

Rate of Interest and Public Debt in a Sraffian-Keynesian Model

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Abstract: There is a nexus between the actual economic crisis, which started in 2008, and economic theory. Economic theory not only failed to predict the crisis, but seems to be a long way from discussing it in plain terms. There are two main impediments to this. One is increasing returns, whereas economic discussion is centred on decreasing returns. The other impediment is the removal of Keynesian subjects, or, at least, the specific removal of any discussion on the rate of interest being zero in the long run, that Keynes formulated, although he did not explicitly theorize on it. This paper starts from basic Sraffian economic theory to reconstruct the essence of Keynesianism, after a passage through a pre-Keynesian model. The role of the interest rate is particularly focussed on. When this is positive, especially if very much so, no problem arises. When this is small or nil, due to low levels of Investment and high levels of Savings, an economic crisis develops. The same crisis may be reinforced by increasing returns and their effects on Savings. This is unless public debt grows through the increase of public deficits. There is the balance of payments surplus which absorbs Savings, but this is helpless in solving the crisis at a global level, since it corresponds unavoidably to balance of payments deficits. That is why it is folly for the EU to put a halt to public deficits. On the contrary allowing deficits to grow becomes vital, after sterilizing through fiscal means their effects on the interest rate, including the private. Excess profits must also be hit at international level.

Keywords: Economic crisis; Crisis of economists; The reconstruction of Keynes; Zero Interest; Public Deficit; Public Debt

JEL classification: E11, E12, E21, E22, E41

INTRODUCTION

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main impediments to this. One is increasing returns, whereas economic discussion is centred on decreasing returns. The other impediment is the removal of Keynesian subjects, or, at least, the specific removal of any discussion on the rate of interest being zero in the long run, that Keynes formulated, although he did not explicitly theorize on it.

This paper starts from basic Sraffian economic theory to reconstruct the essence of Keynesianism, after a passage through a pre-Keynesian model. In the next section Sraffian premises are considered. These are fundamental, since, in a static context, they allow for a prices solution without considering demand, but at minimal cost, as Sraffa's complete works show. In a dynamic context they provide for amortisation-depreciation, productivity increases in the sense of minor costs per unit production, and wage movements roughly linked to productivity. Interest rate is also considered, as regards its links with investment. In section 3 a pre-Keynesian model is developed, which considers the demand for money linked to a Sraffian system commodity. The passage to monetary values, considered in section 4, together with rents development in the business area due to difficulties in market entry, are seen as the principal causes of unemployment, inflation, and balance of payments problems. In section 5 important consequences are derived as regards political economy prescriptions. Public deficit and a zero interest rate, the latter net of the eventual necessary taxes, and thus public debt, are viewed as a structural necessity to contrast unemployment in advanced countries. Large organizations such as the EU and G20 are seen as necessary in this context, mostly to contrast inflation, as it is impossible to return to the gold standard system. Conclusions are drawn in final section.

SRAFFIAN PREMISES

Apart from a work under preparation, the basic references for this section are Vitaletti (2008, 2017). Let us start with Sraffa's basic system, as expounded in the first six chapters of his 1960 work. The system shows the solutions for all prices, for the rate of "profit" (a mix between profit and the rate of interest) and, consequently, for wages. There is a standard commodity, which links the rate of "profit" to the unit wage, bypassing prices. The rate of "profit" can assume all the values starting from its maximum.

To this framework we add three hypotheses:

- a) instead of taking the quantities as given, we assume the ratio between input and output to be a given. This hypothesis does not

alter the solution for prices and the rates of profits/wages, but allows for freedom of absolute quantities;

- b) we do not simply assume that quantities, or unitary input quantities, are a given. We assume that input quantities (including labour cost) are at their minimal cost. This assumption is perfectly coherent with Sraffa's framework (see in particular his 1925, 1926 works). Minimal costs imply the minimum output price¹;
- c) we split the rate of profit into a rate of interest, calculated on the anticipated costs, and a profit, calculated as a percentage of the output value. This adds a new, to-be- determined component, to the Sraffian system. We put forward that in general, profit establishment happens at the full employment level, by simply comparing wage levels. That is to say, there is not a definite profit level, but it changes according to wage level. For simplicity's sake, we can assume the profit as given, as a percentage of sold quantity values (see also next section).

In this way sold quantities can vary without price variations. Prices however may vary, according mainly to the rate of interest. Profits are posited as the guide for full employment².

We deal now with fixed capital in a static context, whose treatment, through amortization and without considering it fixed with respect to other inputs, represents Sraffa's principal innovation with respect to marginalism and even to classical economists, who consider capital as an input similar to others but disdain amortization. Nevertheless, as regards this latter, chapter X of Sraffa (1960) inexplicably poses capital duration as a given, surmising that other inputs do not change over the duration. This hypothesis has led to a serious default in the model, which can be affected by negative prices.

The question of plant duration has often been debated, and a solution is proposed in Vitaletti (2008). In the absence of technical progress, the initial supposition is that there are cost variations (for example maintenance expenditures), which grow yearly. It is shown, in particular, that when the initial value of investment $M_0 p_m$ (M_0 is the physical quantity, whereas p_m is its price) multiplied by the interest rate, is equal to total interest attributable to each part of those additional costs (see footnote 3), reduced by the total additional cost, the minimal cost of amortization is obtained and M_0 is dismissed (Vitaletti, 2008, pp.132-135: see in particular formula (13)).³

A generalisation of these results is provided (Vitaletti, 2008: pp. 142-143), which also considers the circumstance that not only costs may increase with the duration, but revenues may also fall, due to decreasing efficiency.

In the end, amortisation, in a context of absence of technological progress (i.e. “wear and tear” amortisation), appears as a method which reintegrates capital value at minimal cost, at the most efficient n , and at a product price which is coherent with distributive magnitudes⁴.

The rate of interest having a positive structural influence on duration implies that real investment is lower over the years, at parity of total produced quantities. The price of investment goods, like those of input, may vary, even intersecting more than once (see Sraffa, 1960, chapter VI, as regards intermediate products). Nevertheless these price movements have an effect on prices and on inventory values, and determine capital gains or losses. The fact still remains that a higher rate of interest reduces the yearly quantity of new investment.

The situation changes in the presence of technical progress. This can alter the rate of the interest/wage frontier, as regards prices reduction. In spite of this, if we compare technological progress over time, and provided a rate of amortisation-depreciation exists, we can deduce the entity of wage movement contrasted to the rate of interest. Technical progress generally implies an interest rate increase, meaning that the rate of investment has risen (see the next section). The interest rate without technical progress is in fact close to zero (save for populations increases, which in any case, according to Ricardo’s work, have an upper limit due to agriculture).

Consider firstly that the pace of technical progress is so high that wear and tear does not appear (since this normally produces effective results only after some years). The devaluation of capital depends on the entrance into the competitive market of new firms, which in their initial activity can produce the same unit output more cheaply, due to greater productivity. This happens while the input costs are stable in the existing firms, since they are linked to the initial investment, and wages tend to grow, following the increase which occurs in the new plants. This is why the initial investment price decreases progressively to zero value. At this point the capital is dismissed.

If capital dismissing occurs when cost variations due to wear and tear appear, there is a negative impact. This will imply the maturation of some “real” amortization, which is to be summed up with depreciations due to technical progress.

In the static model n depends positively on the rate of interest, and this partially undermines the standard commodity in the case of durable means of production. In the dynamic case, the exact period extension of decreasing capital value depends on the ratio between the input and output prices,

which is variable⁵.

If we fix r at a certain point, there will always be a technique which has a certain price, working in parallel with other techniques at the same price. Those with a greater r will reduce their price in order to level r , whereas new techniques with minor r will not be introduced. A given investment and saving may be reached, at a high r and at an elevated productivity increase.

If the latter is low, an equal level of investment is compatible with a low r . Saving tend to adjust to Investment, since its links with r are weak and there are the income distribution variations discussed in next section. Thus r “embodies” productivity increase levels. In any case a certain r level leads to an investment reduction, which is greater the higher the r level, as discussed in the first part of this section, particularly in footnote 3. These are the main consequences of the static-dynamic Sraffian model introduction.

A PRE-KEYNESIAN MODEL

Starting from unit quantities, we have reached three objectives: a) investment is a positive function of technological progress on the one hand, and a negative function of r on the other; b) productivity increases tend to be followed, with ups and downs, by unit wages; c) capital determination, as a negative part of income, is split between amortization and depreciation components.

We now need to establish total quantities. This could be done by multiplying unit magnitudes by appropriate scalars, without modifying unit price. We can thus find total sales, Sa , from which we can deduce intermediate input, iI . The result is Gdp . Then we pass to total demand, $(C+I+\Delta M)$, where C is consumption in money terms, i.e. the multiplication of unit prices of consumption goods for apposite scalars; I are gross investments in money terms, i.e. the multiplication of unit prices of investment goods by their quantities; ΔM is the increment of “real” money, which represents a commodity in the Sraffian system. All price commodities and wages are expressed in this commodity, which therefore represents the system unit of measure.

On the other hand, it is possible to arrive at national product distribution: profits are II , expressed as a percentage of total sales; D is total Amortization-Depreciation; In are interests, calculated as a percentage of total input and of amortization-depreciation (the latter process being more complicated); W are wages, which take N as scalar; then there is a new

magnitude, rents Re , explained in the footnote⁶, although it will also be dealt with later. The fundamental equality between Gdp and Y follows. Another key point is that the r value influences income distribution, in particular between interests and wages.

We can express all this through a formal model:

- 1) $Sa - iI = Gdp$
- 2) $Gdp = C + I + \Delta M$
- 3) $Y = II + D + In + W + Re$
- 4) $Gdp = Y$
- 5) $N = b * Sa$
- 6) $I(tp, r) \pm \Delta M(r) = S$
- 7) $S = f(ndII + D + In + Re; W + dII; r)$

where: a) the first four equations have already been explained above; b) N , the employment, is at its full employment level, linked to Sa through the parameter b . This explains equation 5); c) I depends positively on technical progress (tp), as is clear from the previous paragraph, whereas it is restricted by a greater r (as in Keynes' theory, 1936 - although the theoretical basis is different)⁷; ΔM is a type of Investment (or, in certain cases, Disinvestment), dealt with immediately, whose demand is linked negatively to the interest rate; d) S are Savings. S and I do not necessarily coincide, the difference being ΔM , i.e. the demand for money in real terms. All these circumstances explain equation 6); e) three factors influence the S determination: i) undistributed profits, depreciation-amortization by businesses, family and business interests, rents ($ndII + D + In + Re$), all with a very high savings propensity and, correlatively, with consumption normally close to zero; ii) wages and distributed profits ($W + dII$), with a low savings propensity and, correlatively, with a high consumption propensity; iii) finally there is r , whose influence on savings propensity is weak and with an uncertain sign. All this explains equation 7).

The last two equations are decisive, since from the r determination follow I , ΔM , D and other distributive variables, and, residually, C , which allocates among its various items in relation to the formed prices. Suppose for example there is an increase in technological progress. This boosts r ; an S increase, induced by the distribution modification brought about by the r increase, and an M reduction follow; in the end C is reduced.

We shall now study specifically ΔM . The interest rate is high when labour productivity increases and intermediate inputs reductions are strong,

investment is high, while it is difficult to raise savings, due to problematic living conditions. In such cases, with r at high level, the demand for money ΔM is low. This happened for example at the beginning of the industrial stage.

At present investment demand is small, even when the rate of interest is low. This is because the industrial stage is at its end, and services do not present the same opportunities as industry for productivity growth. On the other hand, in spite of a low interest rate, saving is high because of improved living conditions.

Nevertheless the system should be at full employment since money velocity decreases, as ΔM raises substantially, so compensating the fall in aggregate demand. The modern monetary system does not however imply the accumulation of real money, which is the only factor able to contrast unemployment.

A KEYNESIAN MODEL: UNEMPLOYMENT, INFLATION AND BALANCE OF PAYMENTS PROBLEMS

Three factors must be underlined. The first one is that the commodity money must maintain a certain equilibrium between its normal user value (wheat, gold) and its use as money. When the latter becomes excessive, this may lead to a loss in confidence. It is true that other commodities, such as silver, marble, works of art, may be added, so enlarging total money, but there is a limit to this process, with the risk of confusion and economic disasters, due to any sudden drop in the value of one or more of such commodities.

The second factor, not quite Keynesian, is monopoly-oligopoly. These economic forms are characterized by the impossibility (or, in the case of oligopoly, near impossibility) of market entry, so destroying the fundamental balance at full employment between profits and wages – see section 2⁸. If these market forms are important, the very foundations of equilibrium are destroyed (see Leijonhufvud, 1995). Excessive entry happens in the free market sector, compromising the price, profit and wages structure. Enormous profits and capital gains mature in the oligopolistic sector, with risks even for press freedom and democracy. The substitution of some debt with own capital, to gain flexibility in order to interest restitutions, has become common especially in the industrial sector. Nowadays these phenomena are quite widespread, although they receive little media attention.

The third factor is fully Keynesian, and regards money. There are roughly three possible forms of money: corn, gold, and the modern monetary system. The first two are commodities of the economic system, while the third is

not. Corn could be money since it is a relatively durable consumption good. There is normally a correlation between Sa and the money necessary for its annual circulation⁹. Nevertheless the velocity of money circulation is variable in the year, depending on the alteration of distributive quotas of the participants to Sa incomes (see footnote 9), and on the changes of ΔM values. Beyond the basic quantity of money just dealt with, there is the further possibility of accumulating money-corn beyond the year, which constitutes long term saving.

The main advantage of corn as money is that it is possible to “destroy” the money by transforming it into means of production. This legitimizes the minus sign before ΔM in equation 6) of the System. The inconveniences of corn are its gravity, its limited conservation as a durable, and the fact that all prices are expressed in terms of one, whose perturbations would require adjustments.

Let us pass to gold, positing that it can be given or lent directly to businesses through shares or bonds, and that banks, where it is accumulated as deposit, lend it in progression, starting from a certain interest rate. Gold resolves the problem of gravity and of conservation costs. It is a very long term durable and has limited properties of retransforming from an investment to a consumption good. Nevertheless it remains a single good around which the system rotates, and produces rents for decreasing returns (see on this section, footnote 6), with the included possibility that the discovery of large new gold reserves could stoke inflation. In general the demand for gold as a direct investment by banks and families is higher, the lower the rate of interest.

We arrive now at the modern monetary system. This is characterized: a) by banks not allowing families to exchange money for gold; b) by a State not being able to request gold in the case of balance of payment surpluses; c) by a Central Bank, to try to protect savings from inflation, to regulate the rate of interest, and to fix foreign exchange rate. This system has serious faults, although it admits that all commodity prices (and not only one, as in the corn and the gold systems) are at the centre of the economic system. In particular the demand for money, when the rate of interest is very low, is relatively high, but this is useless, since it regards paper. This generates unemployment. On the other hand inflation may rise, since Central Banks might provide paper money. The balance of payments may suffer, since it is not gold, a commodity of the system, which regulates its surpluses/deficits.

There are serious problems when the rate of interest is low, because investment is scarce in relation to abundant savings. Moreover, banks may

tend to keep their interest higher than necessary, exploiting lending for operations other than real investment (such as intermediation in large financial dealings, of the type buying and selling businesses; secondary real estate transactions; derivatives; the speculation on raw materials; enormous deposits towards other banks, like the BCE). In this case interest rates as such remain relatively large, thus their automatic reduction stabilizer (i.e. consumption increases due to income distribution change) is obstructed.

Most of all, in the corn model, and in part also in the gold system, another automatic stabilizer works, through the rise in demand for real money (corn, gold, indicated by ΔM in section 3 model), which contrasts unemployment. The demand for paper money in the actual regulation of the system hampers this stabilizer. The current presence of banks' enormous liquid assets voluntarily deposited in the BCE makes this fact quite clear.

Beyond that, all the rents considered in footnote 6, to which the rate of interest, although low, may be added, have risen substantially in modern economies. They all contribute to promoting already too elevated savings. Between falling investments and raising savings, the public deficit in advanced economies has become a longstanding problem, in contrast with what Keynesian economists tend to believe. Thus public debt has become the main subject of political economy.

FISCAL POLICY UNDER A LOW RATE OF INTEREST ENVIRONMENT

In present times a low rate of interest is structural and leads to high debt, through public deficits. This problem needs a solution. Instead of concentrating on this, like Japan and the Usa do, the EU has chosen to cruminate high debt, substituting it with a balance of payment surplus. This is very considerable and structural in nations such as Germany and China.

There is first of all an empirical question. We tend to ignore that in the world economy, in particular as regards the richest countries (i.e. G20 Advantaged Countries and G7), the IMF Fiscal Monitor, October 2020, Table 7, p.75, signals that public debt was around 115% in 2019, with no recent let up in the last few years. In 2020, because of COVID, public debt has further increased.

Secondly, a very low rate of interest strongly diminishes the main objections to public deficits, being that high interest rates crowd out investment and dramatically raise the cost of a relevant public debt. The solution is then to render structural this conjunctural situation, through a fiscal levy on interests, of about 100%.¹⁰

The theoretical explanation is quite simple. The fundamental macroeconomic equilibrium equation is:¹¹

$$(S-D) = (I-D) + PD + B \quad [8]$$

where $S-D$ are net savings (S is both family and business gross private savings; D , the amortisation-depreciation, is deducted from business savings); I is gross Investment; PD is public deficit (the sign is reversed with respect to the ruling); B is the balance of payments surplus or deficit. The following facts have largely been ignored by economists: a) $I-D$ in most advanced countries is almost necessarily falling to zero, since the industrial phase of development is almost over and the population is stable (so private housing does not expand); b) the surplus B is necessarily balanced by deficits in some other country (the Usa has by far the highest deficit); c) if the balance of payment surplus B is almost nil (as it should be in an orderly international market), then: 1) $S-D$ may be null, in which case the public sector must be balanced (PD should be zero) and no other intervention is needed; 2) if $S-D$ is positive, there are only two alternatives: public deficits (PD) are allowed; measures to reduce S are taken. An economic crisis would otherwise develop.

Nevertheless deficit must be accompanied by structural measures which make the rate of interest near to zero, otherwise interests explode. What is needed is a fiscal structural levy on interests, of a rate near to 100%.

Savings can be reduced mainly by impairing rents, starting from the industrial component. This is an international matter. In practice it is simple, needing only the introduction of an internationally assessed high rate (around 50%) on profits, when they overcome some thresholds. So-called helicopter money may be an alternative.

Inflation resurgence should be avoided. For this the saving S must be foreseen at the employment levels which the disposable capital can provide, and public deficit and debt must correspond to such a level, yearly. International agreements, which should have an administrative body, are needed to fix the exact amount of debt. Radically transformed EU and Bce institutions are decisive for this task.

CONCLUSIONS

Sraffian premises establish prices in a cost minimization context, show that investment levels depend on technological progress, and investigate the relation between rates of interest and investment.

The rate of interest is determined by the relationship between investment and saving. This is sought in a pre-Keynesian model, where savings accommodate to investment mainly through income distribution, and,

especially when the interest rate is low, through money demand as a commodity of the system.

A Keynesian model, beyond monopoly-oligopoly problems, need to deal with low interest rate situations, when money demand is paper. Unemployment, inflation, and balance of payments problems all originate from the abovementioned.

These are the current most pressing economic problems. The fact that the EU has chosen an anti-inflation policy, ignoring unemployment and balance of payments problems, is questionable. If all three targets are important, debt has to be posited as the main problem, and the international target of zero interest rate must be promoted.

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Notes

- 1 This eliminates marginalism, which establishes that maximum profit is when marginal cost encounters price, where the average cost is increasing. This is the consequence of assuming capital as given. Despite its tremendous negative impact, marginalism still exists.
- 2 These conclusions, given the hypotheses, are simply obvious. We will see that the main unemployment factors are the inexistence of money expressed as a physical commodity of the system, monopoly-oligopoly forces, and disturbances in investment function.
- 3 With reference to continuous time, we can derive the formula (12) at p.134 of Vitaletti (2008) with respect to n . By equating the result to zero in order to calculate the n which minimizes the yearly cost of capital, we obtain:

$$dF_1/dn = 0 = Ir - \{ \Delta V_{2,1} [1 - (1+r)^{-1}] + \dots + \Delta V_{n,n-1} [1 - (1+r)^{-(n-1)}] \}$$

$$\text{with } \Delta V_{2,1} + \dots + \Delta V_{n,n-1} = \Delta V_{n,1} \text{ and } dn/dr > 0$$

where d is the symbol of derivation, F_1 is amortization, I is investment and it is equal to $M_0 p_m$, and $\Delta V_{2,1} \dots \Delta V_{n,n-1}$ are the cost variations over successive years. This result is the same as in formula (13) at p.135 of Vitaletti (2008). Ir is fixed, and there is then a negative number, whose positive absolute value is within the graph parentheses, and grows with n . Ir is the capital cost value at the infinite, were $\Delta V_{2,1} \dots \Delta V_{n,n-1}$ equal to zero. When the term inside the graphs is below Ir , the usual process of amortization develops, in the terms discussed at pp.140-141, introduced at pp.138-139. This means that, even when wear and tear is concentrated in a single year, it does exist in any case. The process is demonstrated for a non basic sector, but this circumstance is

irrelevant, since it is interest rate which plays the major role.

- 4 Another problem caused by this circumstance is that, since amortization prevails in initial periods, while rising costs and/or the decline of productivity tend to prevail in the final periods, it is convenient to use the plants more intensively initially, in particular as regards shifts. This happens because there is then more “room” for wage extra-payments, due to the shifts (*cf.* Marris, 1964), which disturb the cycle through swinging investments. Another disturbance of an orderly temporal investment distribution may be interest rate variations, and wages which do not adjust in the short term to their correct values (see the technical progress discussion in the final part of this section). These exhaust the technical problems mentioned in the final part of footnote 2 as a third factor of cycle disturbances.
- 5 Nevertheless in the former case the problem is not catastrophic, since it depends on wear and tear values, which are not generally high. In the latter case one can refer to previous period prices, so that a remedy is found for the standard commodity loss of precision.
- 6 Rents have become a fundamental income component. They include the part of profits which go beyond the normal rate of interest/profit, due to oligopolistic forces; rents from agriculture and mines (inc. gold); rents from real estate; and other rents, listed in Vitaletti (2015), section 4. Most of the profits which come from nations which compete through an extremely low cost of labour, especially if this assures large balance of payment surpluses, may be added to the rents list (see *contra* Alesina and Giavazzi, 2019, who nevertheless ignore the balance of payments effects).
- 7 Suppose there is a leap forward in technological progress, which boosts investment (see previous section, second part). The interest rate then increases, and this in turn reduces investment, through the factors studied early in the previous section (see in particular footnote 3). The investment, although reduced, normally remains higher than before the technological progress.
- 8 Decreasing returns according to the produced quantity, commercial/administrative expenses, and rents are the fundamental ingredients of a oligopolistic situation. Sraffian solutions are still feasible, at a lower price with respect to a competitive situation. See on this Vitaletti (2021 and 2019).
- 9 We could assume for example that the production period of corn is one year; the production periods for intermediate goods is three months; wages are paid monthly; yearly profit is paid each six months; interest is regulated annually. In these hypotheses the yearly circulating money is different, according to the distributive quotas.
- 10 Vitaletti (2020) shows how this measure needs a total fiscal reform, aimed at: a) restoring the nationality of fiscal bases (following De Viti, Einaudi, and Steve, who based their theories on the fiscal system then in rule), which are now international as regards direct taxation; b) introducing a nearly global treatment only as regards the international bases (those regarding interests and multinational profits), which are now mainly regulated nationally.
- 11 For the essential part of this equation, see Steve (1976, Chap. V, par. 60).

References

- Alesina, A. and Giavazzi, F. (2019), “Gli errori di Trump (e nostri),” *Corriere della sera*, 22.12:1.
- IMF (2020), *Fiscal Monitor Report. Policies for the Recovery*, October, Appendix, Washington: International Monetary Fund.
- Keynes, J.M. (1936), *The General Theory of Employment, Interest and Money*, Cambridge: Cambridge University Press.
- Leijonhufvud, A. (1995), “The individual, the market and the industrial division of Labor,” in Mongardini C. (ed), *L'individuo e il Mercato*, pp. 61-78, Roma: Bulzoni.
- Marris, R. (1964), *The Economics of Capital Utilisation*, Cambridge: Cambridge University Press.
- Sraffa, P. (1925), “Sulle relazioni tra costo e quantità prodotta,” *Annali di Economia*, II, pp. 277-328
- Sraffa, P. (1926), “The Laws of returns under competitive conditions,” *Economic Journal*, 36, pp. 535-550.
- Sraffa, P. (1960), *Production of Commodities by means of Commodities*, Cambridge: Cambridge University Press.
- Steve, S. (1976), *Lezioni di Scienza delle Finanze*, Padova: Cedam.
- Vitaletti, G. (2008), “The optimal lifetime of capital goods: a restatement of Sraffa’s analysis of fixed capital,” *Review of Political Economy*, 20 (1), pp. 127-145.
- Vitaletti, G. (2015), “New political economy approach for the economic crisis,” *Rivista di diritto finanziario e scienza delle finanze*, 74 (4), pp. 513-528.
- Vitaletti, G. (2017), *Mal di Lupo. Contro l'Illuminismo*, Berlin: EAI.
- Vitaletti, G. (2019), “Oligopoly and the need for special fiscal intervention,” *Working Papers 83 SIEP*, Società Italiana di Economia Pubblica.
- Vitaletti, G. (2020), “Mirrlees’ and De Viti’s fiscal systems,” *Rivista di diritto finanziario e scienza delle finanze*, 79(2), pp. 161-190.
- Vitaletti, G. (2021), “Oligopoly and monopoly is to be regulated whereas competition is free,” *International Journal of Economics, Finance and Managements Sciences*, forthcoming.



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