



# Documentos CEDE

ISSN 1657-7191 edición electrónica

The Process of Circulation in Quesnay's  
*Tableau Économique*

**Hernando Matallana**

**13**

AGOSTO DE 2008

Serie Documentos Cede, 2008-13  
ISSN 1657-7191

Agosto de 2008

© 2008, Universidad de los Andes–Facultad de Economía–Cede  
Carrera 1 No. 18 A – 12, Bloque C.  
Bogotá, D. C., Colombia  
Teléfonos: 3394949- 3394999, extensiones 2400, 2049, 2474  
*infocede@uniandes.edu.co*  
*http://economia.uniandes.edu.co*

Ediciones Uniandes  
Carrera 1 No. 19 – 27, edificio Aulas 6, A. A. 4976  
Bogotá, D. C., Colombia  
Teléfonos: 3394949- 3394999, extensión 2133, Fax: extensión 2158  
*infeduni@uniandes.edu.co*  
*http://ediciones.uniandes.edu.co/*

Edición, diseño de cubierta, pre prensa y prensa digital:  
Proceditor Ltda.  
Calle 1C No. 27 A – 01  
Bogotá, D. C., Colombia  
Teléfonos: 2204275, 220 4276, Fax: extensión 102  
*proceditor@etb.net.co*

Impreso en Colombia – Printed in Colombia

El contenido de la presente publicación se encuentra protegido por las normas internacionales y nacionales vigentes sobre propiedad intelectual, por tanto su utilización, reproducción, comunicación pública, transformación, distribución, alquiler, préstamo público e importación, total o parcial, en todo o en parte, en formato impreso, digital o en cualquier formato conocido o por conocer, se encuentran prohibidos, y sólo serán lícitos en la medida en que se cuente con la autorización previa y expresa por escrito del autor o titular. Las limitaciones y excepciones al Derecho de Autor, sólo serán aplicables en la medida en que se den dentro de los denominados Usos Honrados (Fair use), estén previa y expresamente establecidas; no causen un grave e injustificado perjuicio a los intereses legítimos del autor o titular, y no atenten contra la normal explotación de la obra.

**THE PROCESS OF CIRCULATION IN QUESNAY'S *TABLEAU*  
*ÉCONOMIQUE***

Hernando Matallana, Bogotá, July 2008<sup>1</sup>

**Abstract**

At the end of the 17<sup>th</sup> century capitalism had become the new social and economic order in northern Western Europe. Ever since the trading channels through which money and commodities change hands between the different agents, the actual sequence of these all-comprising monetary exchange processes, and the intertwining of the processes of production and circulation have always been a central issue in heterodox economic thought. The paper discusses Quesnay's contribution to the theoretical foundation of the social process of circulation of capital in a monetary production economy in the *Tableau économique*. Additionally, the accounting dynamics of the circulation process of the agricultural kingdom is described by means of system of credit-debit tables currently used by German authors.

**Key words:** accounting dynamics, circulation process, effective demand, input-output analysis, monetary production economy, physiocracy.

**JEL classification:** B11, B14, B22, E40.

---

<sup>1</sup> I am particularly grateful to Jimena Hurtado, Alvaro Moreno, Luis Felipe Sáenz and Fernando Pérez for their suggestions and comments on earlier drafts. All remaining errors are mine. Lecturer, School of Economics, Universidad de los Andes, E-mail: hmatalla@uniandes.edu.co.

# EL PROCESO DE CIRCULACIÓN EN EL *TABLEAU ÉCONOMIQUE* DE QUESNAY

Hernando Matallana, Bogotá, Julio 2008<sup>2</sup>

## Resumen

A finales del siglo XVII el capitalismo se había establecido ya de manera definitiva como el nuevo orden económico y social en el norte de Europa occidental. Desde entonces, la necesidad de determinar los canales del comercio a través de los cuales el dinero y las mercancías cambiaban de mano entre los distintos agentes, el orden cronológico y espacial de estos procesos comprensivos y omnipresentes de intercambio, así como el entrelazamiento de los procesos de producción y circulación, se convirtió en una preocupación central del pensamiento económico heterodoxo. El artículo discute la contribución de Quesnay a la fundación teórica del proceso social de circulación del capital en una economía monetaria de producción en el *Tableau économique*. Adicionalmente, la dinámica contable del proceso de circulación del reino agrícola se describe mediante un sistema de tablas de créditos y débitos utilizadas regularmente por autores alemanes.

**Palabras clave:** análisis insumo-producto, demanda efectiva, dinámica contable, economía monetaria de producción, fisiocracia.

**Clasificación JEL:** B11, B14, B22, E40.

---

<sup>2</sup> Estoy especialmente agradecido con Jimena Hurtado, Alvaro Moreno, Luis Felipe Sáenz y Fernando Pérez por sus comentarios y sugerencias en versiones anteriores. Todos los errores los asume el autor. Facultad de Economía, Universidad de los Andes, E-mail: hmatalla@uniandes.edu.co.

# The process of circulation in Quesnay's Tableau Économique

## Content

|  |    |
|--|----|
| 1. Introduction .....  | 3  |
| 2. Quesnay's <i>Tableau économique</i> (1766).....                       | 5  |
| 3. Quesnay's notion of the circulation process and effective demand..... | 14 |
| 4. Final summing up .....  | 16 |
| 5. Appendix – The accounting dynamics of the agricultural kingdom.....   | 19 |
| 6. References .....  | 24 |

## 1. Introduction

At the end of the 17<sup>th</sup> century capitalism had become the new social and economic order in northern Western Europe. Ever since the understanding of the all-comprising monetary exchange process and the intertwining of the processes of production and circulation, the knowledge of the actual sequence of the inter-sectoral and inter-class exchange transactions, and the trading channels through which money and commodities change hands between the different agents have been a central issue in heterodox economic thought. Not so for orthodox classical-neoclassical economic thought.

In particular, the notion of the *circuit économique* was at the heart of the mercantilist and physiocratic systems of political economy in England and France during the 17<sup>th</sup> and the 18<sup>th</sup> centuries. Early versions of the economic circuit can be found in the works of Petty, Davenport, Mandeville, Boisguilbert and Cantillon. However, the main analytical and theoretical problems posed by the process of circulation were solved by François Quesnay and his followers in the mid-18<sup>th</sup> century. With respect to the latter's system, Marx noted: "As a matter of fact the system of the physiocrats is the first systematic conception of capitalist production." [Marx (1983a, 1885), vol. II, chap.19]

All the pre-classical versions of the economic circuit are stated in terms of monetary aggregates. This is a main feature also shared by the monetary systems of political economy as formulated later by heterodox economists such as Marx, Keynes and Kalecki. However, the economic categories that the pre-classical authors like Cantillon

and Quesnay used to describe the circulation process of money and commodities did not reflect the economic relations of a capitalistic society.

For the notion of the economic circuit to be useful for the understanding of a capitalistic economy, the pre-classical versions of the circulation process had first to be ‘translated’ into a system of economic categories that explicitly expressed the functional class division of the capitalistic society. Smith’s system of political economy and Malthus’s theory of effective demand played an important part in the process. However, it is Marx who must be credited for having accomplished the task about a hundred years after the publication of Quesnay’s *Tableau économique*.

A particular issue at the center of the notion of the circulation process is its *accounting dynamics*. Quesnay tried to fix it by means of his famous *zig-zag* expenditure process for the agricultural kingdom in the very first version of the *Tableau* published in 1758, without much success. The intrinsic difficulties to understand his *zig-zag* conception of the *Tableau* prompted Quesnay and his followers to write several explanations of the accounting dynamics of the *circuit économique*. This led to the simplification of the circulation process of the agricultural kingdom as contained in Quesnay’s *Analyse de la formule arithmétique du Tableau économique* (1766). Later, Marx developed a complete analysis of the accounting dynamics of the circulation process for a capitalistic economy in section III of volume II of *Capital* published posthumously by Engels in 1885.

Several devices have been developed in order to visualize the accounting dynamics of the circulation process, e.g. Quesnay’s (1991) *zig-zag*, Marx’s own sketches and the reproduction schemes in volume II of *Capital*, the Marx-Leontief-Samuelson closed and open input-output matrices, Tsuru’s (1942) and Cartelier’s (1976) box-arrow schemes. Yet, neither of these devices allows describing accurately and succinctly the accounting dynamics of the circulation process of a monetary production economy.

The present paper argues that this difficulty can be solved provided the accounting dynamics is described by means of a system of interdependent credit-debit accounting tables (currently used by German authors). The net advantage of this particular method vis-à-vis other methods already mentioned is that it keeps record at all stages of both the transactions that take place between the different economic agents (distribution and

exchange) and the actions taken by agents individually (consumption and production). This allows fixing the interdependence of the production and the circulation processes at different stages and the circulation of money and commodities between the different production sectors and functional agents/classes of the economy. In this way it becomes possible to visualize simultaneously and sequentially the allocation of money and resources at the social and individual level. Also this approach helps understanding the monetary logic of the principle of effective demand.

The paper is organized as follows. Section 2 discusses the functional conditions of the economic process of the agricultural kingdom as described in Quesnay's 1766 version of the *Tableau*. Section 3 contains a comment on the monetary logic of the process of circulation and the principle of effective demand. Section 4 contains some concluding remarks. The appendix contains the description of the accounting dynamics of both the production and circulation processes of the agricultural kingdom in terms of the system of interdependent credit-debit accounting tables currently used by German authors.<sup>3</sup> For simplicity only the accounting dynamics of the long-run stationary state equilibrium will be considered.

## **2. Quesnay's *Tableau économique* (1766)**

The *raison d'être* of the physiocratic school is: (i) the legitimating of the class system of the *Ancien Régime*; and (ii) the conciliation of the particular interests of these different classes. Quesnay's need to provide an objective foundation for the political order of the *Ancien Régime* and to justify the superiority of the monetary economy vis-à-vis the feudal system led him to the conception of the society as an *ordre naturel*. This is done at the theoretical level for the agricultural kingdom. Quesnay's *Tableau économique* contains the system of political economy of the landed class in a monetary economy. This is precisely stated in the *Maximes générales du gouvernement économique d'un royaume agricole*:

“IV. *Que la propriété des biens fonds et des richesses mobilières soit assurée à ceux qui en ont les possesseurs légitimes ; car LA SÛRETÉ DE LA*

---

<sup>3</sup> See Stützel (1958); Menéndez (1989); Schmitt/Greco (1996).

PROPRIÉTÉ EST LE FONDEMENT ESSENTIEL DE L'ORDRE ÉCONOMIQUE DE LA SOCIÉTÉ. Sans la certitude de la propriété le territoire resterait inculte. Il n'y aurait ni *propriétaires*propriétaires ni fermiers pour y faire les dépenses nécessaires pour le mettre en valeur et pour le cultiver, si la conservation du fonds et des produits n'était pas assurée à ceux qui font les avances de ces dépenses. C'est la sûreté de la possession permanente qui provoque le travail et l'emploi des richesses à l'amélioration et à la culture des terres, et aux entreprises du commerce et l'industrie. Il n'y a que la puissance souveraine qui assure la propriété des sujets, qui ait un droit primitif au partage des fruits de la terre, source unique des richesses.”[Quesnay (1991): 238] (italics and capital letter in the original)

Quesnay worked out several versions of the *Tableau économique* between 1758 and 1766. Throughout all its versions the society of the royaume agricole is divided in three main economic classes:

“La nation est réduite à trois classes de citoyens: la *classe productive*, la *classe des propriétaires* et la *classe stérile*.”[Quesnay (1991): 209].

The division of the social system of the agricultural kingdom in the three classes reflects *grosso modo* the economic structure of 18<sup>th</sup>-century France. According to Quesnay, the *classe productive* is the pivotal agent of the economic process and of the production of the wealth of the agricultural kingdom:

“L'intérêt du cultivateur est la premier ressort de toutes les opérations économiques et de tous les succès de l'agriculture ; plus les productions sont constamment à haut prix, plus le retour annuel des reprises des fermiers est assuré, plus la culture s'accroît, et plus les terres rapportent de revenu, tant par le bon prix des productions, que par l'augmentation de reproduction annuelle ; plus la reproduction s'accroît, plus les richesses de la nation se multiplient, et plus la puissance de l'État augmente.”[Quesnay (1991): 227n]

Quesnay's own explanations of the circulation process of the different *Tableaus* shows that he was aware of the existence of other agents besides the three-class economy of



the *royaume agricole*.<sup>4</sup> He considered a larger number of economic agents (e.g. money lenders, foreign traders, urban renters, domestic servants) that interacted in the economic process. However, explicit consideration of these agents would substantially modify the simplistic three-class version of the *Tableau* that Quesnay himself and Marx helped popularize.

The discussion in this section keeps close to Quesnay's tripartite class system. Accordingly, the *classe productive* produces agricultural goods, the *classe stérile* produces manufactures, and the *classe des propriétaires* owns the land and has a right upon a fraction of the agricultural product under the form of the moneyed land rent.

Quesnay stated in 1758 in a clear and precise manner the theoretical substance of the *Tableau économique*:

“Objets à considérer ; 1° trois sortes de dépenses ; 2° leur source ; 3° leurs avances ; 4° leur distribution ; 5° leur effets ; 6° leur reproduction ; 7° leurs rapports entre elles ; 8° leurs rapports avec la population ; 9° avec l'agriculture ; 10° avec l'industrie ; 11° avec le commerce ; 12° avec la masse des richesses d'une Nation.”[Quesnay (1991): 89]

Quesnay concentrated on the workings of the circulation process of money and commodities between the main three classes and the two sectors (agriculture and manufacturing industry) of the *royaume agricole*. In particular, he defined the notion of circulation that underlies his discussion of the economic circuit:

“Par circulation, on entend ici les achats de la première main, payés par le revenu qui se partage à toutes les classes d'hommes, distraction faite du commerce, qui multiplie les ventes et les achats, sans multiplier les choses, et qui n'est qu'un surcroît de dépenses stériles.”[Quesnay (1991): 94]

---

<sup>4</sup> When describing e.g. the expenditure of the *classe stérile* in the 1758 version of the *Tableau* Quesnay writes: “Les *Dépenses stériles* se font en marchandise de main-d'œuvre, logement, vêtements, intérêts d'argent, domestiques, frais de commerce, denrées étrangères, etc.”[Quesnay (1991): 91] Clearly, the payment of housing rent, domestic servants, interest on borrowed money, trade tariffs (frais de commerce), and imported commodities implies the existence of economic agents other than the landowners, the farmers and the manufacturers (*artisans*). These agents are not considered in Quesnay's 1766 version of the *Tableau* discussed in this paper.

The simplest yet not simplistic version of the *Tableau* is that discussed by Quesnay in *Analyse de la formule*. The two-sectors three-classes 1766 version of the agricultural kingdom allows to explain in a simple manner the accounting dynamics of the circulation process, the specificity of the input-output matrix, the principle of effective demand, and the demand-income multiplier of the physiocratic monetary production economy. These distinct features are also present in the theory of a monetary production economy *alias* capitalism as discussed by Marx, Keynes and Kalecki, though in a more complex manner.

### 2.1. The functional conditions of production

The economic process comprises: (i) the circular production of commodities; (ii) the circulation of money and commodities; (iii) the payment of the land rent; and (iv) the land rent contract. In particular, the circulation of money and commodities allows for the replacement of capital goods used up during the production process, the payment of the land rent, and the realisation of the gross profit (*les intérêts*) of the productive class.

The material conditions of the production process require the *classe stérile* or the *artisans* in the manufacturing industry to own the raw materials and the consumption goods it needs to produce the manufactures. It also requires the *classe productive* in the agricultural sector to own the raw materials, the consumption goods and the manufactures it needs to produce the agricultural goods consumed during the previous year. The technical relations of the production of the agricultural goods and the manufactures implies the circular production of commodities.

Land is also technically required to produce the agricultural goods. Labour is paid a subsistence wage in either sector and it is ‘produced’ by the economic system, hence, labour must not be considered explicitly since it may be integrated into the matrix of technical coefficients.

Quesnay distinguishes between the *avances annuelles* and the *avances primitives*, i.e. between circulating capital and fixed capital. In a self-replacement (stationary) state, both the produced agricultural inputs and the manufactures are used (i) both in the agricultural sector and the manufacturing sector to replace the inputs consumed during

the previous year as circulating capital goods; (ii) in the agricultural sector to replace the yearly wear and tear of fixed capital goods due both to its normal productive use (depreciation); and (iii) in the agricultural sector to fix the damage caused on the general production conditions by natural accidents.

In the long-run self-replacement state equilibrium, the production of agricultural commodities for 5 *milliards de livres* requires the purchase of agricultural goods for 2 *milliards* and of manufactures for 1 *milliard*. Also, the production of manufactures for 2 *milliards de livres* in the industrial sector requires the purchase of agricultural commodities for 2 *milliards*.

The production process in the manufacture sector can be started immediately once the *classe stérile* has bought the inputs. However, the production process in the agricultural sector is conditioned to the land rent contract between the *classe des propriétaires* and the *classe productive*. The land rent contract requires the *classe des propriétaires* to put the possession of the land, though not the property upon it, at the disposal of the *classe productive* during the time of the production process, and the *classe productive* both to pay the land rent and to return the possession of the land to the *classe des propriétaires* at the end of the production process.

Hence, the payment of the moneyed land rent reasserts both the property right of the *classe des propriétaires* upon a fraction of the value of the agricultural product equal to the land rent, and the obligation of the *classe productive* to produce a value-added equal to the revenue of the *classe des propriétaires*. The money value of the annual land rent is fixed at 2 *milliards de livres*.

## 2.2. The functional conditions of circulation

The regularity of the economic process in the (stationary) long-run equilibrium implies that (i) the quantity of money and the velocity of circulation are more or less ‘given’ and (ii) after the completion of the circulation process of money and commodities between the three classes the totality of the money in the economy returns to its initial possessors, i.e. the *classe des propriétaires* and the *classe stérile*.

Quesnay does not supply a true theory of money supply explaining the process of production and distribution of the money in the economy. According to Quesnay, the money of the economy is bullion or coin, albeit credit money and bills of exchange may also be used in the circulation process between the three classes. He suggests that the agricultural kingdom may obtain bullion through its foreign trade. However, in a prosperous agricultural kingdom, credit money and bills are widely used:

“Mais chez les nations riches, il y a beaucoup d’hommes connus pour riches, et dont la promesse par écrit est regardée comme très sûre et bien garantie par leurs richesses, de sorte que toutes les ventes considérables s’y font à crédit, c’est-à-dire par l’entremise de papiers valables qui suppléent à l’argent et facilitent le commerce.”[Quesnay (1991): 230]

Nowhere in the *Tableau* is it precisely explained how money in the economy comes to the hands of the agents before the beginning of the circulation process. Though Quesnay remarks in relation to the quantity of money and the velocity of circulation of money:

“Cette somme d’argent peut être supposée plus ou moins grande dans sa totalité, et la circulation plus ou moins rapide; car la rapidité de la masse de l’argent peut suppléer en grande partie à la quantité de la masse d’argent.”[Quesnay (1991): 218n]

According to Quesnay, at the beginning of the circulation process, i.e. at the end of the production process (of the last year) and before the beginning of the circulation process (of the current year): (i) the *classe des propriétaires* owns 2 *milliards de livres* and the *classe stérile* owns 1 *milliard*; Quesnay assumes that the total quantity of money needed to complete the circulation process of the agricultural kingdom (as discussed in the 1766 version of the *Tableau*) is equal to 3 *milliards de livres*<sup>5</sup>; (ii) the *classe productive* owns the agricultural product produced the previous year for 5 *milliards de livres* and the *classe stérile* owns the manufactures also produced the previous year for 2 *milliards*;

---

<sup>5</sup> Quesnay suggests in the “*septième observation*” in the 1766 version of the *Tableau* that under ideal conditions 2 *milliards de livres* are enough for the circulation process to take place. Quesnay is right on this point, however, this would require modifying the accounting dynamics circulation process. See Quesnay (1991): 230.

and (iii) the *classe productive* owes the land rent to the *classe des propriétaires* for 2 *milliards*.

The circulation of both money and commodities begins with the consumption expenditure of the *classe des propriétaires*. In the stationary long-run equilibrium the money-value of the expenditure of the *classe des propriétaires* is equal to its land rent income, i.e. 2 *milliards de livres*. The *classe des propriétaires* spends half of its money buying agricultural goods from the *classe productive* and half buying manufactures from the *classe stérile*. Next, the *classe stérile* uses the money it owns initially to buy raw materials for 1 *milliard de livres* from the *classe productive* and it uses the money it has obtained from the *classe des propriétaires* to buy consumption goods (*subsistance des agents*) for 1 *milliard de livres* also from the *classe productive*. The 3 *milliards de livres* so obtained by the *classe productive* are “*les reprises*” of the latter class.

### 2.3. “*Les intérêts*” of the *classe productive*

At this stage, all the money of the economy initially held by the *classe des propriétaires* and the *classe stérile* is owned by the *classe productive*. The *classe productive* is in a position that allows it to finance: (i) the replacement of the *avances annuelles* (i.e. the circulating capital) in the agricultural sector; (ii) *les intérêts* of the *classe productive*; and (iii) the payment of the land rent to the *classe des propriétaires*.

*Les intérêts* of the *classe productive* comprise the depreciation of fixed capital, the (ordinary) reparation fund, and the profit on (fixed) stock of the agricultural sector. According to Quesnay, *les intérêts* should not be included in the *avances annuelles* (Quesnay (1991): 216). Quesnay assumes *les intérêts* to be equal to 10% of the fixed capital and the money value of the fixed capital to be equal to five times the money value of land rent. Hence, the money value of fixed capital is 10 *milliards de livres* and the money value of *les intérêts* of the *classe productive* is 1 *milliard de livres*.

The reparation fund (*fond de reparation*) serves to warrant the fulfillment of the conditions that allow the *classe productive* the full payment of the land rent to the *classe des propriétaires*. It also serves to warrant the reproduction of the production conditions

of the agricultural sector and of the *classe productive* itself. The hierarchical character of the *ordre naturel* becomes apparent at this point:

“Si les cultivateurs n’avaient aucun fonds en réserve, il s’ensuivrait qu’après de tels accidents il ne pourraient pas payer les propriétaires et le souverain, ou qu’ils ne pourraient pas subvenir aux dépenses de leur culture l’année suivante ; ce dernier cas serait celui qui arriverait toujours, *attendu que le souverain et les propriétaires ont l’autorité pour se faire payer* ; et l’on sent les conséquences funestes d’un pareil anéantissement de culture qui retomberait bientôt et sans ressource sur les propriétaires, sur le souverain, sur le décimateurs, sur tout le reste de la nation.”[Quesnay (1991): 215] (*italics added*)

According to Quesnay, the profit on stock (as defined above) of the *classe productive* is not the wage of the *fermiers*, i.e. the agricultural capitalists, for in general the wages are comprised in the *avances annuelles*. Under ordinary circumstances, the normal rate of profit of the *classe productive* will be equal to the money rate of interest paid to the *rentiers fainéants*.<sup>6</sup> Yet, this profit on stock is used by the *classe productive*, (i) under normal circumstances, to the improvement of agriculture in order to be able to carry on the reparation of the damage caused on the general conditions of production due to *grands accidents*; and (ii) under extraordinary circumstances, to finance the extraordinary reparation expenses not covered by the ordinary reparation fund.<sup>7</sup>

The profit on stock of the *classe productive* must be used to warrant the reproduction of the normal (long-run) conditions of production. Hence, according to Quesnay, the normal (long-run equilibrium) profit on stock of the *classe productive* is not a *revenu*, i.e. it is not a net income on stock, unlike the land rent of the *classe des propriétaires*,

---

<sup>6</sup> Quesnay’s *rentiers fainéants* can be equated to Keynes’s *rentiers* in the *General Theory*. The income and the expenses of the *rentiers fainéants* are not considered by Quesnay, at least not explicitly, in his explanation of the circulation process in the 1766 version of the *Tableau*. This might be an indication that Quesnay’s explanation does not contain a complete accounting dynamics of the economic process. This issue is not addressed in the present paper.

<sup>7</sup> “La somme total de ces intérêts se dépense annuellement, parce que les cultivateurs [i.e. the *classe productive*] ne les laissent point oisifs ; car dans les intervalles où ils ne sont pas obligés de les employer aux réparations, ils ne manquent pas de les mettre à profit pour accroître et améliorer leur culture, sans quoi ils ne pourraient pas subvenir aux grands accidents. Voilà pourquoi on compte les intérêts dans la somme des dépenses annuelles.”

“parce que les dépenses du cultivateur sont moins disponibles que celles du propriétaire [Quesnay (1991): 220]”.

*De facto*, this means that *les intérêts* of the *classe productive* must be treated as outlays of production together with the *avances annuelles*. Nevertheless, Quesnay’s argument might be interpreted as a strategy to prevent the profit on stock of the capital of the *classe productive* to be regarded as a net income. This allows Quesnay to counter the introduction of a value-added tax on the profits of the agricultural capitalists while he simultaneously favours the latter’s particular economic interests.

#### 2.4. The payment of the land rent

The *classe productive* also uses the money it has obtained from the sale of the agricultural goods to both the *classe des propriétaires* and the *classe stérile* to pay the land rent to the *classe des propriétaires*. Yet, in the agricultural kingdom, the *classe des propriétaires* comes into the possession of money through the payment of the moneyed land rent owed to it by the *classe productive*. However, as noted before, Quesnay does not precisely explain where does the money in the economy come from and how it is distributed between the *classe des propriétaires* and the *classe stérile* for these two classes to own all of it each year at the end of the production process and before the beginning of the circulation process.

The payment of the land rent implies the function of money as a *medium of deferred payments*. The *classe productive* pays the rent and in this way it buys from the *classe des propriétaires* the fraction of the agricultural product of which the former class is only the nominal possessor and the latter class its true proprietor. By the same token, the creditor-debtor relation between the *classe des propriétaires* and the *classe productive* is dissolved. Though not for very long, for the renewal of production in the agricultural sector and in the economy as a whole is conditioned to the renewal of the land rent contract.<sup>8</sup>

---

<sup>8</sup> See Marx (1965) volume I for a thorough discussion of this substantial point of a monetary production economy.

According to Quesnay, the payment of the land rent to the *classe des propriétaires* by the *classe productive* takes place after the latter class has sold the annual product of agriculture, and it has reestablished the material conditions of production of the agricultural commodities (Quesnay (1991): 210).

### 3. Quesnay's notion of the circulation process and effective demand

At the end of the circulation process of money, the money in the economy is distributed between the *classe des propriétaires* and the *classe stérile* as in the beginning of the circulation process, i.e. 2 *milliards de livres* are in the hands of the *classe des propriétaires* and 1 *milliard de livres* in the hands of the *classe stérile*:

“Les sommes d’argent qui passent à chaque classe s’y distribuent par la circulation d’une somme totale d’argent qui recommence chaque année la même circulation.”[Quesnay (1991): 218n]

The circulation of money and commodities and the recreation of the conditions of production are conditioned by the expenses of the *classe des propriétaires* and the *classe stérile*:

“Dans l’ordre régulier que nous suivons ici, toute la somme des achats qui se font annuellement par les *propriétaires* et par la *classe stérile* revient annuellement à la *classe productive*, pour payer chaque année aux *propriétaires* le revenu de deux *milliards*, et pour lui payer à elle-même les intérêts de ses avances primitives et annuelles.”[Quesnay (1991) : 223]

Hence,

“[C’est] par l’ordre de la distribution des dépenses, selon qu’elles reviennent ou qu’elles sont soustraites à la *classe productive*, selon qu’elles augmentent ses avances ou qu’elles diminuent, selon qu’elles soutiennent ou qu’elles font baisser le prix de productions, qu’on peut calculer les effets de la bonne ou mauvaise conduite d’une nation.”[ibid.] (italics in the original)



The credits and debits of the intra- and inter-sectorial sales and purchases of agricultural commodities and manufactures destined to replace the circulating capital goods consumed in either sector during the production process cancel each other. Quesnay's treatment of the source and the destination of *les intérêts* of the *classe productive* (see section 2.1.3) implies that both *les intérêts* (credit) and the purchases of commodities destined to replace the depreciation of fixed capital and to repair the damages caused by the *grands accidents* (debit) in the agricultural sector are *de facto* comprised in the credits and debits of intermediate consumption.

Accordingly, at the aggregate level, the ability of the *classe productive* to make the (gross) profit that allows it to finance the payment of the land rent to the *classe des propriétaires* is conditioned to the money expenses of the *classe des propriétaires* itself. In the long-run equilibrium, the *classe productive* will be able to finance exactly the payment of the land rent whenever the money value of the consumption expenditure of the *classe des propriétaires* neither falls short nor exceeds the latter's money income. This is clearly stated by Quesnay in the *Maximes générales du gouvernement d'un royaume agricole*:

“VII. *Que la totalité des sommes du revenu rentre dans la circulation annuelle et la parcourt dans toute son étendue ; qu'il ne se forme point de fortune pécuniaires, ou du moins, qu'il y ait compensation entre celles qui se forment et celles qui reviennent dans la circulation ; car autrement ces fortunes pécuniaires arrêteraient la distribution d'une partie du revenu annuel de la nation, et retiendraient le pécule du royaume au préjudice de la rentrée des avances de la culture, de la rétribution du salaire des artisans, et de la consommation que doivent faire les différentes classes d'hommes qui exercent des professions lucratives ; cette interception du pécule diminuerait la reproduction des revenus et de l'impôt.*”[Quesnay (1991): 239]

The individual owner may regard (the present value of) his land rent as the budget constraint of his (intertemporal) consumption expenditure; yet, it is the consumption expenditure of the *classe des propriétaires* as a whole which determines the level of the money income of both the latter class and of the individual *propriétaires* (in the average) as well. Hence, the *classe des propriétaires* needs *money* in order to be able to demand the consumption goods from the *classe productive* and the *classe stérile*, not

income. This is the substance of the monetary logic of the principle of effective demand!

In the prosperous agricultural kingdom of the *Tableau*, the money in the economy can be obtained from the banking system against the payment of interest. Quesnay assumes that the *classe des propriétaires* and the *classe stérile* own the money needed for the completion of the circulation process. He also assumes that the *classe productive* pays the land rent at the end of the circulation process after having sold its product to both the *classe des propriétaires* and the *classe stérile*.

Accordingly, it is possible to assume that both the *classe des propriétaires* and the *classe stérile* borrow the money from the banking system before the circulation process begins and that these two classes pay it back to the banking system once the general process of circulation has been completed.

Alternatively, it is possible to assume that the *classe productive* borrows the money from the banking system in order to pay the land rent at the beginning of the circulation process and that it pays the money back to the banking system once it has sold its product to the *classe des propriétaires* and the *classe stérile*. In the long-run equilibrium, the money created and lent by the banking system returns back fully to and can be readily destroyed by it.

Yet, a theory of (endogenous) money is beyond the scope of physiocratic economic thought, and of the present essay, too.

#### **4. Final summing up**

The monetary theory of the process of circulation of capital and the principle of effective demand is at the center of the theory of the monetary production economy as intended by Marx, Keynes, Kalecki, and heterodox post-Keynes-Kalecki macroeconomics.

Quesnay stated this fundamental proposition in the context of the economy of the agricultural kingdom. The scientific content of his analysis in the *Tableau économique* was the normative foundation of the *ordre naturel* of the *Ancien Régime* in a theoretical guise. His ideological stance did not permit him to understand that the full development

of monetary capitalistic relations conveyed the overcoming of the social order of the landed class in 17<sup>th</sup> century France. Cartelier, like Marx before him, is right when he states that:

“La pensée physiocratique apparaît comme l’aboutissement et la résolution d’une formidable tension entre, d’un côté, une volonté déterminée de réformer la société française d’Ancien Régime tout en ne portant pas atteinte à l’ordre social existant, et, d’un autre côté, la nécessité d’en donner une expression universelle et rationnelle, en fondant cet ordre social si particulier sur des *lois naturelles* dont l’économie politique est l’expression privilégiée. Repenser la structure et la hiérarchie de la société traditionnelle au moyen des catégories modernes économiques pour en faire un avatar de *l’ordre physique le plus avantageux au genre humain*, tel se présente, après coup, la pensée physiocratique.”[Cartelier en Quesnay (1991): 13]

“Le *Tableau économique* est donc moins l’annonceur des temps nouveaux qu’une rationalisation de l’ordre ancien, auquel les formes modernes de l’activité économique doivent se subordonner. S’inscrivant à contre-courant des forces d’évolution de la société française, le modèle du *royaume agricole* relève davantage de l’utopie que de la prophétie réussie ...”[ibid.: 64]

However, Quesnay’s scientific genius allowed him to decipher the inner logic of the all-comprising process of production and circulation of money and commodities. The monetary logic of the circulation process of capital implies a social order characterized by power relations between the *classe des propriétaires* and the other agents of the economy. It also implies the principle of effective demand as a central piece of the economic dynamics of the monetary production economy. In particular, the demand of the *classe des propriétaires* allows for both the formation of the money income in the circulation process and the financing of the production process by the productive capitalists.

Classical-neoclassical economic theory stands in sharp contrast to Quesnay’s theoretical position with respect to money and the process of circulation of capital. As a matter of fact, the monetary circulation process is anathema in neoclassical general equilibrium theory. Hahn remarks that:

“Certainly the Arrow-Debreu economy has no medium of exchange and has great difficulties in accomodating one; but it is not a barter economy either. That is because neither the process nor the technology of exchange is described and because it makes no sense to ask in this connection what does A exchange against what with whom in order to reach his allocation. As everyone knows, the description of this economy, for instance the pure exchange case, is complete when one is given the commodity space  $R_+^l X$ , the number of households ( $H$ ), their consumption sets  $X_h$ , their orderings ( $\succ_h$ ) on  $X_h$  and their endowments  $\bar{x}_h \in R_+^l$ . It is taken for granted that there are known terms of exchange in prices, one price for each good and the same price for each agent, and that any action which satisfies the budget constraint at these prices is feasible for an agent.”[Hahn (1985): 32]<sup>9</sup>

Orthodox neoclassical economists and anti-heterodox macroeconomists have barely reflected theoretically the process of circulation of money and commodities in a capitalistic economy. Yet, they would soon find out, if they ever start thinking rigorously about this, that they may be following the discovery path set by the mercantilist and the physiocratic authors over two centuries ago. They will also learn that the main theoretical difficulties have already been solved by Quesnay, Marx, Kalecki and Keynes. And, at the time they come up to this conclusion, they will discover that they have to reject their own scientific position vis-à-vis (the theory of) capitalism. Such is the heterodox challenge.

---

<sup>9</sup> Walras’s *real* interpretation of Quesnay’s *monetary* theory of circulation process reflects in a clear manner the neoclassical neglect/negation of money as a substantial moment of the circulation process, and as the general social bond of capitalism as well.[Walras (1954, 1926): 394].

## 5. Appendix – The accounting dynamics of the agricultural kingdom

The accounting dynamics of the agricultural kingdom as described in Quesnay's 1766 version of the *Tableau* is shown here in a systematic way by means of a system of credit-debit tables currently used by German authors.

The notation runs as follows: *M* – money, *Agr* – agricultural goods, *Mf* – manufactures, *R* – land rent, *Y* – income, *Cc* – circulating capital (avances anuales), *Dp* – *les intérêts* of the *classe productive*, *C* – consumption, *VA* – value-added.

The value flows are given in *milliards des livres*. The system tables describe the position of each agent at each stage. In particular, the *classe des propriétaires* is at one time the landed proprietor and at another time the landed household of the agricultural kingdom. For simplicity the flow balance sheet of both agents are shown together in the balance sheet of the *classe des propriétaires*.

As stated in the main text (p.12), at the initial position, i.e. at the end of the production process (of the last year) and before the beginning of the circulation process (of the current year): (i) the *classe des propriétaires* owns 2 *milliards de livres* and the *classe stérile* owns 1 *milliard*; Quesnay assumes that the total quantity of money needed to complete the circulation process of the agricultural kingdom (as discussed in the 1766 version of the *Tableau*) is equal to 3 *milliards de livres*<sup>10</sup>; (ii) the *classe productive* owns the agricultural product produced the previous year for 5 *milliards de livres* and the *classe stérile* owns the manufactures also produced the previous year for 2 *milliards*; and (iii) the *classe productive* owes the land rent to the *classe des propriétaires* for 2 *milliards*.

Changes between stages of both the circulation process and the production process are shown in bold letters.

---

<sup>10</sup> Quesnay suggests in the “*septième observation*” in the 1766 version of the *Tableau* that under ideal conditions 2 *milliards de livres* are enough for the circulation process to take place. Quesnay is right on this point, however, this would require modifying the accounting dynamics circulation process. See Quesnay (1991): 230.

### 5.1.1. The circulation process

(1) At the initial position the money in the economy is distributed between the *classe des propriétaires* and the *classe stérile*, and the annual product is distributed between the *classe productive* and the *classe stérile*. At this stage the *classe des propriétaires* is functionally a landed proprietor, hence the owner of the land rent (*propriétaires du revenu*).

| <i>Classe productive</i> |   |           |   | <i>Classe des propriétaires</i> |   |          |   | <i>Classe stérile</i> |   |           |   |
|--------------------------|---|-----------|---|---------------------------------|---|----------|---|-----------------------|---|-----------|---|
| <i>M</i>                 | 0 | <i>M</i>  | 0 | <i>M</i>                        | 2 | <i>M</i> | 2 | <i>M</i>              | 1 | <i>M</i>  | 1 |
| <i>Agr</i>               | 5 | <i>R</i>  | 2 | <i>R</i>                        | 2 | <i>Y</i> | 2 | <i>Mf</i>             | 2 | <i>Cc</i> | 2 |
|                          |   | <i>Cc</i> | 2 |                                 |   |          |   |                       |   |           |   |
|                          |   | <i>Dp</i> | 1 |                                 |   |          |   |                       |   |           |   |

(2) The *classe des propriétaires* buys consumption goods from the other two classes. At this stage (and the next three stages) the *classe des propriétaires* is functionally both a land proprietor and a household.

| <i>Classe productive</i> |   |           |   | <i>Classe des propriétaires</i> |   |          |   | <i>Classe stérile</i> |   |           |   |
|--------------------------|---|-----------|---|---------------------------------|---|----------|---|-----------------------|---|-----------|---|
| <i>M</i>                 | 1 | <i>R</i>  | 2 | <i>M</i>                        | 0 | <i>M</i> | 2 | <i>M</i>              | 2 | <i>M</i>  | 1 |
| <i>Agr</i>               | 4 | <i>Cc</i> | 2 | <i>R</i>                        | 2 | <i>Y</i> | 2 | <i>Mf</i>             | 1 | <i>Cc</i> | 2 |
|                          |   | <i>Dp</i> | 1 | <i>Agr</i>                      | 1 |          |   |                       |   |           |   |
|                          |   |           |   | <i>Mf</i>                       | 1 |          |   |                       |   |           |   |
|                          |   |           |   | <i>Agr</i>                      | 1 |          |   |                       |   |           |   |

(3) The *classe stérile* buys raw materials (*matières premières des ouvrages*) from the *classe productive*.

| <i>Classe productive</i> |   |           |   | <i>Classe des propriétaires</i> |   |          |   | <i>Classe stérile</i> |   |           |   |
|--------------------------|---|-----------|---|---------------------------------|---|----------|---|-----------------------|---|-----------|---|
| <i>M</i>                 | 2 | <i>R</i>  | 2 | <i>M</i>                        | 0 | <i>M</i> | 2 | <i>M</i>              | 1 | <i>M</i>  | 1 |
| <i>Agr</i>               | 3 | <i>Cc</i> | 2 | <i>R</i>                        | 2 | <i>Y</i> | 2 | <i>Mf</i>             | 1 | <i>Cc</i> | 2 |
|                          |   | <i>Dp</i> | 1 | <i>Mf</i>                       | 1 |          |   | <i>Agr</i>            | 1 |           |   |
|                          |   |           |   | <i>Agr</i>                      | 1 |          |   |                       |   |           |   |

(4) Also, the *classe stérile* buys consumption commodities (*subsistance des agents*) from the *classe productive*.

| <i>Classe productive</i> |   |           |   | <i>Classe des propriétaires</i> |   |          |   | <i>Classe stérile</i> |   |           |   |
|--------------------------|---|-----------|---|---------------------------------|---|----------|---|-----------------------|---|-----------|---|
| <i>M</i>                 | 3 | <i>R</i>  | 2 | <i>M</i>                        | 0 | <i>M</i> | 2 | <i>M</i>              | 0 | <i>M</i>  | 1 |
| <i>Agr</i>               | 2 | <i>Cc</i> | 2 | <i>R</i>                        | 2 | <i>Y</i> | 2 | <i>Mf</i>             | 1 | <i>Cc</i> | 2 |
|                          |   | <i>Dp</i> | 1 | <i>Mf</i>                       | 1 |          |   | <i>Agr</i>            | 2 |           |   |
|                          |   |           |   | <i>Agr</i>                      | 1 |          |   |                       |   |           |   |

(5) The *classe des propriétaires* consumes.

| <i>Classe productive</i> |   |           |   | <i>Classe des propriétaires</i> |          |          |   | <i>Classe stérile</i> |   |           |   |
|--------------------------|---|-----------|---|---------------------------------|----------|----------|---|-----------------------|---|-----------|---|
| <i>M</i>                 | 3 | <i>R</i>  | 2 | <i>M</i>                        | 0        | <i>M</i> | 2 | <i>M</i>              | 0 | <i>M</i>  | 1 |
| <i>Agr</i>               | 2 | <i>Cc</i> | 2 | <i>R</i>                        | 2        | <i>Y</i> | 2 | <i>Mf</i>             | 1 | <i>Cc</i> | 2 |
|                          |   | <i>Dp</i> | 1 | <b><i>C</i></b>                 | <b>2</b> |          |   | <i>Agr</i>            | 2 |           |   |
|                          |   |           |   | <b><i>Mf</i></b>                | <b>0</b> |          |   |                       |   |           |   |
|                          |   |           |   | <b><i>Agr</i></b>               | <b>0</b> |          |   |                       |   |           |   |

(6) The *classe productive* buys commodities (*achats d'ouvrages*) from classe stéril.

| <i>Classe productive</i> |          |           |   | <i>Classe des propriétaires</i> |   |          |   | <i>Classe stérile</i> |          |           |   |
|--------------------------|----------|-----------|---|---------------------------------|---|----------|---|-----------------------|----------|-----------|---|
| <b><i>M</i></b>          | <b>2</b> | <i>R</i>  | 2 | <i>M</i>                        | 0 | <i>M</i> | 2 | <b><i>M</i></b>       | <b>1</b> | <i>M</i>  | 1 |
| <i>Agr</i>               | 2        | <i>Cc</i> | 2 | <i>R</i>                        | 2 | <i>Y</i> | 2 | <b><i>Mf</i></b>      | <b>0</b> | <i>Cc</i> | 2 |
| <b><i>Mf</i></b>         | <b>1</b> | <i>Dp</i> | 1 | <i>C</i>                        | 2 |          |   | <i>Agr</i>            | 2        |           |   |

(7) The *classe productive* buys agricultural commodities from itself.

| <i>Classe productive</i> |          |           |   | <i>Classe des propriétaires</i> |   |          |   | <i>Classe stérile</i> |          |           |   |
|--------------------------|----------|-----------|---|---------------------------------|---|----------|---|-----------------------|----------|-----------|---|
| <i>M</i>                 | 2        | <i>R</i>  | 2 | <i>M</i>                        | 0 | <i>M</i> | 2 | <b><i>M</i></b>       | <b>1</b> | <i>M</i>  | 1 |
| <b><i>Agr</i></b>        | <b>2</b> | <i>Cc</i> | 2 | <i>R</i>                        | 2 | <i>Y</i> | 2 | <b><i>Mf</i></b>      | <b>0</b> | <i>Cc</i> | 2 |
| <i>Mf</i>                | 1        | <i>Dp</i> | 1 | <i>C</i>                        | 2 |          |   | <i>Agr</i>            | 2        |           |   |

(8) The *classe productive* pays the land rent of the current year due to the *classe des propriétaires* (“*payement du revenu de l'année courante*”). The creditor-debtor relation is dissolved. At this stage (and the next stages) the *classe des propriétaires* is functionally a landed proprietor, hence consumption is not considered.

| <i>Classe productive</i> |          |                 |          | <i>Classe des propriétaires</i> |          |                 |          | <i>Classe stérile</i> |   |           |   |
|--------------------------|----------|-----------------|----------|---------------------------------|----------|-----------------|----------|-----------------------|---|-----------|---|
| <b><i>M</i></b>          | <b>0</b> | <b><i>R</i></b> | <b>0</b> | <i>M</i>                        | 2        | <i>M</i>        | 2        | <i>M</i>              | 1 | <i>M</i>  | 1 |
| <i>Agr</i>               | 2        | <i>Cc</i>       | 2        | <b><i>R</i></b>                 | <b>0</b> | <b><i>Y</i></b> | <b>0</b> | <i>Mf</i>             | 0 | <i>Cc</i> | 2 |
| <i>Mf</i>                | 1        | <i>Dp</i>       | 1        |                                 |          |                 |          | <i>Agr</i>            | 2 |           |   |

(9) The agricultural production is conditioned to a land rent contract between the *classe productive* and the classes des *propriétaires*. The land rent obligation requires the *classe productive* to produce a value-added, i.e a surplus value or *produit net*. At this stage the *classe des propriétaires* is functionally the owner of the money land rent (*propriétaires du revenu*).

| <i>Classe productive</i> |   |                 |   | <i>Classe des propriétaires</i> |   |                 |   | <i>Classe stérile</i> |   |           |   |
|--------------------------|---|-----------------|---|---------------------------------|---|-----------------|---|-----------------------|---|-----------|---|
| <i>M</i>                 | 0 | <i>M</i>        | 0 | <i>M</i>                        | 2 | <i>M</i>        | 2 | <i>M</i>              | 1 | <i>M</i>  | 1 |
| <b><i>VA</i></b>         | 2 | <b><i>R</i></b> | 2 | <b><i>R</i></b>                 | 2 | <b><i>Y</i></b> | 2 | <i>Mf</i>             | 0 | <i>Cc</i> | 2 |
| <i>Agr</i>               | 2 | <i>Cc</i>       | 2 |                                 |   |                 |   | <i>Agr</i>            | 2 |           |   |
| <i>Mf</i>                | 1 | <i>Dp</i>       | 1 |                                 |   |                 |   |                       |   |           |   |

### 5.1.2. *The production process*

(10) The *classe stérile* produces manufactures by means of agricultural inputs. Both the raw materials (*matières premières*) and the consumption goods (*subsistance des agents*) are consumed during the manufacturing process.

| <i>Classe productive</i> |   |           |   | <i>Classe des propriétaires</i> |   |          |   | <i>Classe stérile</i> |   |           |   |
|--------------------------|---|-----------|---|---------------------------------|---|----------|---|-----------------------|---|-----------|---|
| <i>M</i>                 | 0 | <i>M</i>  | 0 | <i>M</i>                        | 2 | <i>M</i> | 2 | <i>M</i>              | 1 | <i>M</i>  | 1 |
| <i>VA</i>                | 2 | <i>R</i>  | 2 | <i>R</i>                        | 2 | <i>Y</i> | 2 | <b><i>Mf</i></b>      | 2 | <i>Cc</i> | 2 |
| <i>Agr</i>               | 2 | <i>Cc</i> | 2 |                                 |   |          |   | <b><i>Agr</i></b>     | 0 |           |   |
| <i>Mf</i>                | 1 | <i>Dp</i> | 1 |                                 |   |          |   |                       |   |           |   |

(11) The *classe productive* produces agricultural commodities by means of agricultural and manufactured inputs. The landed household states its claims on its income-for-consumption from the landed proprietor.

| <i>Classe productive</i> |   |           |   | <i>Classe des propriétaires</i> |   |          |   | <i>Classe stérile</i> |   |           |   |
|--------------------------|---|-----------|---|---------------------------------|---|----------|---|-----------------------|---|-----------|---|
| <i>M</i>                 | 0 | <i>M</i>  | 0 | <i>M</i>                        | 2 | <i>M</i> | 2 | <i>M</i>              | 1 | <i>M</i>  | 1 |
| <b><i>Agr</i></b>        | 5 | <i>R</i>  | 2 | <i>R</i>                        | 2 | <i>Y</i> | 2 | <i>Mf</i>             | 2 | <i>Cc</i> | 2 |
|                          |   | <i>Cc</i> | 2 |                                 |   |          |   |                       |   |           |   |
|                          |   | <i>Dp</i> | 1 |                                 |   |          |   |                       |   |           |   |

The value of the produit net of the agricultural sector is equal to 2 *milliards des livres*; that of the manufacturing sector is zero. Accordingly, the agricultural capitalists constitute the *classe productive*, and the manufacture producers (*artisans*) constitute the *classe stérile*.

The position of the three classes at (11) corresponds exactly to the initial position at (1). At the end of the circulation process of money and commodities the functional and material conditions for the renewal of the economic process are fulfilled. Hence, the economic process at the self-replacement state can (re)start from the beginning.



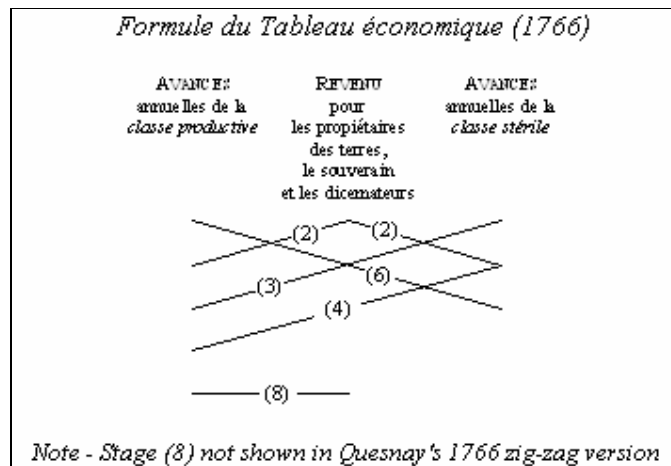
5.1.3. Money circulation and Quesnay's 1766 zig-zag version of the "Tableau"

The successive *change* of money holdings of the three classes at each stage of the circulation process are shown in the following table:

**Change of money holdings at each stage**

| Stage | Classe productive | Classe des propriétaires | Classe stérile |
|-------|-------------------|--------------------------|----------------|
| (1)   | -                 | -                        | -              |
| (2)   | + 1               | - 2                      | + 1            |
| (3)   | + 1               | -                        | - 1            |
| (4)   | + 1               | -                        | - 1            |
| (5)   | -                 | -                        | -              |
| (6)   | - 1               | -                        | + 1            |
| (7)   | -                 | -                        | -              |
| (8)   | - 2               | + 2                      | -              |
| (9)   | -                 | -                        | -              |
| (10)  | -                 | -                        | -              |
| (11)  | -                 | -                        | -              |
| Netto | -                 | -                        | -              |

Quesnay's 1766 zig-zag version of the *Tableau* is partially shown in the figure below [Quesnay (1991): 219]. Numbers in parentheses correspond to the different stages at which changes of money holdings of the three classes takes place (see table above):



#### 5.1.4. *The input-output matrix of the royaume agricole*

The long-run equilibrium accounting dynamics of the production and circulation process of money and commodities of the *royaume agricole* can be summarized in terms of an open-Leontief input-output matrix version as suggested by Maital (1972):

*The input-output matrix of the royaume agricole*

| <i>Value flows</i>   | <i>Agriculture</i> | <i>Manufacture</i> | <i>Consumption</i> | <i>Total demand</i> |
|----------------------|--------------------|--------------------|--------------------|---------------------|
| <i>Agriculture</i>   | 2                  | 2                  | 1                  | 5                   |
| <i>Manufacture</i>   | 1                  | 0                  | 1                  | 2                   |
| <i>Value-added</i>   | 2                  | 0                  |                    |                     |
| <i>Income (rent)</i> | 2                  | 0                  | 2                  |                     |
| <i>Total output</i>  | 5                  | 2                  |                    | 7                   |

The money value of production of the economy is *7 milliards de livres*. However, Quesnay suggests that the money value of production of the economy is *5 milliards de livres*. To Quesnay, the agricultural sector is the sole productive sector from the surplus value viewpoint, the manufacturing sector being sterile from the surplus value viewpoint at the sectoral level, and from the value viewpoint at the whole-economy level, too.

## 6. References

- Cartelier, J. (1986, 1976) *Excedente y reproducción*. México: Fondo de Cultura Económica.
- Deleplace, G., Nell, E. (1996) *Money in Motion: The Post Keynesian and Circulation Approaches*. London and New York: Macmillan.
- Hahn, F.H. (1985) *Macroeconomics, Growth and Stability*. Cambridge, Mass.: The MIT Press.
- Klingen, H. (1992) *Politische Ökonomie der Prälklassik*. Marburg: Metropolis Verlag.
- Maital, S. (1972) *The Tableau Economique as a Simple Leontief Model: An Amendment*, en: *Quarterly Journal of Economics*, 86 (3), 504-507.

- Marx, K. (1983a; 1867, 1885, 1894) *Das Kapital. Kritik der politischen Ökonomie.* Marx Engels Werke. Berlin: Dietz Verlag. English version: <http://www.marxists.org/archive/marx/works>.
- Marx, K. (1965) *Theorien über den Mehrwert.* Marx Engels Werke. Berlin: Dietz Verlag.
- Meek, R. L. (1962) *The Economics of Physiocracy. Essays and Translations.* London: G. Allen and Unwin.
- Menéndez, R. (1989) *Die Organisationsstrukturen des Kreditgeldkapitalismus.* Münster: Lit.
- Samuelson, P.A. (1982) 'Quesnay's 'Tableau Economique' as Theorist would Formulate it Today, in: Samuelson, P.A. (1986) *The Collected Scientific Papers of Paul A. Samuelson*, edited by K. Crowley. Vol V, Part V, pp.630-663. Cambridge, Mass. London, England: The MIT Press.
- Sraffa, P. (1960) *Production of Commodities by Means of Commodities.* Cambridge: Cambridge University Press.
- Quesnay, F. (1991) *Physiocratie.* Edición de J. Cartelier. París: Flammarion.
- Pasinetti, L. L. (1987, 1975) *Lecturas de teoría de la producción.* México: Fondo de Cultura Económica.
- Schmitt, B., Greppi, S. (1996) *The National Economy Studied as a Whole: Aspects of Circular Flow Analysis in German Language*, en: Deleplace/Nell (1996), capítulo 11, 341-364.
- Stützel, W. (1958) *Volkswirtschaftliche Saldenmechanik.* Tübingen: J.C.B. Mohr (Paul Siebeck).
- Tsuru, S. (1987, 1942) *Sobre los esquemas de la reproducción*, en: Sweezy, P. (1987, 1942) *Teoría del desarrollo capitalista.* México: Fondo de Cultura Económica.

