

# An Overinvestment (but Anti-Austrian) Explanation of the Turning Points of the Cycle: Italian Contributions of the Early 20<sup>th</sup> Century

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**Abstract.** The aim of this paper is to compare the Austrian theory of the business cycle with the approaches developed in Italy, during the first decades of the 20<sup>th</sup> century, mainly by Marco Fanno and Costantino Bresciani-Turroni. It is shown that – although, in both cases, an overinvestment explanation of fluctuations was accepted – Italian economists developed a different theory, both of the starting and of the upper turning point of the cycle. In particular, they argued that fluctuations are mainly caused by the improvement in firms' expectations, while the growing phase of the cycle may be stopped by social conflict (i.e., by workers' reaction to 'forced saving'). Hence, according to these scholars – and outside the Austrian approach – (a) capitalist instability (the alternation of expansionary and contractionary phases) may not be due to exogenous interventions by banks, the State or the unions and (b) the business cycle may be driven by *real variables*, in that they did not assign a crucial role in the turning points of the cycle either to costs or to the Austrian 'shortage' of money supply. A formal model is proposed to test the logical consistency of this theory.

## 1 Introduction

During the first decades of the 20<sup>th</sup> century, Italian economists were engaged in the international debate on the business cycle. Despite the language barrier, contributions by scholars such as Marco Fanno (1995 [1912], 1993 [1931], 1947), Costantino Bresciani-Turroni (1932, 1937 [1931]), Gustavo Del Vecchio (1956 [1914]) and Francesco Vito (1934, 1936) were highly appreciated by the leading economists of the period. For instance, one can remember Hayek's notes about Fanno's 'independent attempt to develop Wicksell's theory' (Hayek 1967 [1931], p. 25), Robbins's invitation to Bresciani-Turroni to give lectures at the London School of Economics (the result of those lectures was Bresciani-Turroni 1936), Schumpeter's promotion of the German translation of Del Vecchio's book on monetary theory (Del Vecchio 1930) and Haberler's lengthy discussion of Vito's contributions on forced saving (Haberler 1939 [1937]). Italian scholars developed very different approaches to business fluctuations, taking different positions in the debates about the overinvestment versus underinvestment nature of the cycle and about the pre-eminence of monetary versus real factors (see Graziani 1989, Bini 1992, Magliulo 1992, Gattei and Mingardi 1994, and Realfonzo 1999).

In this paper we will concentrate exclusively on several overinvestment explanations of the cycle mainly developed by Fanno, who founded his analysis on the very famous model of Wicksell's *Interest and Prices* (1962 [1898])<sup>1</sup>, and Bresciani-Turroni. This paper will show that, despite the great success the Austrian explanation of the cycle enjoyed in Italy, some Italian supporters of the

overinvestment thesis maintained an independent anti-Austrian analysis of both the cause and the upper turning point of the cycle. In fact, as we will see, they maintained that - among other factors - the starting and the upper points of the cycle could be better accounted for respectively by improvements in profit expectations and by social conflict.

On the methodological plane, the revival of these past theories is conceived here, on the one hand as a way of testing their internal consistency and, on the other hand, as a means of showing that some *present* features of capitalist dynamics can also be effectively captured by non-contemporary standard economics, in that the 'analytical core' of these past theories is largely independent of the historical context those authors faced. The paper is organized as follows. In section 2, we will present a comparison between the Austrian and the anti-Austrian approach to the starting point of the cycle and to the different descriptions of the economic process. In section 3, a simple analytical reconstruction of the role of profit expectations in triggering the cycle will be provided; in section 4 the criticism of the Austrian description of the upper turning point of the cycle will be commented on; and in section 5 the focus will be on the role of social conflict in stopping the expansionary phase. In section 6, some concluding remarks will be made.

## 2 The Monetary Circuit and the Starting Point of the Cycle

As is well known, according to the Austrian theory the cycle is essentially activated by monetary factors, i.e., an excess of bank loans over the bank collection of households' money savings. This increase in the quantity of money in circulation is ultimately due to the spread of 'inflationist ideologies' (i.e., the spread of illusions that the increase in the quantity of money can increase output and employment) which influences the banks' behaviour. The fixing of a money rate of interest below the level of the natural rate of interest marks the starting point of the cycle. In fact, this will lead to investment increasing above the level desired by households, an increase in the price of consumption goods, and forced saving. With this theory, the Austrians – mainly Mises, Hayek and Röpke – proposed a 'monetary theory of overinvestment' (Haberler 1937) or, as Hayek preferred to say, an 'additional credit theory of the trade cycle' (Hayek 1966 [1929], p. 177).

This explanation of the cause of the cycle gradually gained ground in Italy in the 1920s and 1930s. It was authoritatively endorsed by Gustavo Del Vecchio (1956 [1914]; 1956 [1932]; see Realfonzo 2000) and also supported by scholars such as Einaudi, De' Stefani, Alberti, Gangemi and De Luca. However, notwithstanding the success of the Austrian theory of the cycle, some Italian scholars developed interpretations of the cycle which aimed to criticize the single-cause monetary explanation put forward by the Austrians. For instance, one can refer to Vito's theory of the self-financing of overinvestment or to Papi's theory of errors. According to Vito (1934; 1936), overinvestment could be financed not only by banks – as the Austrians always maintained – but also by a reduction in the distribution of dividends to share-holders. On the other hand, according to Papi, the cycle is activated whenever firms do not foresee 'the dynamic of costs and prices [...] independently of banks' action' (Papi 1932, pp. 253 and 256; Papi 1933; see Realfonzo 1999).

The most interesting *overinvestment but anti-Austrian* interpretation of the causes of fluctuations (and the one which will be considered here) linked the excess

of investment to an improvement in expectations, independently of the banks' behaviour. According to this view, the starting point of the cycle is an improvement in entrepreneurs' expectations: the availability of *technical inventions* appears to give the most significant push to the expansion of investments<sup>2, 3</sup>. To understand this point, and to clarify why overinvestment can occur even in the absence of an increase in bank loans, it is necessary to briefly present the model of the monetary circuit which was mainly developed in Italy by Fanno (1993 [1931]; 1947; see Graziani and Realfonzo 1992; Graziani 1994; Realfonzo 1998, chapters 1 and 6).

According to Fanno, the capitalist economy should be described as a monetary, sequential and non-cooperative economy. He assumes a triangular structure of macroagents (banks, firms, workers) and describes the working of this economy by means of a circular flow of money. In his analysis – as in all the models within the tradition that Keynes defined as the 'monetary theory of production' (for instance, see Keynes 1973 [1933]) – the economic process of the simplest (pure credit, closed, stateless) capitalist economy can be divided into the following steps:

- 1) *the creation of money (initial finance)*: in order for the production process to be set in motion, firms need to buy labour power, i.e., they need to pay money wages. For this reason, firms will demand money from banks. Banks create money in order to meet (creditworthy) firms' demand for finance. Banks simply credit the account of firms: money is nothing but an entry in banks' balance sheets. In Fanno's simplest model the amount of money produced by banks will be equal to the money wage bill;
- 2) *the purchasing of labour power and the production process*: as soon as firms obtain bank finance, they will pay money wages to workers. Once the money wage bill has been paid to workers, firms will be able to start the production process. They will carry out their plans for both the amount and the composition of outputs (consumption and investment goods); in so doing they determine the social distribution of income;
- 3) *the selling of consumption goods and securities (final finance)*: once the production process has been completed, firms will sell the consumption goods to workers and keep the investment goods for themselves. On the simplifying assumption that workers have a propensity to consume equal to one, the whole money wage bill will immediately return to firms. If the propensity to consume is less than one, firms will resort to the financial market: if workers do not aim to increase their money stocks, firms will recover the unspent money (the money savings) by means of the sale of securities to workers<sup>4</sup>. In other words, if workers do not increase their money stocks, all the initial finance will return to firms by means of the two markets (consumption goods market and financial market);
- 4) *the destruction of money*: once firms have sold consumption goods and securities they will be able (on the assumption that money savings are entirely employed in the purchasing of securities) to reimburse banks for the finance initially obtained (ignoring interest). At this point, the economic circuit will close<sup>5</sup>.

Two considerations are worth noting:

- a) in this kind of model, bargaining in the labour market concerns only the money wage. Given workers' expectations about the price level of consumption goods<sup>6</sup>, an *expected real wage* is determined. The *actual real wage* will be known only at the end of production, in the market for consumption goods, when workers spend their money wages. If investment equals voluntary savings, firms' choices about the composition of output (between consumption goods and investments) will

be consistent with the workers' choice about the division of their income between consumption and saving. In other words, when workers spend their income (given their propensity to consume) in the market for consumption goods, they will find exactly the price level they expected: the expected real wage will be equal to the actual real wage. Conversely, when there is an excess of investment over voluntary savings, workers will find in the market fewer consumption goods than they expected and – consequently – a higher price level<sup>7</sup>. In this case, the actual real wage will be lower than the expected real wage and the workers will experience forced saving (see Forges Davanzati and Realfonzo 2000);

b) in Fanno's approach – and, more generally, in the monetary theory of production – the principle of consumers' sovereignty does not apply. Consumer demand plays no significant role in improving capitalists' expectations, since – as Bresciani-Turroni, among others, argues (1932, p. 340) – firms are always able to affect the preferences of workers as a whole. In other words, while the *individual* consumer is free to choose what to buy, consumers' choices *in the aggregate* are constrained by firms' decisions concerning the composition of total output: consumers can only acquire the consumption goods that firms decide to produce<sup>8</sup>. Therefore, when firms decide the composition of their output they are at the same time determining its distribution. That is why, given the level of employment and given the availability of new inventions, more investment (more *fixed capital*<sup>9</sup>) means more profits.

At this point it should be clear how, according to this approach, an increase of investment over voluntary savings can occur even without any increase in bank loans. In fact, given an increase in profit expectations, firms can decide to transfer some inputs from the consumption goods sector to the investment goods sector, without any change in their demand for finance. What follows will be overinvestment and an excess of the expected real wage over the actual real wage.

### 3 The Spread of Firms' Profit Expectations

As underlined above, according to Fanno and Bresciani-Turroni the impulse to economic growth, and thus the increase in investment, lies mainly in the improvement in firms' expectations. In their analysis, the improvement in expectations seems to affect *all* firms at a given moment. In this respect, this argument fails to explain why, at a given moment, it suits the individual firm to increase its investment and why all firms behave in this way. A possible answer can be drawn from the analysis of the individual firm's behaviour with respect to other firms' choices. In order to clarify this point, let us introduce the following simplifying assumptions into the general framework described above:

- a) there are  $n$  homogenous firms. Each firm produces capital goods ( $I$ ) and consumption goods ( $C$ ). Firms have an identical market share, i.e., the individual firm faces a demand curve for the consumption goods it produces equal to a fraction  $n$  of workers' money expenditure;
- b) the rate of interest is zero<sup>10,11</sup>;
- c) all workers are employed<sup>12</sup> and their propensity to consume is unity;
- d) firms can increase the production of capital goods ( $I$ ) in fixed quantities, i.e.,  $\Delta I$  is a technical constant.

As underlined above, the scholars taken into consideration here stress that the capitalist economy should be conceived as a *monetary economy*, where the initial finance by banks allows firms to start production and where, consequently,

firms must reimburse the principal (and the interest, here excluded for the sake of simplicity) to banks at the end of the production process. In this kind of model, the firm must be regarded as an agent which maximizes the amount of fixed capital produced (i.e., the amount of net investments ( $\Delta I$ ) is identical to total profits ( $P$ ) for each firm) under the constraint of the reimbursement (at least) of the principal to banks. Therefore, the firm's objective function is:

$$\text{Max } P = \Delta I$$

$$\text{S.t. } F^* \geq wN^*$$

where  $F^*$  is the amount of money the individual firm must collect in the market for goods,  $w$  the unitary money wage and  $N^*$  the level of employment of each firm. Note that while – given the assumption of a unitary propensity to consume – the amount of money gained by firms as a whole on the commodity market equals the wage bill in money terms that they advance to workers, this does not necessarily happen for the individual firm. In effect, the individual firm (A) faces the following problem. If it chooses  $\Delta I$ , it risks not collecting enough money (in the goods market) to repay the principal to banks (say  $F_o < F^*$ ). Otherwise, if it chooses  $I$  (i.e., not to increase investment), it will not increase its profits (say  $P_o < P^*$ ). The following game – where A is the individual firm and B all the other firms - shows this situation:

		B	
		$\Delta I$	I
A	$\Delta I$	$(P^*, F^*); (P^*, F^*)$	$(P^*, F_o); (P_o, F^*)$
	I	$(P_o, F^*); (P^*, F_o)$	$(P_o, F^*); (P_o, F^*)$

$(\Delta I/\Delta I)$  is the best solution for firms in the aggregate, because it allows the maximum profits and, at the same time, the reimbursement of the debt to the banks. Let  $\gamma(P^*, F^*) + \delta(P^*, F_o)$  be the expected payoff for firm A if it plays  $\Delta I$  (where  $\gamma$  is the probability that B plays  $\Delta I$  and  $\delta$  is the probability that B plays  $I$ ) and  $\gamma(P_o, F^*) + \delta(P_o, F^*)$  the expected payoff if A plays  $I$ . Then, strategy  $\Delta I$  is advisable if:

$$\gamma(P^*, F^*) + \delta(P^*, F_o) > \gamma(P_o, F^*) + \delta(P_o, F^*) \tag{1}$$

As the value of  $\gamma$  increases, firms will find it more advisable to play  $\Delta I$ . In this respect, ‘entrepreneurs’ optimism’ (or positive expectations) presupposes that (1) holds. In this context, *being optimistic means believing the others to be optimists*. Firms’ expectations *self-generate*, in the sense that – once a firm surmises that the other firms have positive expectations – its own expectations become positive. Thus, for the expansionary phase to start, it is only necessary that *one* firm’s conjecture is that the other firms are planning to increase their investments. Firms’ ‘optimism’ – which the authors studied here considered to be the basic impulse to

growth – can be finally attributed to the *individual* firm's conjecture that it is operating in an 'optimistic' environment.

The argument that the starting point of the cycle is driven by an improvement in firms' expectations is theoretically consistent with two distinct approaches to the role of technical progress, as the *cause* or as the *effect* of the improvement in firms' expectations. In the first case (*exogenous* technical progress), the necessary and sufficient condition for (1) to hold is that  $\Delta I$  must be available: the supply of new inventions (independently of the demand for them) determines the starting point of the cycle, and the moment firms acquire them is the moment when the starting point of the cycle occurs. In the second case (*endogenous* technical progress), while the availability of new inventions continues to be the necessary condition for the expansionary phase to start, it is firms' demand for technical progress that is the sufficient condition for (1) to hold, and firms' demand for technical progress is the result of the improvement in their expectations<sup>13</sup>. In other words, while in the first case the supply of inventions - via the improvement in expectations - determines the demand for them, in the second case the reverse holds: it is the demand for inventions - resulting from the improvement in entrepreneurs' expectations - which drives their production and the moment when expectations become 'positive' is the moment when the expansionary phase starts.

#### **4 Criticism of the Austrian Explanations of the Upper Turning Point of the Cycle**

We have already seen that, according to the Austrian view, the cycle is essentially activated by monetary factors, i.e., an excess of bank loans over banks' collection of money savings. According to the Austrians, this extra credit will correspond to an increase in investments over voluntary savings; this overinvestment will determine a reduction in the production of consumption goods, an increase in their prices, and forced saving. However, according to this famous view of the cycle, the overinvestment will never be successful since a crisis will always precede the conclusion of these new production processes. This is a key point in the Austrian analysis: the sudden break in the upswing of the cycle once more proves valid the principle of consumer sovereignty and the dependence of investment on households' voluntary savings. The upper turning point of the cycle will be determined by one of two factors: i) the exhaustion of the bank credit potential; ii) the increase in the ratio between the price of consumption goods and the price of capital goods. These very famous explanations of the upper turning point of the cycle were widely adopted in Italy. For instance, Del Vecchio (1956 [1914]) and Bresciani-Turroni himself (1926; 1928; 1932) developed the theory of a maximum limit to the bank credit potential, while Bresciani-Turroni (1937 [1931]; 1936) and Vito (1934; 1936) endorsed the analysis of the ratio between the price of consumption goods and that of investment goods.

However, although these theories were widely diffused in Italy, some Italian scholars criticized the Austrian explanations of the upper turning point. For instance, Fanno – developing the position initially supported by de Viti de Marco (1934 [1898]) – showed that in a model without institutional constraints the banking system could meet whatever demand for finance firms made<sup>14</sup>. His criticism of the theory of the limit to the bank credit potential is based on the circuit model. As already seen, in this kind of model money is the result of a bank decision

to make a loan: it is an entry in the bank's balance sheet. According to this approach, the banking system could satisfy whatever demand for finance arose. That is why the cumulative process set in motion by the excess of investment over voluntary savings could continue without end. It should also be stressed that, assuming that households do not increase money stocks, firms are always able to recover (operating in the consumption market and in the financial market) the whole amount of initial finance, so that all the money initially introduced into the economy will return to the banking system at the end of each period. At the same time, in the Italian literature of the period, one can find attempts to criticize the Austrian theory of the changes in relative prices. As Keynes (1973 [1931]) explained, overinvestment can generate an increase in the prices of both capital and consumption goods.

From the Italian criticism of the Austrian theory one can derive a *new explanation* of the upper turning point of the cycle; it brings social conflict into the limelight. In fact, the most relevant variable determining the upper turning point of the cycle is – in this view (for instance, see Bresciani-Turroni 1932, p. 351) – the contrast between workers and firms and, in particular, workers' reactions to the failure of their expectations concerning the real wage, caused by overinvestment. In order to understand this explanation of the crisis let us concentrate on two basic sequences. Starting from the improvement in capitalists' expectations (and given an initial full employment equilibrium) the following effects occur:

- *Short-term sequence*: increase in investments (and profits) → decrease in the production of consumption goods → decrease in real wages.
- *Long-term sequence*: increase in investments (and profits) → increase in productivity → increase in the production of consumption goods → increase in real wages.

According to the Austrians, the *short-term sequence* should be regarded as the only sure sequence, and it is in effect the only one they considered in cases of an increase of investments not financed by an increase in voluntary savings. Of course, the *long-term sequence* is activated only if the cycle has not already been stopped by a crisis; however, even if a 'fast' (Austrian) crisis does not occur, the *long-term sequence* is activated only on the condition that the increase in productivity more than counterbalances the decrease in the inputs employed in the production of consumption goods. This is a significant issue: according to our scholars, it is possible to conceive a situation in which a (stable) increase in investment over voluntary savings determines an endless cumulative process of increase in the prices of consumption goods and in money wages. This means that, according to our scholars, the capitalist economy could be lacking in any endogenous check to the cycle.

To understand this point, let us suppose - given an initial macroeconomic equilibrium - an improvement in firms' profit expectations. As a consequence, some inputs will be removed from the production of consumption goods to be employed in the production of capital goods. One faces a phenomenon of *forced saving*, generated by the reduction in the real wages resulting from an increase in investment not corresponding to an equal increase in voluntary savings (see, for instance, Bresciani-Turroni 1932, pp. 341 ff. and 1926, pp. 11-13). As a consequence of this unexpected increase in the price of consumption goods, it is reasonable to suppose that workers will demand a corresponding rise in money wages in order to restore their expected real wage. In the following period, firms will increase their demand for finance from banks in order to pay workers the new

level of the money wage bill. Let us suppose that banks satisfy the firms' demand. The significant point here is that, if firms do not change the composition of output and if workers do not change their propensity to consume, there will again be an excess of investment over *ex ante* savings, a new increase in the price of consumption goods and a new forced saving<sup>15</sup>. According to Fanno, since workers cannot effectively bargain for the real wage in the labour market and the banking system can theoretically create money without limit, and assuming that the increase in productivity will not compensate for the decrease in the inputs employed in the production of consumption goods, this cumulative process could go on indefinitely (as in the Wicksellian model)<sup>16</sup>.

However, as argued above, these authors seem to regard *social conflict* – i.e., workers' reaction to the decrease in real wages – as a significant variable stopping the expansionary phase<sup>17</sup>: they maintain that workers' reaction to forced saving determines a decrease in production, due to a decrease in average labour productivity (and/or in hours of work<sup>18</sup>). In this respect, the level of total production – given the inputs employed – depends on: (i) a *technical datum*, i.e., the technical production function, which sets the maximum output firms can produce (labour productivity is at a maximum if and only if social conflict does not occur), and (ii) a *behavioural variable*, i.e., workers' reaction to firms' strategy. In view of this, firms face not only a standard technical production function, but also an 'endogenous production function', which sets the output that firms can produce should social conflict occur<sup>19</sup>.

In the short run (given the initial full employment assumption) the increase in the production of capital goods can be achieved only at the expense of the production of consumption goods. Having excluded a 'fast' Austrian crisis, our scholars suppose that workers initially respond to the unexpected increase in the price of consumption goods by demanding an increase in the money wage. This means that, initially, workers will not reduce their productivity: as Bresciani-Turroni (1932, p. 350) argued, one would reasonably expect the cumulative monetary process to go on for a certain period before workers realize that the only effective reaction is the reduction of their productivity (i.e., social conflict)<sup>20</sup>. At this point, if workers choose to react with social conflict to the failure of their expectations about the real wage, the endogenous production function will show a decrease in the production of both consumption goods (real wages) and capital goods (profits). This could lead firms to modify their production plans (reducing investment to the level of voluntary savings) and satisfy workers' expectations<sup>21</sup>.

## 5 Social Conflict as a Reaction by Workers to Overinvestment

The authors taken into consideration here did not provide a clear explanation of the reasons why workers should react to firms' strategy, but limited themselves to the argument that it ultimately depends on their dissatisfaction. This argument is unsatisfactory, at least in the sense that it could lead to the – theoretically weak – conclusion that social conflict occurs *with no regard to the possible gains deriving from it*, or, in other words, that workers act as *non-rational self-destructive agents* (social conflict is costly for them, in that – as shown – it reduces real wages). However, if it is restated, the idea that it is social conflict which stops the expansionary phase can be made consistent with the assumption that workers do not act as non-rational agents, since social conflict is costly for firms too, in that it reduces their profits. Thus a question needs to be answered: in what conditions will

workers find social conflict advantageous? Or, in other words, is workers' reaction to firms' strategy a *rational* reaction?

In order to answer this question, using an approach and an analytical technique similar to that employed by the Italian scholars considered here, let us make the following assumptions:

- a) workers choose whether or not to react to the firms' strategy only after they experience a certain period of forced saving. Let  $t_o$  be the moment when firms increase their investments,  $t_l$  the (possible) start of conflict (thus  $t_l-t_o$  is what can be called the 'learning period'),  $t_x$  its end,  $t_{+1}$  the end of the production of capital goods, and  $t_f$  workers' temporal horizon (i.e., the period they take into consideration when choosing whether or not to react)<sup>22</sup>;
- b) when workers choose whether or not to react, they know the quantity of consumption goods initially produced ( $C_o$ ), the quantity of consumption goods that firms produce after the increase in their investments ( $C_l$ ), the quantity of consumption goods available if they choose to react ( $C_L < C_l$ )<sup>23</sup>, and the quantity of consumption goods that will be available when the production of capital goods finishes if social conflict does not occur ( $C_{t+1} > C_l$ );
- c) when firms choose whether or not to increase investment, they do not know whether workers will react, or when they will react, and therefore they do not know the value of  $C_L$ ;
- d) if conflict ends before  $t_{+1}$ , and it is successful - since conflict reduces productivity and, thus, profits - firms do not conclude the production of capital goods and produce the initial amount of consumption goods ( $C_o$ ) and investment goods. Just for the sake of simplicity, we will consider only this case; that is, the case where conflict ends after  $t_{+1}$  will be excluded. Let  $\alpha$  be the probability that conflict is successful;
- e) labour productivity is identical in the two sectors and the labour market is always in a full employment equilibrium.

Workers will find it desirable to react if  $EUc > EUnc$ , i.e., if the expected utility of conflict is greater than the expected utility of non-conflict.  $EUc$  goes up in proportion to the wage bill in real terms during the conflict - i.e.,  $C_L(t_x-t_l)$  - and in proportion to the wage bill in real terms produced by firms in cases of successful conflict ( $C_o[t_f-t_x]$ ).  $EUnc$  goes up in proportion to the wage bill in real terms before the end of the production of capital goods - i.e.,  $C_l(t_{+1}-t_l)$  - and in proportion to the wage bill in real terms after the production of capital goods, i.e.,  $C_{t+1}(t_f-t_{+1})$ . Furthermore, both  $EUc$  and  $EUnc$  depend on the workers' intertemporal discount rate ( $i$ ), i.e., their preference for present consumption compared to future consumption. Therefore, social conflict is convenient if:

$$EUnc(C_l, C_{t+1}, t_{+1}-t_l, t_f-t_{+1}, i) < EUc(\alpha, C_L, C_o, t_x-t_l, t_f-t_x, i) \quad (2)$$

By assuming that (2) is additive, it becomes:

$$\sum_{n=t_l}^{t_{+1}} [C_l/(1+i)^n] + \sum_{n=t_{+1}}^{t_f} [C_{t+1}/(1+i)^n] < \alpha \{ \sum_{n=t_l}^{t_x} [C_L/(1+i)^n] + \sum_{n=t_x}^{t_f} [C_o/(1+i)^n] \} \quad (3)$$

Therefore, for a given  $\alpha > 0$ , social conflict is more convenient:

- i) the lower  $C_I$  and  $C_{t+1}$  are, i.e., the more the increase in investment reduces the short-term production of consumption goods and the less the increase in investment increases future productivity;
- ii) the greater  $C_L$  and  $C_o$  are, i.e., the less workers must reduce their consumption (and thus productivity) to induce firms to modify their strategy (to increase the production of consumption goods);
- iii) the lower  $t_x - t_I$  is, i.e., the less time workers must reduce their consumption for the conflict to be successful;
- iv) the lower  $t_f - t_{+1}$  is, i.e., the smaller the difference between workers' temporal horizon and the close of the production of capital goods. In other words, social conflict is more convenient the greater the length of the production of capital goods compared to workers' capability to wait;
- v) the greater the workers' intertemporal discount rate is, i.e., the more workers prefer present consumption rather than future consumption. In fact, high values of  $i$  reflect workers' strong preference for present consumption and, consequently, strong dissatisfaction with the reduction in the production of present consumption goods deriving from the increase in investment.

Note that in (3) – while necessarily  $C_{t+1} > C_I$  (because the increase in investment determines the increase in productivity and, thus, in the production of consumption goods),  $C_L < C_I$  (because worker reaction reduces productivity and, thus, the production of consumption goods) and  $C_o > C_I$  (because, if successful, worker reaction forces firms to produce more consumption goods than would have been produced without conflict) – there is no certain relation between  $C_o$  and  $C_{t+1}$ .  $C_o > C_{t+1}$  if, without conflict, the increase in productivity (due to the employment of the new capital goods in the production of consumption goods in the interval between  $t_{+1}$  and  $t_f$ ) less than counterbalances the decrease in the inputs employed in the production of consumption goods; conversely,  $C_o < C_{t+1}$  if, without conflict, the increase in productivity more than counterbalances the decrease in the inputs employed in the production of consumption goods. The first is the case when there is *growth without redistribution* (real wages tend to decrease over time, in absolute and relative terms), and the second when there is *growth with redistribution* (the real wage in absolute terms tends to grow). It is worth noting that – in view of (3) – while social conflict is more probable when there is growth without redistribution, workers may find it convenient to organize conflict even when there is growth *with* redistribution. Basically, the rationale for this can be traced to the 'excessive' time taken to produce capital goods, with respect both to the workers' temporal horizon and to their intertemporal discount rate.

Figure 1 shows this situation, assuming  $C_o < C_{t+1}$ .

In Figure 1 the different *paths* of the production of consumption goods when there is conflict (dark line) and without conflict (light line) are represented. In  $t_o$  the increase in investment (and the consequent decrease in the production of consumption goods, from  $C_o$  to  $C_I$ ) occurs. In  $t_{+1}$  the production of capital goods ends, and both labour productivity and the amount of consumption goods produced increase, from  $C_I$  to  $C_{t+1}$ . If workers react to the initial decrease in real wages, after the 'learning period' ( $t_I - t_o$ ),  $C$  decreases until a given  $C_L$ ;  $t_x - t_I$  is the duration of the conflict. If successful, social conflict forces firms to increase the production of consumption goods, from  $C_I$  to  $C_o$ . For a given  $t_f$  (workers' temporal horizon), social conflict is advantageous if – on the simplifying assumption of a worker's intertemporal discount rate equal to zero – the area under the dark line is greater

than the area under the light line, starting from  $t_1$ ; this reflects the results obtained from (3).

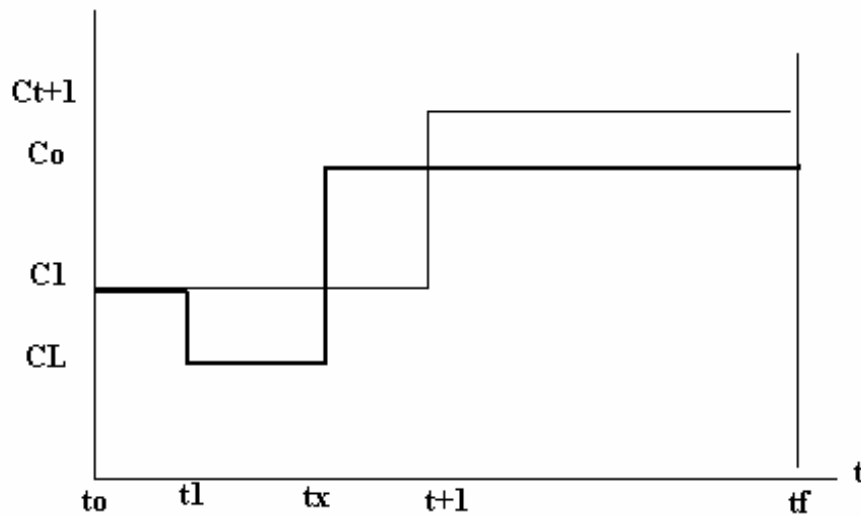


Figure 1

Note that – in contrast to the Austrian case – there is no reason why the expansionary phase must necessarily stop before  $t+1$ . In effect, removing the previous assumption that  $t_x < t_{+1}$ , social conflict may occur even *after* the close of the production of capital goods – in Figure 1, this implies that the dark line shifts upwards after  $t_{+1}$ . In this case, we should assume that in the interval between  $t_{+1}$  and  $t_f$ ,  $C_{t+1}$  would be less than  $C_o$  (this is the case of *growth without redistribution* above): social conflict assures workers a higher level of consumption than that obtained without conflict.

## 6 Concluding Remarks

This paper dealt with the thought of some Italian scholars, mainly Marco Fanno and Costantino Bresciani-Turroni, who, at the beginning of the 20<sup>th</sup> century, explained the business cycle outside the popular Austrian approach. Although they stressed the overinvestment nature of fluctuations, they criticized the Austrian explanations both of the impulse to the expansionary phase and of the upper turning point of the cycle. From their analysis there emerged new roles for firms' expectations in generating a period of growth and for social conflict in determining the beginning of the contractionary phase.

Two basic general conclusions can be drawn from the previous discussion:

a) according to these scholars – and outside the Austrian approach – capitalist instability (the alternation of expansionary and contractionary phases) may not be due to external interventions by banks, the State or the unions. While the starting point of the cycle can be attributed to firms' self-generating expectations, the upper turning point is basically explained by means of the inconsistency between the workers' desire (to reach their expected real wage as soon as possible) and the firms' plans, and also by the effects of social conflict on the firms' decision about the composition of total output;

b) the business cycle may be driven by *real variables*, and this applies to the explanation of both the starting point and of the upper turning point. Although they conceived the capitalist economy as a monetary economy, they did not assign either to costs or to the Austrian ‘shortage’ of money a crucial role in the turning points of the cycle. The alternation of expansionary and contractionary phases was mainly explained by firms’ decisions, both on the level of investment, which determines overinvestment, and on the dynamics of the real wage, which determines social conflict.

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## Notes

1 Fanno himself repeatedly recognized this point. For instance: ‘Wicksell’s theory can be applied as an integral part to the theory of business cycles [...]. This theory was widely developed by [...] Fanno in 1912 [...]. Having recognized the fruitfulness of Wicksell’s theory, I have looked to develop it’ (Fanno 1993 [1931], p. 432).

2 ‘Why does a firm’s demand for investment goods change? [...] When a new invention makes it profitable to change technical systems of production, a new demand for means of production emerges [...] technical inventions offer brilliant prospects of profits and at once arouse a huge demand for new capital goods’ (Bresciani-Turroni 1932, pp. 338-340). See also Fanno 1993 [1931], pp. 422-243 and Fanno 1947, pp. 68-75.

3 Of course, the starting point of the cycle could be the outcome of a bank decision to decrease the money rate of interest below the level of the natural rate of interest. However, as Bresciani-Turroni repeatedly stresses (for instance see Bresciani-Turroni 1932, p. 347), a period of economic growth may occur even without a change in bank decisions.

4 This point was recognized also by Bresciani-Turroni (1936, pp. 21-22), according to whom in this case monetary saving ‘merely makes it possible for the entrepreneurs to pay off their bank debts’.

5 ‘Every credit cycle terminates at the end of the production cycle it finances’. ‘The volume of bank credit created to finance any production cycle [...] completely cancels itself out in the moment in which the finished goods, that is, the final product, move on to, and are paid for, by the consumer’. Fanno 1993 [1931], p. 406. It is significant to point out that, in the more detailed model proposed by Fanno in the 1931 paper, ‘if the volume of credit created to finance a given production process is annulled, the overall volume of credit itself is not. Given the continuous nature of production there are, at any moment, productive cycles which end, new ones which start up and an infinite

number in progress. Therefore, at all times there are old credit supplies which close, new ones being created and existing ones increasing in volume' (1993 [1931], p. 406).

6 For the time being, we assume adaptive expectations.

7 For an in-depth discussion of the 'inflation tax' and of its redistribution effects see Bresciani-Turroni 1926, pp. 11 ff.

8 As we have already seen - and as Bresciani-Turroni maintained in *The Theory of Saving* (1936) - the only consumer choices that are relevant for firms in the aggregate concern the propensity to consume and decisions about the allocation of money savings. For the sake of simplicity, in what follows we will assume that workers spend all their income on acquiring consumption goods.

9 In effect, Bresciani-Turroni considers the increase in the stock of fixed capital as *the* characteristic of the expansionary phases of the cycle (Bresciani-Turroni 1932, p.333).

10 Assumptions (a) and (b) - although counterfactual - are introduced for two reasons: i) to show that, according to Fanno and Bresciani-Turroni, the cycle can be put in motion independently of relationships among firms and the value of the money interest rate; ii) to focus directly on what they considered the most important variable stopping the expansionary phase (i.e., social conflict), which can occur independently of what happens in the money market.

11 However, it could be observed that, assuming a rate of interest greater than zero, in a closed economy without a state sector, firms cannot pay interest with money collected in the market for goods (since they cannot collect an amount of money greater than the value of the initial finance). Two scenarios are possible at this point. First, firms could finance the excess of their spending over their current income by issuing new debt. In this case, firms pay banks interest in money and the monetary circuit closes outside equilibrium. Second, firms could pay banks by giving them a share of total real profits. If one assumes that this share is given independently of the volume of initial finance, it follows that the payment of interest does not affect firms' decisions about production and employment. In this case, the monetary circuit closes in equilibrium. It is also important to stress that in a more fully articulated circuit model, such as Fanno's 1931 model, due to the non-simultaneity of the production processes, 'the overall volume of bank credit never disappears completely' and some firms can pay interest in money terms while others are still producing consumption and/or investment goods (Fanno 1993 [1931], p. 406).

12 The full employment assumption was recurrent in the Italian literature of the period, mainly as a consequence of the fact that the terms of the debate derived from Pareto's tradition. That is why one can find this assumption even in some of the most heterodox works. It is true that some of the authors of the period - and Bresciani-Turroni himself (in his 1936 paper) - proposed a theory of the cycle based on the existence of involuntary unemployment at the starting point of the cycle. However, in this paper we do not take the case of unemployment equilibrium into consideration, in order to compare the contributions by Fanno and Bresciani-Turroni to the Austrian 'model', which - needless to say - describes an economy fluctuating in full employment. Bresciani-Turroni's argument on fluctuations of employment during the cycle will be briefly examined below (see footnote 21).

13 In this latter case the propagation of positive expectations depends on different economic factors or on political, social or institutional shake-ups. Bresciani-Turroni (1997 [1947], p. 31) argues that - for instance - a change of the monetary unit by the Government may act as a positive institutional boost to expectations. He refers, in particular, to the episode of hyperinflation in Germany in 1924: 'The German Government at that time, and this was its most important merit, succeeded in improving

*confidence*, which appeared extremely weak. The device was the production, in limited quantity, of a new money, coupled with the old Mark [...]. It announced publicly that the new money ought to have a stable value [and] agents believed in the solidity of the guarantee' [italics added].

14 According to Fanno, and in opposition to the theory of bank deposit multiplier, there was no *technical* limit to banks' credit expansion. The only conceivable check was of a *behavioural* nature: 'if, given the capability of deposit banks to create credit, there does not exist an insuperable material limit to credit expansion, there is a prudential limit' (Fanno 1957, p. 2275). The idea that investments do not presuppose the availability of savings is supported also by Bresciani-Turroni (1936, p.165), who argues that 'new investment (in the sense of the starting of new production processes) need not take place simultaneously with saving [...]. Investment is then financed not with savings but with bank credit'. For a more detailed discussion of this issue in the international debate of the beginning of 20<sup>th</sup> century, see Graziani and Realfonzo 1992, and Realfonzo 1998, chapter 6.

15 The non-neutral role of inflation was stressed several times by Bresciani-Turroni. For instance, with reference to the great German inflation, he argued that price dynamics could not be understood without an analysis of the relative power of social groups (Bresciani-Turroni 1937 [1931]). See Bini 1992, chapter 3.

16 'This abnormal expansion in credit is therefore the expedient by which the banking system makes available to producers the necessary means to attract the extra amount of *real* savings. These come in the form of *forced* savings from the public and are necessary for continuing capital goods production' (Fanno 1993 [1931], p. 428).

17 In his 1936 paper (p. 173), the author writes: 'It is probable that in these circumstances [i.e., a continuous decrease in the production of consumption goods] the expansion phase would soon come to an end. This means in the final analysis that the working class are not willing to endure the forced saving, out of which the production of new investment goods ought to be financed'. In other words – given the full employment assumption (which the author seems to consider the *general case* even in his 1936 paper) – 'the crisis arises out of an over-production of capital goods, to which there necessarily corresponds an under-production of consumption goods'. See Bresciani-Turroni 1936, p. 136.

18 In what follows, we will consider only the effects of social conflict on labour productivity (and not on hours of work). This is just for the sake of simplicity and does not affect the results of the model.

19 The difference between the technical production function and the endogenous (or socially determined) production function was not explicitly considered by Fanno and Bresciani-Turroni. It can be considered as an *ex post* rationalization of their approach. For a deeper analysis of the endogenous production function see Forges Davanzati and Realfonzo 2000.

20 It means that, according to Bresciani-Turroni, while initially workers have adaptive expectations about the price level of consumption goods, after a number of periods in which their forecasts are systematically wrong, they change the way in which expectations are formulated. In other words, workers progressively learn to analyse market signals. In section 5 we will refer to a 'learning period'.

21 As said above (see footnote 12), Bresciani-Turroni also examined the case of fluctuating employment within the cycle in his 1936 paper. His argument starts from an unemployment equilibrium and from the assumption that the increase in production (resulting from the improvement in firms' expectations) is completely devoted to the increase of capital goods. As a result, while employment increases during the

expansionary phase, the average real wage declines, workers react and, therefore, the upper turning point of the cycle occurs.

22 It is assumed here that all workers behave in the same way, that is, the individual worker chooses whether to react or not without taking the other workers' choices into account. In other words, no worker is assumed to be a free-rider.

23 The amount of consumption goods available if workers react to firms' strategy depends on workers themselves (if they choose to react, labour productivity decreases and, thus, also the amount of consumption goods available in the period when social conflict occurs). In this respect, firms will know  $C_L$  only *after* workers' reaction (see assumption c).

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