understanding of the nature of value. Therefore also when value is reduced to use-value, and the latter to material substance in general. Hence for the Physiocrats agricultural labour is the only productive labour, because it is the only labour that produces a surplus-value, and rent is the only form of surplus-value which they know. The workman in industry does not increase the material substance; he only alters its form.*”

²⁰ As it seems to have been the case of Mirabeau, the elder. Mirabeau writes: « *Le produit provient de deux agents combinés. Ces deux agents sont le travail dispendieux de l’homme et le don de la nature* » (MIRABEAU, 1760, p.368). This quotation can be translated to : “The product comes from two combined agents. These agents are costly work of man and the gift of nature”.

We have specified the physical technical conditions of production. But in order to get to the value of the *produit net* we must, of course, know something about the relative prices.

Let us then write down the system of general price equations for this economy:

$$\text{grain} \quad p_1 = (a_{11}^* \cdot p_1 + a_{31} \cdot p_3)(1 + r_1) + t_1 \cdot f \cdot p_1$$

$$\text{wine} \quad p_2 = (a_{12}^* \cdot p_1 + a_{32} p_3)(1 + r_2) + t_2 \cdot f \cdot p_1$$

$$\text{iron} \quad p_3 = (a_{13}^* \cdot p_1 + a_{33} p_3)(1 + r_3)$$

$$\text{carriages} \quad p_4 = (a_{14}^* \cdot p_1 + a_{34} p_3)(1 + r_4)$$

where t_i is the land coefficient (hectares per unit of output) and f the uniform rate of rent per hectare.

It may be tempting to assume that within capitalist agriculture competition could make the rates of surplus profits be equal ($r_1 = r_2$), for Quesnay writes in the *Maximes Générales du Gouvernement Économique d'un Royaume Agricole* (General Maxims of the Economic Government of an Agricultural Kingdom):

« *Que chacun soit libre de cultiver dans son champ telles productions que son intérêt, ses facultés, la nature du terrain lui suggèrent pour en tirer le plus grand produit possible*²¹ » (QUESNAY, 1958, p. 952-953).

However, since in a note to the same text he also writes that :

« *La culture des vignes est la plus riche culture du royaume de France ; car le produit net d'un arpent de vignes, évalué du fort au faible, est environ le triple de celui du meilleurs arpent de terre cultivé en grain*²² » (QUESNAY, 1958, p. 966).

²¹ “Everyone must be free to cultivate in his field whatever kind of production his interest, his abilities, the nature of the soil suggest him to obtain the largest possible product” (our translation).

²² « The crop of vineyards is the richest crop of the kingdom of France, because the net product of an acre of vineyard, valued from the strong to the weak, is about three times that of the best acre of soil cultivated in grain” (our translation).

it is perhaps better to allow the surplus profit rates of agriculture to be different.²³ Note that for simplicity we made the rent rate equal in both wine and grain production, which means that we are assuming that farmers who produce both goods rent the land from landowners of a single type of homogeneous land.

The four rates of surplus profits do not have to be uniform between grains and wine nor between iron and carriages because we assume that the single type of land can give different yields in terms of wine or grains and a *colbertiste* urban sector with many institutional barriers to free competition. Surplus profits are also not equalized across agriculture and manufacture. Note that, since the subsistence consumption of capitalists is already included in the augmented technical coefficients our four rates of surplus profits refer to “extra” or “surplus” rate of profits over and **above** the minimum that would just pay the usual “subsistence” profits of capitalists (that Marx calls a sort of necessary wage for the capitalists). Thus, capitalists and capitalism can survive and prosper even when all rates of surplus profit happen to be equal to zero.

The price system written above has 4 equations and 9 unknowns, namely the rate of rent (f) the four rates of surplus profits (r_1, r_2, r_3 and r_4) and the four prices of the four goods (p_1, p_2, p_3 and p_4). If we take grain as the numeraire ($p_1=1$) we reduce this to 8 unknowns. If we further get rid of the non-basics, whose prices can be left to be calculated after we sort out the relative price between grain and iron we are reduced to 2 equations and 4 unknowns, namely, the relative price of iron, rent per hectare, and two rates of surplus profit:

$$(4) \quad 1 = (a_{11}^* + a_{31} \cdot p_3)(1 + r_1) + t_1 \cdot f$$

$$(5) \quad p_3 = (a_{13}^* + a_{33} p_3)(1 + r_3)$$

Equations (4) and (5) tell us that, given the real wage and the technology, there is a potential conflict between rents, the profits in agriculture (grain), and profits in iron. The higher is the relative price of grain (i.e. the **lower** is p_3) the higher can be the rents and/or the farmers surplus profits. This seems to be the idea behind the doctrine of the *Bon Prix* (proper price). The doctrine of the *Bon prix* is the argument that potential free foreign competition and

²³ Note that given that wine is non-basic our main results are not affected whether $r_1=r_2$ or not.

actual lowering of domestic barriers to trade (toll roads, local trade monopolies, etc.) would lower the surplus profits rate r_3 and thus allow more of the physical surplus of grain to be appropriated by the productive (r_1) and/or proprietary classes (f).

There seems to be a consensus that the doctrine of the *bon prix* for grains meant to reduce the relative price of manufactures in general to its *prix fondamental*, which here means the price of iron p_3 calculated with r_3 equal to zero. So when there are no surplus profits in manufacturing iron, iron is sold at its fundamental price and grain is sold at a *bon prix*.

On the other hand, there is a debate about what to call the relative price of grain when both the rates of surplus profits r_1 and r_3 are set to zero and then the whole surplus of grain is appropriated by rent and f reaches its maximum.²⁴

Many authors (Higgs, ; Salleron²⁵, Meek²⁶, Cartelier, Gilibert) say that in this case the relative price of grains is much higher than its *prix fondamental* because it is paying a lot of rent. These authors defend the idea that the fundamental price includes only the technical and subsistence necessary cost of production of commodities and cannot include rents. If price covers rent then it must be a *bon prix*.

On the other hand, Vaggi (1983, 1987 see also the critical review by Cartelier, 1991) has argued that we should call the grain price with zero surplus profits in all sectors and maximum rent included as the *prix fondamental* for grain.

Quesnay himself gives the following definition of the *prix fondamental*:

*“Le prix fondamental des marchandises est établi par les dépenses, ou les frais qu’il faut faire, pour leurs productions, ou pour leur préparation. Si elles se vendent moins qu’elles n’ont coûté, leur prix dégénère en perte, si elles se vendent assez cher, pour procurer un gain suffisant pour exciter à en entretenir ou à en augmenter la production, elles sont à bon prix”*²⁷ (QUESNAY, 1958, p. 529).

²⁴ Note that carriages are also non basic and r_4 also does not affect the distribution of the surplus of grain.

²⁵ The fundamental price is defined by Salleron as « *expression habituelle pour signifier le prix de revient, le coût de production* » (SALLERON, 1958, p. 529).

²⁶ « *in the case of agricultural produce, the ‘market value’ was higher than the ‘fundamental price’ by an amount equal (roughly) to rent*” (MEEK, 1962, p. 390).

²⁷ « *The fundamental price of commodities is determined by the expenses or costs which have to be incurred in their production or preparation. If they are sold for less than they have cost, their price sinks to a level at which*

Vaggi considers that if rents are not paid, there will be a loss and, therefore, rents should be a part of the *prix fondamentale*. In this view the bon prix would always include positive profits for the farmers. There are a few problems with Vaggi's interpretation. The first is that if rents are not paid it is the landowners that incur losses, whilst if price sinks below the necessary costs of production it is the farmers that lose and they are the ones who organize production. Thus the loss alluded to by Quesnay in the passage quoted above seems to be that of the farmer, not of the landowner. Losses are "incurred in their production and preparation" of commodities and landowners do neither. The second difficulty is that Quesnay mentions in the same passage that the bon prix is necessary to favor not only the expansion but also the "maintenance" of production. But this logically implies that if the price is below the *bon prix* as the *prix fondamentale* is there will be a contraction of production. Thus a stationary economy needs the *bon prix*, not the *prix fondamentale*. Given these problems we prefer to stick to the tradition of considering that rents are not a part of the *prix fondamentale* and that the price of grain that includes both costs and rents (whether or not grain surplus profits are positive) is the *bon prix*. This may be seen as a purely terminological issue but in fact it appears to be an attempt by Vaggi to argue that positive surplus profit in agriculture appears in Physiocratic theory even when the economy is in a stationary state (as in the *Tableau Économique*) and there is no net accumulation of capital, a view which we certainly do not subscribe to (see section VII below).

VI. The Vertically Integrated Grain Sector.

This potential conflict becomes much more clear if we if we replace (5) into (4). This makes us calculate what would be the **vertically integrated** grain sector of the economy in which the requirements of iron and the profits in the manufacturing sector are being also **measured** or **expressed** directly in terms of shares of the physical gross product of grain :

a loss is made. If they are sold expensive enough, into providing sufficient gain to excite the maintenance or increase production, they are at a good price" (our translation).

$$(6) \ a_{11}^* + a_{31} \cdot \frac{a_{13}^*}{[1 - a_{33} \cdot (1 + r_3)] \cdot (1 + r_3)} \cdot (1 + r_a) + t_1 \cdot f = 1$$

Here it becomes clear that while in general the rate of rent f depends both on the technology and relative prices, if the technique and the rules of distributing the sectoral value surplus r_1 and r_3 are known then the rent f can be ascertained in terms of grain as the difference between the gross product and the physical cost in grain production.

Moreover, if we happen to be in the particular situation depicted by Quesnay in the *Tableau Économique* where surplus profits are assumed to have been driven down to zero in both iron manufacture and grain agriculture then we can write instead:

$$(7) \ a_{11}^* + a_{31} \cdot \frac{a_{13}^*}{1 - a_{33}} + t_1 \cdot f = 1$$

This concept of a sort of vertically integrated grain sector, where the physical surplus of grain is distributed as rent is probably what Sraffa (1960) meant when he spoke as a “point of contact” between Quesnay doctrine of the *produit net* and Ricardo’s “material rate of produce” in his the Essay of Profits²⁸. Note that this point of contact, although evident, is not **exact** because according to Sraffa the “rational foundation” of Ricardo’s theory of profits is that corn (here grain) is the only basic good, while here we have two basics (grain and iron).

On the other hand, Marx in some occasions explicitly states that the Physiocrats thought agriculture did not need inputs from other sectors, but here it is important to remember that he is probably talking of the Physiocrats in general, of Turgot (and perhaps also Cantillon)²⁹ and not necessarily of Quesnay, which as we saw above clearly emphasizes the importance of “iron” in the *Grande Culture* of grains (and wine) and certainly not of his *Tableau Économique*.

²⁸ Sraffa (1960, p. 93) says: “Ricardo’s view of the dominant role of the farmer’s profits thus appears to have a point of contact with the Physiocratic doctrine of the ‘produit net’ in so far as the latter is based, as Marx has pointed out, on the ‘physical nature’ of the surplus in agriculture which takes the form of an excess of food produced over the food advanced for production ; whereas in manufacturing, where food and raw materials must be bought from agriculture, a surplus can only appear as a result of the sale of the product”.

²⁹ See KURZ & GHERKE (1998).

In fact, Quesnay's arguments about the passage from *Petite Culture* to *Grande Culture* can be shown as follows. The *Petite Culture* does not use iron ($a_{31}=0$) but has a very high a_{11}^* and a small surplus of grain. On the other hand, the *Grande Culture* uses a lot of iron ($a_{31}>0$) but even taking into account how much the iron costs in terms of grain the total grain costs are much lower such that the following condition is assumed to hold :

$$\text{Petite Culture } a_{11} < 1 \quad \text{but } >> \quad a_{11}^* + a_{31} \cdot \frac{a_{13}^*}{1 - a_{33} \cdot (1 + r_3)(1 + r_3)} \ll 1 \quad \text{Grande Culture}$$

Note that a high rate of profits in “iron” manufacturing is the only thing that could wipe out the advantages of *Grande Culture*. No wonder then that the Physiocrats worried about the *bon prix* in agriculture depending on reducing the manufactured prices to its *prix fondamental*.

Marx mentions how contradictory is Quesnay's objective materialist analysis of the higher yield of the *Grande Culture* being connected with methods that use more produced inputs (horses with metal plough instead of cows with wooden ones for instance) and the doctrine of the surplus as a “gift of nature” that he attributes to Mirabeau, the Elder.

Note that it would be very odd for Marx to praise Quesnay so much for introducing the analogous of his concept of constant capital and to perceive the revolutionary importance of the used of produced manufactured inputs in agriculture and then ignore that modern agriculture and manufacture were interdependent. In any case equation (7) is valid whether we assume sectorial interdependence or assume instead the absolute strategic predominance of agriculture ($a_{31}=0$), as Cantillon and (sometimes at least) Turgot appear to have done (something that would contradict Quesnay definition of *Grande Culture*).

In any case, the popular argument according to which Marx (or Sraffa for that matter) thought that the doctrine of the *produit net* meant that Physiocrats ignored or had nothing to say about relative prices and only thought in physical terms seems to us totally without foundation.³⁰ Marx was obviously talking about technical and social conditions (1) and (3)

³⁰ Some authors in the Marxist tradition seem to actually interpret the Physiocrats in this way. For instance Napoleoni (1983, p.27) writes that “the problem of evaluation is present in the Physiocrats in its most primitive form, ie not as a measure of the difference between two magnitudes of value, but rather, as a measure of the difference between two physical quantities”. He adds: “When the Physiocrats presents the problem of measuring the “produit net”(surplus) with the aim of building your outline quantitative, this problem is solved empirically,

above when he talked about the physical surplus of use values. On the other hand, even if we adopt the extreme version in which the only basic good is grain (if $a_{31}=0$) there are still the relative prices of the non basic goods both inside and outside agriculture (iron, wine and carriages) to be ascertained. The vertically integrated grain sector, with or without interdependencies, is strictly necessary to determine the rate of rent without which we cannot possibly know the price of grain nor any of the other relative prices. On the other hand, the authors who insist that the physiocratic theory of the *produit net* is all based on money and market prices are of course incapable of explaining why the physical productivity of agriculture is so important for the Physiocrats because they have no way of relating the physical surplus and the social rules for distributing it between rent and profits and the relative price system. If these interpreters are right the Physiocrats were then either mercantilists who explained the surplus in value in terms of “buying cheap and selling dear” or even worse, what Marx called “Vulgar economists” which did nothing apart from trying to “explain prices with prices”. Moreover, if the physical surplus was irrelevant for the Physiocrats, why they insisted on saying that agriculture was productive and manufacturing sterile? It is clear that the physical surplus is necessary for the *produit net* in value to be positive. It is extremely doubtful that the Physiocrats did not understand the simple idea that if the value of the necessary consumption were enough to buy the whole physical amount of products then there could be no value surplus.³¹

In another curious attempt to disconnect the notion of physical surplus from the notion of value surplus in the theories of the old classical economists Brewer (2008, p.20) has argued that “*Although a physical notion of surplus [...] must clearly underlie Quesnay’s system, it is not at all clear that he understood the relationships involved. If he had, he could surely not have claimed, as he did, that an increase in agricultural prices would increase the surplus. In his own framework, this does not make sense. If non-agricultural prices cover costs, they must rise in line with any increase in agricultural prices, so the produit net is unchanged in real terms*”. There are two alternatives. Either Quesnay really does not understand his own notion of *produit net* or perhaps Brewer has not noticed that when Quesnay argues that high relative prices of grain increase profits he is talking about a situation *taking as given the market prices*” (NAPOLEONI, 1983, p. 26). Neither of the two statements can be sustained. The first would mean that capital is homogenous in agriculture (and it is not in *Grande Culture*). The second would mean that Physiocrats had no theoretical notion of prices and of course they had the *prix fondamental* and the *bon prix*.

³¹ It seems that unfortunately Santos (1996) and Coutinho (1993) fell into that interpretative trap.

in which the price of manufactures is above the *prix fondamental* and there are surplus profits in “iron” ($r_3 > 0$ in equation (7) above) that could be reduced to increase agriculture surplus profits and/or rents . In other words, Quesnay doctrine of the *bon prix* for grains may be instead based precisely on the fact that non agricultural prices **do not** just cover costs, as they thought they should.

VII. Capital accumulation, Profits and the *Tableau Économique*.

It is important to note the connection between the question of the distribution of the surplus between profits and rents and the analysis of the process of capital accumulation. Quesnay appeared to think in terms of a process of capital accumulation with the diffusion of the *Grande Culture* technique in the production of both grain and wine until it reaches the limits given by the total amount of arable land in the agricultural kingdom. In fact he seems to think of a limit such as:

$$t_1 X \leq T$$

where X_1 is the gross output of grain and T is the amount of land that can be cultivated to produce corn. The maximum level of grain gross output, at which the maximum amount of net output is also reached is given by:

$$(8) \quad X_1 = \frac{T}{t_1}$$

Note that Quesnay does not say but this limit could in principle be increased either by further technical change that allowed a higher grain output per hectare or by a reduction of the land use for cultivating luxury crops such as wine, if we assume (as we did in our formalization) that such lands could be use to cultivate corn instead. In that (admittedly strong) case, a reduction of 1 unit of gross output of wine would liberate t_2 units of homogeneous land for grain production. In any case, the limit given by (8) would determine the maximum attainable level of luxury consumption, under the given circumstances.

In the specific situation depicted in the *Tableau Économique* this process of diffusion has been completed and the land constraint (8) has been reached. In the “*Analyse de la Formule Arithmétique du Tableau Économique*” (Analysis of the Arithmetic Formula of the

Tableau Économique), Quesnay gives the main features of the economy described in the *Tableau*:

“Supposons donc un grand royaume dont le territoire porté à son plus haut degré d’agriculture, rapporterait tous les ans une reproduction de la valeur de cinq milliards ; et où l’état permanent de cette valeur serait établi sur les prix constants qui ont cours entre les nations commerçantes, dans le cas où il y a constamment une libre concurrence de commerce, et une entière sûreté de la propriété des richesses d’exploitation de l’agriculture³² » (QUESNAY, p. 794-795).

Thus, in the *Tableau*, the economy has reached a final stationary state with zero net accumulation of capital.

Of course, in that final *Tableau* stationary state, surplus profits are zero because capitalists only consume and there is no need for further accumulation and we get:

$$(4') \text{ grain} \quad 1 = a_{11}^* + a_{31} \cdot p_3 + t_1 \cdot f$$

$$(5') \text{ iron} \quad p_3 = a_{13}^* + a_{33} \cdot p_3$$

$$(9) \text{ wine} \quad p_2 = (a_{12}^* + a_{32} p_2) + t_2 \cdot f$$

$$(10) \text{ carriages} \quad p_4 = (a_{14}^* + a_{34} p_2)$$

In this situation there is complete symmetry between the physical surplus of grain and the distribution of the surplus by the relative price system because in this case, and only in this case, the physical surplus is created in agriculture and is wholly appropriated by the landlords.

Note that if the rate of surplus profits in iron manufacturing were to be positive the surplus, in spite of being physically created in the production of grains would be in part appropriated by producers of wine and carriage. On the other hand if the rate surplus profits in the grain sector were positive part of the surplus of grain is appropriated by the grain farmers. In all these cases the symmetry between the conditions of production of the surplus and its appropriation would break down.

³² « We assume, then, a large kingdom whose territory, fully cultivated by the best methods, yields every year a reproduction to the value of five milliards; and in which the permanent of this value is ensured by the constant prices which are current among trading nations, in the case where there is unremitting free competition in trade and complete security in the wealth employed in agriculture”(our translation).

Moreover, outside the stationary state this system of prices of production does not seem adequate. For on the route to the final stationary state, the demand for all goods will be increasing and the advances of both corn and iron must grow period after period for the production of all four commodities. If the production of these commodities is to catch up with the growing demand for them, there must be net investment. But if we assume that the landlords themselves do not invest and that workers live on subsistence wages we then must have positive surplus profits during the process of capital accumulation, not as temporary effect of an imbalance between effectual demand and the quantity brought to market that would cause an equally temporary deviation of current or market prices from the prices of production, but as permanent component of the prices of production of all commodities.

Note that this conclusion does not depend on who finances those investments in each branch of the economy. Even if landlords lent part of their surplus to capitalists in general the prices of production would have to incorporate a rate of profits high enough to pay back the interest on those loans plus some minimum risk premia. But that is not what Quesnay assumes. Since we have also assumed that there is no capital mobility across agriculture and manufacturing we know that the four rates of surplus profit do not have to be same. If there is growth and accumulation we know these rates must be positive. But we have no way of ascertaining their level. It could be tempting to argue that the surplus profit rates in the production of each commodity should be equal to the rate of growth of the demand for each of them, but even without capital mobility if there is some that competition among producers of the same good we could not ensure that, since different farms of grains could be growing at different rates, and the same could occur with different vineyards and different producers of iron and of carriages. Thus, the only reasonable conclusion is that, outside the final stationary state, we know that the rates of profit will be positive and uniform in agriculture and positive in manufacturing. But we have no clear criteria in the original texts of Quesnay on what should be their exact levels.

VIII.Final Remarks.

The upshot of the whole discussion is that Quesnay was clearly dealing with a capitalist economy or at very least that there was capitalism in the agricultural sector (in both grain and wine production) . Marx was completely wrong when said that capitalists in

agriculture were paid functionaries of the landowners.³³ They were not. They just rented the land exactly as Ricardo's farmers did. The big difference is the lack of free capital mobility, not of capitalism as such. Quesnay also made the typically classical intimate connection between (surplus) profits and the accumulation of capital, with capitalists being the key investors of the system. But this has been lost for in the particular conditions of the *Tableau Économique*, net accumulation of capital has come to an end and profits are down to their minimum "subsistence" level.

Quesnay had not developed yet the notion of the general (uniform) rate of profits, nor separated clearly within profits the wages and salaries of management from the pure income from advancing capital. That was left for Turgot and Smith. He also did not have a complete theory of how the surplus would be divided between rent and sectorial profits outside the final stationary state depicted in the *Tableau*. That had to wait until Ricardo's notion of differential rent. But in our view it is a serious mistake to argue that there was anything "feudal" about his system³⁴. The fact that Quesnay thought of profits as part of necessary consumption whilst rents are part of the surplus and the implied conclusion that all taxes should fall on rents may easily show that his main concern was to guarantee the profitability of modern capitalist agriculture, which he argued that was the key to French prosperity.

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³³ "the Physiocrats...regarded rent as the only surplus, and capitalists and labourers together merely as the paid employees of the landlord" (Marx in KURZ e GEHRKE, 1998).

³⁴ Most of Marx's passages in the Theory of Surplus Value on the feudal aspect of Physiocracy are quite explicitly ironic but a few give the impression of being serious and therefore inadequate. Matters are not helped by some apologetic remarks by other Physiocrats such as Mirabeau, the elder.

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