

# John Stuart Mill and Wicksell's Cumulative Process

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## Abstract

This article deals with the particular connection between the cumulative process in the writings of Knut Wicksell and John Stuart Mill. Although, the idea of the cumulative process is mainly attributed to Thornton, Mill was the first to emphasize that the discrepancy between the market rate of interest and the expected yield of investment were the reason why the prices generally increased during the first stages of the business cycle. Thus, he stressed the crucial role of investment, regarding the cumulative process as a disequilibrium situation, in which the net investment is positive and constantly increasing as a result of future expectations for profits. The connection between Mill's and Wicksell's argumentations points out that the introduction of money and credit into a barter economy in no way serves to discredit Say's Law.

## 1. Introduction

The usual explanations of short or long run economic cycles in the pre-Keynesian literature was *mainly* based on problems attributed to the working of the credit system<sup>1</sup>. Besides Marx and the minor under-consumption literature (see Milios and Sotiropoulos 2007), Wicksell also was an exception in this long tradition by stressing "objective" factors as an alternative explanation of business cycles. Wicksell pointed out the discontinuous character of technical progress as the major cause of business cycles. In this line of argument, the variations in the price level can be traced to the slowness with which the banks adjust their lending rates of interest to prior variations in the "natural" rate of interest (see below). J. S. Mill, by contrast, argued that economic cycles are caused by mercantile miscalculations that overestimate the expected commercial (real) rate of profit. Nevertheless, he is also responsible for first *complete* introduction of the so-called "cumulative process" which is quite similar to that advanced many years later by Wicksell.

This striking similarity has not been emphasized in the relevant literature and it is the subject of the present paper. Although, the idea of the cumulative process is mainly attributed to Thornton (for example see Hicks 1967, Blaug 1968, Schumpeter 1994), Mill was the first to emphasize that it is the discrepancy between the market rate of interest and the expected yield of investment that induced the general increase of prices during the first stages of the business cycle. So he stressed the crucial role of industrial investment, approaching the cumulative process as a disequilibrium

situation in which net investment is positive and constantly increasing as a result of future profits expectations. This very same description of the transitory short run disequilibrium period takes place in Wickell's theoretical work.

The rest of the paper is structured as follows. In section 2 we will present the basic framework of the discussion. Then, in sections 3 and 4 we will introduce Mill's typical argumentation in contrast with Thornton's and Tooke's analysis. The specific connection between Mill's and Wicksell's arguments will come up as a consequence of what is mentioned in section 5. Finally, the conclusion is reached and presented in section 6, including some remarks about future research efforts, as well.

## **2. From the *Direct* (Hume) to the *Indirect* (Thornton) Quantity Theory of Money**

The idea that the inflationary process, as described by the quantity theory of money, does not allow (the quantity of) money to play an important role in the formation of the (long-run) economic equilibrium is very old and can be traced in the writings of the economists, such as Locke, Cantillon and Hume, of the late mercantilist period (Rubin 1989: 78-87, Blaug 1968: 12-25).

These writers approached the results of the increase or the decrease of the quantity of money, by defining, through a *direct mechanism*, the causality of the Quantity Theory of Money: every exogenous increase of the quantity of money will influence proportionally the level of prices, thereby retaining stable the "real quantity" of money (that is the purchasing power of the new quantity of money). Although for the majority of the mainstream economists this "monetarist" idea constitutes the core of the money theory up to our days, in its first steps it could not integrate the rate of interest in a consistent way.

As Hayek argues (1967: 12) "while the existence of some relation between the quantity of money and the rate of interest was clearly recognised very early – traces of an understanding could be found in the writings of Locke and Dutot – the first author known to me to enunciate a clear doctrine on this point was Henry Thornton". The reference here is to a remarkable theoretical intervention of 1802 entitled *Nature of the Paper Credit of Great Britain*, which focused attention on the conflict over *The Restriction Act*. In Thornton's view there is no limit to the expansion of credit circulation in a society with a developed financial system, as long the banks keep their interest rates on loans at low levels (Thornton 1939: 254-9, Viner 1975: 149-50, Hayek 1967: 12-3, Schumpeter 1994: 721-3, Hicks 1967: 176, 180, 182, Itoh & Lapavistas 1999: 22, Skaggs 1995: 1214).

Thornton introduces a theoretical scheme that links the movement of bank (money) interest rates with prices. Economic fluctuations around a specific point of equilibrium (periods of prosperity followed by periods of recession) were regarded as a by-product of the functioning of the bank, insofar as it disrupted the supposed "neutrality" of money. Description of such states of disequilibrium was thus conflated with the theory of temporary short-term deviations, one part of which was the financial theory, as distinct from the "main body" of economic analysis dedicated to description of the laws of distribution and production (see Garegnani 1979: 64, Moore 1988: 236, Schumpeter 1994: 688-731). Thornton's abovementioned scheme was immediately adopted by the *bullionists* and became widely known through the work of Ricardo (and also James Mill).

### 3. Mill's disagreement with Thornton's analysis

In *Principles* Mill distances himself from Thornton's analysis on the basis of his judgment that a bank is not able to increase private credit circulation if this is not consistent with the intentions of the public<sup>2</sup>. On this point his views are the same as those of Tooke. The bank could *conceivably* restrict the issue of credit, for example by rejecting speculative loans, but it could never just decide to increase the circulation of its own money. Let's examine his argument more closely.

For Mill there are two states in the financial markets, the *quiescent state* and the *speculative or expectant state* (Mill 1976: III.xxiv.§2).

The former is characterized by stable, regular economic operations. There is no external speculative influence and the *law of reflux* applies, as formulated by the proponents of the Banking School<sup>3</sup>:

Even if we suppose, as we may do, that bankers create an artificial increase of the demand for loans by offering them below the market rate of interest, the notes they issue will not remain in circulation; for when the borrower, having completed the transaction for which he availed himself of them, has paid them away, the creditor or dealer who receives them, having no demand for the immediate use of an extra quantity of notes, sends them into deposit. In this case, therefore, there can be no addition, at the discretion of bankers, to the general circulating medium: *any increase of their issues either comes back to them, or remains idle in the hands of the public, and no rise takes place in prices* (Mill *ibid.*, emphasis added).

In the quiescent state the supply of private bank money is thus exclusively *demand-determined*. The bank is not able to generate any increase in its money circulation. Moreover, it is evidently unable to arouse expectations of profit and/or affect, even indirectly, the demand for credit. *Speculative crises and indeed any other type of deviation from regular day-to-day economic operations cannot have the bank as their cause*. The latter is, on the other hand, able to implement certain kinds of intervention, such as dampening speculative panic in its first stages by cutting down on the provision of credit, or enhancing the liquidity of the system when a crisis arises<sup>4</sup>. The emphasis in Mill's analysis is on the *asymmetry* of monetary policy: restrictions may be placed on the expansion of credit, but credit cannot be expanded through the unilateral decisions of banks. "Excess" money will either be returned through savings or left inactive in reserve funds.

Like Thornton, Mill understands that mediation of the institution of credit through a well-developed banking system makes the volume of loans *relatively independent* of the flow of (real) money savings. Mill seems to believe that banks can *accommodate* a major demand for loans without being compelled to change their interest rates, so that the connection between the *market* and the *natural* interest rate becomes "loose" (Hicks 1967: 165-6, also see below).

### 4. Tooke's monetary analysis and Mill's disagreements with it

The abovementioned distinction between *quiescent* and *speculative* states also enables Mill *partly* to distance himself from the views of Tooke and Fullarton, prominent members of the Banking School. According to Mill their analysis is important only insofar as it describes a society that is *not* in the speculative state (Mill 1976: III.xxiv.§2). In the speculative state *an expansion of bank credit – especially in the*

*form of banknotes – will merely spread and intensify the speculative crisis (ibid.: §3).* In Mill's reasoning banknotes promote speculation more than other form of credit, because they validate by means of the creditability of the banking system (and specifically that of the Bank of England) a first cycle of speculative commercial purchases (see Mill *ibid.*: III.xii.§4, §7, III.xxiv.§2 and also Skaggs 1994: 552-3).

But there is an interesting aspect to Mill's analysis, linking him directly to later economic approaches (Wicksell):

In the first place, the speculative purchases by which prices are raised, are not effected by bank notes but by cheques, or still more commonly on a simple book credit: and secondly, even if they were made with bank notes borrowed for that express purpose from bankers, the notes, after being used for that purpose, would, if not wanted for current transactions, be returned into deposit by the persons receiving them. (...) *It seems to me, however, that this can no longer be affirmed when speculation has proceeded so far as to reach the producers.* Speculative orders given by merchants to manufactures induce them to extend their operations, and to become applicants to bankers for increased advances, which if made in notes, are not paid away to persons who return them into deposits, but are partially expended in paying wages, and pass into the various channels of retail trade, where they become directly effective in producing a further rise of prices (Mill *ibid.*: III.xxiv.§2, emphasis added).

In this citation Mill puts forward two interesting theses. *Firstly*, it is the undermining of the *law of reflux* for the banknotes in the course of the speculative phase of the cycle (and not at its outset) that exacerbates rises in prices. *Secondly*, the abovementioned process takes place in the *industrial*, not the *commercial*, sector, when traders' profit expectations and the resultant rise in prices motivate producers to expand their business operations. At this point Mill evidently had Tooke's analysis in mind because he reverses one of the basic arguments of the Banking School.

For the purposes of his critique of the quantity theory of money Tooke drew on an argument that had first been formulated by Smith (Tooke 1959: 33-7, Arnon 1991: 109-113). Commodity exchanges can be divided into two categories: those between "*dealer and dealer*" and those between "*dealer and consumer*". This distinction is fundamental for Tooke's analysis, corresponding as it does to that between *circulation* and *capital*. Exchanges between dealers involve the transfer of *money as capital* and are enacted with the aid of credit. In retail circulation between dealers and consumers, on the other hand, what circulates is "pure" money, i.e. metal coins and banknotes of low nominal value (Tooke *ibid.*).

On the basis of this reasoning Tooke puts forward an *income theory of prices*<sup>5</sup>. "The total amount of the transactions between dealers and dealers must, in the last resort, be determined and limited by the amount of those between dealers and consumers" (Tooke *ibid.*: 36). No matter how great the expansion in the circulation of credit, the level of prices will not be affected. The reason for this is that the level of prices is regulated ultimately by the incomes that will finance the purchase of the final commodities.

Mill's argument, by contrast, appears to be that the relation between these two spheres of circulation (wholesale and retail) can become considerably looser *when false (external) speculative expectations of commercial profit stimulate corresponding false expectations of profit among industrial entrepreneurs*. Now, bank loans, usually in the form of banknotes, neither remain in the sphere of wholesale trade nor go back into the coffers of the bank, but are in part expended in paying wages and diverted into various retail trade channels, where they become directly effective in triggering a

further rise in prices (see the above abstract). The investment procedure in this case *disrupts* the relation between the two spheres of circulation (wholesale and retail), *by intensifying the already-existing rising trends in prices*. It is thus only in a second grade, during the upward phase of the cycle, that banknotes exercise a decisive effect on the level of prices.

Mill's argument could be properly summarized as follows (1976: III.xxiv.§2). In the beginning of the speculative cycle, the increase in prices is caused by the expansion of the commercial credit or even the bank credit, except for the banknotes, a case in which the decisive role is played by the law of reflux<sup>6</sup>. Through the manipulation of interest rates, banks can neither trigger any speculation nor increase the circulation at will. This is, of course, true, unless the process of speculation has reached such a point that it can effect the industrial production. *Through the investment process the law of reflux ceases to apply for banknotes, which begin to circulate as wages*. In the latter part of the upward phase, banknotes are in demand because they incorporate the creditability of the banking system. They are a widely accepted *means of payment*, making a larger expansion of credit possible. *Thus, while during the initial period of the upward phase the issue of banknotes has, one way or the other, no effect, in the subsequent phase it becomes doubly negative*.

Mill evidently disagrees with the analysis of the indirect quantity mechanism, but he does note that the injection of loans from the banking system can lead to increases in price levels, not only through speculative purchases by traders, but *above all* through entrepreneurs using increasingly large bank loans to expand production (net investment).

We thus see with Mill a first *complete* formulation of a theoretical scheme which much later, at the beginning of the 20<sup>th</sup> century, (as we shall discuss in the next section) finds its consummation in Wicksell's intervention. We are accordingly obliged to disagree with Schumpeter (1994: 747) when he rejects as meaningless Mill's analysis of the economic cycles. Laidler provides a more reasonable description (1988: 84, emphasis added): "output fluctuations, *though discussed*, were not *systematically integrated* into orthodox analysis until Marshall (performed this task) in 1887". To say this is of course to overlook Mill's uncompleted attempt, which nevertheless deserves more positive recognition (as Forget [1990] seems to agree).

## **5. The cumulative process in Wicksell and its direct link to Mill's analytical framework**

Though phrasing it briefly, Wicksell in effect reiterates many of Mill's arguments in his analysis. There is a "*natural*" or "*normal*" rate of interest in which the supply of savings and the demand for (loan) capital are in equilibrium (Wicksell 1962: 193). Under normal equilibrium conditions this rate of interest corresponds to the reckoning of the invested capital: it is connected with the real data of the system – "concerning the available quantities of factors, technical knowledge and the tastes of consumers" – and it changes in accordance with their movements (Wicksell *ibid.*: 205-206).

Wicksell's argument can be summarized as follows (Wicksell *ibid.*: 211, Garegnani 1979: 64-5, Nell 1967: 390-1, Itoh and Lapavistas 1999: 150). The "cause of cyclical fluctuations" is to be found in objective factors, in particular in the discontinuous character of technical progress. The consequent fluctuations in the profitability of investment, to which the structure of interest rates on money loans adjusts only with a lag, cause price variations in the same way. *These price variations*

are closely correlated to the rhythm with which the banks adjust their interest rates to the changes in the natural interest rate. Thus, even if the connection between the two types of interest rate is interrupted as a consequence of intervention by the banks, movements in the price level will reestablish the relation between the demand and the supply of loans. This takes place through investment. In other words Wicksell draws attention to the relation between changes in the quantity of money and businessmen's decisions about production.

Wicksell stresses the role of the banks because, since: "the connection between loan interest and interest on capital will become much less simple; indeed, it will then only exist at all by virtue of the connecting link of price movements" (1962: 194). This argument is based on two presuppositions (*ibid.*: 190-4, Garegnani 1979: 65): *firstly*, that the market bank rate of interest can for considerable periods of time be different from the relevant "natural" interest rate and, *secondly*, that this possibility is attributable to the mediation of the banks. But, Wicksell – *following Mill* – thinks that "the banks are always more or less *bound* in their interest policy" (*ibid.*: 204). Thus,

the difference between the actual loan and normal rates, which we have already designated as a major cause of fluctuations in commodity prices, arises less frequently because the loan rate changes spontaneously whilst the normal or real rate remains unchanged *but on the contrary because the normal rate rises or falls whilst the loan rate remains unchanged or only tardily follows it* (*ibid.*: 205, the emphasis added).

The basic source of the fluctuations of prices, according to Wicksell, is that banks are slow to adjust their interest rates to changes in the natural rate, i.e. the marginal productivity of the capital (of course, without excluding the possibility of the opposite being the case<sup>7</sup>). Hence an increase in the profit on capital investments is likely to generate a corresponding increase in the demand for bank credit, to which the bank will reciprocate without changing the money interest rate. Increased investment expenditure will thus be added to the initial (unchanged) expenditure on social consumption. The combination of the rise in aggregate expenditure and the virtually unchanged volume of output will lead to a rise in money prices. This rise will first become evident in the prices of investment goods but subsequently, when the increased money income thus generated makes it possible for there to be increases in consumption expenditure, the prices of consumer goods will also rise. "What is still more important is that the rise in prices, whether small or great at first, can never cease so long as the cause which gave rise to it continues to operate; in other words, so long as the loan rate remains below the normal rate" (Wicksell *ibid.*: 196). There can be no termination of the abovementioned process until the banks are forced by the market to readjust their interest rates.

It is not difficult to see the common features between this analysis and Mill's economic reasoning. *What leads to the expansion of credit, in Mill's view, is not the bank's ability to set low rates of interest but, on the contrary, speculative expectations of profit, which for those trading can make the bank rate look extremely low.* The credit system can easily satisfy speculators' demands for money for as long as the anticipated profit exceeds the money interest rate. This euphoria will soon infect capitalist enterprises and some of the over-expanded credit will find its way into wage incomes. The invariable social product will meet an increased social expenditure. The commercial crisis that comes in the wake of price rises corrects the false expectations of traders and entrepreneurs through harsh re-encounter with the "real economic conditions" (and through imposing an equilibrium between investment and saving).

Mill could have been the author of Wicksell's conception of the cumulative process. All that would have been required would be for him to postulate an initial change in the (real) rate of profit (natural interest rate). In that case the bank interest rate would diverge from the profit rate without being any bank intervention. *The connection between the commercial crisis and the channel of industrial investment is the link relating Mill's analysis to Wicksell's cumulative model.*

## 6. Recapitulation: Mill, cumulative process and Say's Equality

Notwithstanding the striking similarity between the analyses of Mill and Wicksell, only the latter gave a comprehensive description of the cumulative process that formed the basic background for later neoclassical analyses (Patinkin 1965: 366-372, Garegnani 1979: 66-7, Moore 1988: 234-40, Blaug 1968: 619-626, Stein 1969).

In neither system is the quantity of money a decisive factor, able to affect the level of the interest rate in the long run. However, as we have seen, this is not the case in the short run. Generalizing from this, we might well endorse Moore's (1988: 236) remark that all economists from Hume to Wicksell espousing the quantity theory of money "have explicitly acknowledged the non-neutrality of money in the short-run". Therefore, "the introduction of money and credit into a barter economy is insufficient to break Say's Law" (*ibid.*).

Wicksell's and Mill's argumentation allows for short-run deviations from Say's Law. The classical (and neoclassical) economists well realized that "supply creates its own demand" only in the long run. They elaborated a flexible interpretation of Say's Law that is known in the literature as *Say's Equality*<sup>8</sup>.

Mill does not reject Say's Law. He does however concede the possibility of temporary disturbances of the equilibrium it postulates. Along with Thornton he sketches the general outlines for the analysis we are later to see in Marshall, and of course in a more comprehensive form in Wicksell (Garegnani 1979: 63-7). In a monetary economy equilibrium in the commodity market is not always guaranteed. In Mill's words: "it is evident enough, that produce makes a market for produce, and that there is wealth in the country with which to purchase all the wealth in the country; but those who have the means, may not have the wants, and those who have the wants may be without the means" (1976: III.xiv.§3). A disequilibrium in the money market will thus always be accompanied by a corresponding disequilibrium in the commodity market (*ibid.*: III.viii.§2). But this way of thinking fails to appreciate the *essentiality* of money in capitalist economies.

## Notes

1. For example see Garegnani (1979), Schumpeter (1993), Blaug (1968), Toporowski (2005).
2. In other words the bank, through its interest rate, is not able to affect the level of prices. As we shall see below, Mill *partly* accepts the law of reflux: "as remarked by Mr. Fullarton, the extraordinary increase of banking competition occasioned by the establishment of the joint-stock banks, a competition often of the most reckless kind, has proved utterly powerless to enlarge the aggregate mass of the bank-note circulation" (Mill 1976: III.xxiv.§5).
3. We have a first formulation of the above law in Smith (1981: II.ii.48). However, it was connected rather with Fullarton and it facilitated the elucidation of many theses of the Banking School (see Mill 1976: III.xxiv.§1, §5, Arnon 1991: 135, Viner 1975: 237).
4. The following extract makes Mill's view more clear (1976: III.xxiv.§4): "in the first place, a large extension of credit by bankers, though most hurtful when, credit being already in an inflated state,

it can only serve to retard and aggravate the collapse, is most salutary when the collapse has come, and when credit instead of being in excess is in distressing deficiency, and increased advances by bankers, instead of being an addition to the ordinary amount of floating credit, serve to replace a mass of other credit which has been suddenly destroyed". Also see Hicks (1967: 166).

5. All this obviously applies in the case of convertible money circulation. In particular, Tooke in his *Summary of Conclusions* (theses 12 and 13) mentioned, *firstly* that "the amount of the circulating medium is the consequence of prices" and *secondly* that "the aggregate of money incomes devoted to expenditure for consumption is the determining and limiting principle of demand" (Tooke 1959: 123). See also Schumpeter (1994: 710), Arnon (1991: 111), Pollin (1994: 100).
6. We should note – as mentioned above – that for Mill the restriction in circulation of banknotes does not appear to have the capacity to restrict *general credit*, which is to be found in several other forms. Citing an example from Fullarton's analysis, Mill argues that there are forms of credit, "by cheques on bankers, and transfers in a banker's books, which (are) exactly parallel in every respect to bank notes, giving equal facilities to an extension of credit" (1976: III.xii.§6).
7. Thus, "an increase in the real rate does not therefore immediately cause a corresponding rise in the bank's rates, but the latter remain unchanged for a time and with them the loan rates between individuals. The money rate therefore becomes abnormally low in relation to the real capital rate, and this naturally has just the same effect as if the money rate had been spontaneously reduced with an unchanged interest on capital – *which seldom happens*. Frequently commodity prices therefore rise continuously, business requires greater cash holdings, bank loans increase without corresponding deposits, bank reserves, and often bullion reserves, begin to fall and the banks are compelled to raise their rates somewhat, though this does not prevent the continuous rise in prices, until the interest rates have reached the level of the normal rate" (Wicksell 1962: 206-7, emphasis added).
8. In accordance with *Say's equality*, money is incorporated organically in the short-run analysis, negating the consequent *dichotomy* of the hypothetical economy that formerly prevailed, on the basis of *Say's identity*. The mechanism of inflation plays a positive economic role in restoring equilibrium. The supply thus "creates its own demand", in a manner not *unrelated to the level of prices, but on the contrary utilizing it*. In the long run money of course remains neutral (see, *inter alia*, Patinkin 1965, 1962, Tobin 1980: 1-19, Blaug 1968: 152).

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