# Hayek's Accelerationism: A Rectification

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*The analogy between Hayekian monetary dynamics and the Friedman/Phelps accelerationist hypothesis is more problematic than some commentators have been ready to admit. Hayek's presentation of the 1930s did not produce a convincing argument in defense of the proposition that accelerating inflation was the inevitable logical consequence of permitting a process of forced saving to continue. On the other hand the Austrian emphasis on the unsustainability of a policy-induced boom, which is logically implied by the model, remains quite appropriate.*

In my previous contribution to this journal (Van den Hauwe, 2000, 578–586) I argued that the Austrian theory of the trade cycle, much like the *natural rate* hypothesis, comprises an accelerationist component. In this note it is my intention to partially rectify this statement. In particular it must be pointed out that the numerical example in Table 1 on page 581 which I took directly from Cochran/Glahe (1999, 142) is misleading. The illusion of acceleration conveyed by the numerical example is in fact due to rounding errors. Correcting for these rounding errors reveals that the numerical example actually tends to illustrate the fact that a constant percentage rate of increase of the effective quantity of money is necessary to sustain a given credit-induced proportion of spending on producers' goods versus spending on consumers' goods. The corrected table would thus actually show that a constant proportional and not an accelerating rate of credit expansion would sustain the altered structure of production. Obviously, and from a scientific viewpoint, rounding errors cannot be invoked to illustrate acceleration. More broadly, the analogy that, as some authors have claimed, exists between Hayekian monetary dynamics and the Friedman/Phelps accelerationist hypothesis – a view which I treated sympathetically in my previous contribution – now seems somewhat questionable.[1]

Going back to the earlier example this can easily be demonstrated as follows. Consider an initial situation in which $MV_0 = 100$ and with expenditure on consumers' goods equal to an amount of $\alpha$ and expenditure on producers' goods equal to an amount of $\beta$. Suppose the effective quantity of money increases by 10% to 110 units so that $MV_1 = 110$. The entire increase is lent to entrepreneurs for increased spending on capital goods. Now expenditure on producers' goods becomes $\beta' = \beta + 10\ [\beta'/(\alpha + \beta')$ relative to total expenditure]. The expenditure on consumers' goods is still $\alpha\ [\alpha/(\alpha + \beta')$ relative to total expenditure]. The injection of new money will become proportionally distributed as follows: $\alpha' = \alpha(\alpha + \beta')/(\alpha + \beta)$ with $\beta'' = \alpha + \beta' - \alpha'$.

The conditions that will allow the new proportion of spending to continue are as follows:

$$\alpha' \text{ as before and } \beta''' = \{\alpha\ (\alpha + \beta')\ \beta'\}/(\alpha + \beta)\alpha = (\alpha + \beta')\beta'/(\alpha + \beta).$$

[1] This does not mean that I want to deny that it may be possible to construct a formal Hayek-style analysis that generates an accelerationist result. The point here is only that Hayek of the 1930s did not produce a convincing argument in defence of the proposition that accelerating inflation was the inevitable consequence of permitting a process of forced saving to continue. Irrespective the answer to the question of whether attempting to sustain forced saving must of logical necessity lead to rising inflation, in practice a central bank might well be tempted into policies that do in fact generate it. Furthermore the Austrian emphasis on the unsustainability of forced saving, which is logically implied by the model, remains quite appropriate. I thank Professor David Laidler for useful suggestions in this respect. A selection of Hayek's writings concerned mostly with the consequences of inflationary policies is contained in Hayek (1979) compiled and introduced by Shenoy.

Now under these assumptions it can easily be shown that

$$(\alpha' + \beta''')/(\alpha + \beta') = (\alpha + \beta')/(\alpha + \beta)$$

whereas acceleration would require that

$$(\alpha' + \beta''')/(\alpha + \beta') > (\alpha + \beta')/(\alpha + \beta) \text{ (quod non).}$$

The error in Cochran/Glahe (1999) is excusable to the extent that Hayek himself in some of his verbal renditions of the theory seems to put forward the accelerationist argument although, as several critics had pointed out early on, it did not follow from his assumptions neither from his numerical examples, especially those in Lecture II of *Prices and Production* (Hayek, 1935, 32–68). Apparently this deplorable state of affairs did not prevent Hayek's somewhat inadequate verbalism from inspiring some of his followers to compound the confusion.

Sraffa had pointed out that Hayek's own logic seemed to imply that just as capital accumulation induced by voluntary saving was sustainable indefinitely, "equally stable would be that position if brought about by inflation; and Dr. Hayek fails to prove the contrary" (Sraffa, 1932/1995, 203). A similar criticism was put forward by Hansen/Tout (1933; see also Laidler, 1999, 44f.). In his response Hayek (1935, 148f., 151) made it clear that he had been concerned with *continuously increasing* inflation, as opposed to *constant but sustained* inflation but seemed no more than before able to derive this conclusion by logical argument.

Laidler (1999, 46) was thus only echoing earlier critics when in a recent re-assessment he wrote: "It is difficult to avoid the conclusion that when dealing with these matters, Hayek was not always clear about the distinctions, first, between a constant arithmetic rate of change of money and prices and a constant proportional rate of change, and second, between rates of change and rates of acceleration, both arithmetic and proportional, of the relevant variables."

Hayek's "Reply to a Criticism" (1935, 132–162) would not be his last attempt at clarification, however.

The most detailed discussion by Hayek may well be contained in his *Three Elucidations of the Ricardo Effect* (1978, 165–178). In this contribution he definitely attempted to approach the problem of the process of adjustment in a way that would go beyond an analysis merely in comparative static terms. On the one hand he concedes that a "constant percentage increase in the total flow (and quantity) of money" will be the rate necessary "to maintain the increased volume of real investment" (172). But two pages later he seems to reassert the accelerationist argument. He argues: "It has always been an open question to me as to how long a process of continued inflation, not checked by a built-in limit on the supply of money and credit, could effectively maintain investment above the volume justified by the voluntary rate of savings. It may well be that this inevitable check only comes when inflation becomes so rampant – as the progressively higher rate of inflation required to maintain a given volume of investment must make it sooner or later – that money ceases to be an adequate accounting basis" (174).

It might seem that Hayek is inconsistent in terms of his own model. His greater point, however, relates to the unsustainability of the boom: ultimately real forces are at work to undo the misallocations brought about during the boom and no expansion in the supply of bank credit on the eve of the bust will dissolve the trouble. In the third section of the article (174–178) he points out that from the standpoint of the firm the problem will manifest itself as an upward sloping supply of credit that will act as a kind of rationing device to constrain its growth: *"every borrower will, after a while, be faced with a rapidly rising supply curve of loans"* (175). And further: "The use it will make of the limited capital at its disposal will therefore be determined by its internal rate of return, which will be equal to the *marginal* rate at which *it* can borrow but which is likely to be considerably above what is regarded as *the* market rate" (176).

Most remarkably Hayek, although he recognizes the importance of the role of expectations, abstains from devoting any serious consideration to it. The passage quoted before from page 172 is followed by the following statement: "This process can evidently go on indefinitely, at least as long as we neglect changes in the manner in which expectations concerning future prices are formed." And on page 174 we can read: "But this cannot be further discussed without raising the problem of the effect of such changes on expectations – a problem which I do not wish to discuss here" (sic).

Mises (1998) definitely did incorporate expectational considerations in his account of the business cycle when he wrote: "Neither could the boom last endlessly if the banks were to cling stubbornly to their expansionist policies. Any attempt to substitute additional fiduciary media for nonexisting capital goods . . . is doomed to failure. If the credit expansion is not stopped in time, the boom turns into the crack-up boom: the flight into real values begins, and the whole monetary system founders" (559). With respect to the crack-up boom he wrote: "The characteristic mark of the phenomenon is that the increase in the quantity of money causes a fall in the demand for money" (424). He almost always emphasized the role of expectations. On the one hand he was clearly aware of Lincoln's famous dictum that "You can't fool all of the people all of the time" (Mises, 1981, 459) and of the fact that "the working of inflation is conditioned by the ignorance of the public" (Mises, 1981, 458). On the other hand he agreed with Lachmann (143, 251) that "Without fairly elastic expectations there can be no crisis – better is: boom – of the Austro-Wicksellian type". In fact Mises (1998, 791f.) is stumbling upon a subjectivist variant of the idea of adaptive expectations where he writes towards the end of *Human Action:* "It may be that businessmen will in the future react to credit expansion in a manner other than they have in the past. It may be that they will avoid using for an expansion of their operations the easy money available because they will keep in mind the inevitable end of the boom. Some signs forebode such a change." Obviously Mises is not implying that accelerating or continuously increasing inflation will render the boom sustainable. In the paragraph that immediately succeeds the one from which the aforementioned quotation is drawn and which appears in the third (1966) but not in the first (1949) edition of *Human Action* Mises (1966, 798) suggests that public opinion as well as the financial press have learned the main lessons of the Austrian theory of the trade cycle. The formation of expectations on the basis of this knowledge has compelled the monetary authorities to restrict credit whenever the first signs of the boom have appeared. It is to these factors that Mises attributes the marked reduction in the observed duration and severity of cyclical fluctuations during the previous decade.[2]

Most people would now associate *accelerationism* with the Phelps/Friedman version of that doctrine, which hinges upon the money-wage formation process (Friedman, 1975; Garrison, 2001, 196–199). Given the absence of any long-run money illusion, the long-run

[2] As a side-remark let me here add that whereas in my paper (2000) I did not elaborate upon the distinctiveness of the Misesian approach and insights, the differences between this approach and the Hayekian or other approaches may indeed be important. From a consistent Misesian viewpoint it would not be acceptable to state for instance that in long run comparative statics monetary changes affect only nominal variables and that the quantity theory may in this respect be accepted. Nor would it be acceptable to state that monetary policy is *ineffective* in the long run if this proposition is to be understood in the sense that, say, the previous pre-boom structure of relative prices will be restored (van den Hauwe, 2000, 580). From a Misesian perspective almost nothing is further from the truth. Changes in the supply of money must always bring about changes in other data too (Mises, 1998, 410). Money is non-neutral even in the long run – and also under the highly unrealistic assumption that new money would be injected into the economic system in a way that does not disturb the pre-existing relative wealth distribution among individuals. The very process by which the market adjusts the – positive or negative – excess demands for money of individuals necessarily *revolutionizes* wealth positions and the price structure. For Mises *real balance effects* are inextricably related to *distribution effects*. See also Salerno (1994, 84f.).

Phillips curve is vertical. However, it should by now be clear that the analogy of Hayek's *accelerationism* – as originally stated in *Prices and Production* – with the natural rate hypothesis is less tight than some authors have claimed. Especially the connection between Hayek's analysis and that of Friedman now seems extremely tenuous. The main reason is that Hayek made no reference to the influence of inflation expectations on the formation of money wages and prices, a matter which is central to Friedman's analysis.[3]

So it is probably too strong a statement that "The Ricardo Effect offers an explanation of the Phillips curve phenomenon" and that "Mises and Hayek were talking about the Phillips curve phenomen . . . long before the phenomenon in its statistical form had been namend as such" as at least one author has argued in an attempt to breathe some life into the concept of the Ricardo Effect (O'Driscoll, 1977, 116ff.). Nevertheless, as Garrison (2001, IV) has argued recently, a comparison of Austrian and Monetarist views suggests strong elements of complementarity and in many boom-bust episodes the Austrian theory and the Monetarist theory may both be applicable.

Furthermore Hayek no less than Mises was well aware of the role of changing expectations. In the context of his discussion of these matters in *The Constitution of Liberty* he wrote: "In order for inflation to retain its initial stimulating effect, it would have to continue at a rate always faster than expected" (1960, 331). Another discussion of the mechanism of accelerating inflation was eventually also contained in Hayek's last important work on monetary policy *Denationalisation of Money – the Argument Refined* (Hayek, 1978/1991, 187f.). Pondering over the error of the "beneficial mild inflation" Hayek wrote: "The initial general stimulus which an increase of the quantity of money provides is chiefly due to the fact that prices and therefore profits turn out to be higher than expected. Every venture succeeds, including even some which ought to fail. But this can last only so long as the continuous rise of prices is not generally expected. Once people learn to count on it, even a continued rise of prices at the same rate will no longer exert the stimulus that it gave at first . . . Monetary policy is then faced with an unpleasant dilemma. In order to maintain the degree of activity it created by mild inflation, it will have to accelerate the rate of inflation, and will have to do so again and again at an ever increasing rate every time the prevailing rate of inflation comes to be expected" (Hayek, 1978/1991, 187f.). By the time he wrote these words, however, he had essentially repudiated his own business cycle theory. Although he recognised that a policy of injecting and withdrawing money to stabilize its value raised the problem of non-neutral injection effects that had been at the heart of his business cycle theory, he wrote: "It is now generally recognised that even those additions to the quantity of money that in a growing economy are necessary to secure a stable price level may cause an excess of investment over saving. But though I was among those who early pointed out this difficulty, I am inclined to believe that it is a problem of minor practical significance" (Hayek, 1978/1991, 179).

A final remark – though not directly related to the accelerationism issue – is in place here as regards the Ricardo Effect. The term *Ricardo Effect* as used by Hayek has come to be associated only with the movements – from early-stage activities to late-stage activities – that characterize the upper turning point of the business cycle. It should be noted, however, that Mises did not use the expression *Ricardo Effect* in his exposition of the Austrian theory of the trade cycle although the idea of an inevitable countermovement was already present in the first 1912 edition of *The Theory of Money and Credit*. Moreover in his exposition in *Profits, Interest and Investment* Hayek described the Ricardo Effect mechanism under the restrictive

[3] See e.g. Friedman (1975); see also Laidler (1999, 44, footnote 20). As Laidler has argued recently (1999, 62, footnote 12), if anyone should be credited with anticipating Friedman's *accelerationist hypothesis* in the interwar years, it should be Lindahl rather than Hayek.

and simplifying assumption that "the rate of interest failed to act at all" (Hayek, 1969, 6). He intended to show that the changes which the rate of interest is supposed to bring about are not due to monetary causes and will come about even in the absence of changes in the rate of interest (Hayek, 1969, 66). Arguably the scenario in which it is the rate of interest that has the effect of bringing the boom to an end before the rate of profit rises sufficiently and the scenario in which movements of the rate of interest follow only at a distance behind the movements of the rate of profit are but different aspects of a basically similar process. In an important but somewhat neglected paper Hayek (1969, 73–82) explained the unusually high interest rates on the eve of the bust in terms of "investment that raises the demand for capital". The pro-cyclical behavior of interest rates is due to a capital complementarity effect. As the artificial boom matures, factors of production complementary to the factors already committed to investment projects are in short supply. The competition for these factors and the competition for loans to finance their procurement put upward pressure on the interest rate and cause non-specific factors to be (re)allocated from early stages to late stages. Thus as Austrians are fond of putting it: monetary factors cause the cycle but real factors constitute it. This reallocation that constitutes the end of the boom coincides with the countermovement identified by Mises (1981, 401).

It seems thus more appropriate to apply the term *Ricardo Effect* more broadly to the initial upturn of the cycle and even to similar movements initiated by changes in time preferences. *Ricardo Effect* then denotes not only the reallocation of resources during the course of the business cycle: during the upswing of the cycle, an artificially low rate of interest favors early-stage activities over late-stage activities; as the production process moves forward over time, capital shortages are experienced in the later stages of production; these shortages eventually bring on the downturn and reverse the direction of resource allocation. It can equally refer, however, to changes in the intertemporal structure of production – schematized as the Hayekian triangle – induced by changes in time preferences and voluntary saving. This conceptualization allows for a useful contrast with the Keynesian vision. The Hayekian framework allows for a market process that transforms a reduction in the demand for current consumption into an increase in the demand for productive capacity and hence an increase in the supply of future consumption goods. In this sense "demand for commodities is not demand for labour". In the Keynesian framework, to the contrary, consumption and investment are constrained to move in the same direction.[4] Keynes's assumption of a fixed structure of industry implies that the demand for labor moves in lockstep with the demand for final output and overturns Mill's Fourth Fundamental Proposition.[5]

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[4] This point is well featured in Garrison (2001).

[5] That is to say, at least in the short run. On Mill's Fourth Fundamental Proposition see Hayek (1941, 433–439).

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## Kurzfassung

Der Akzelerator bei Hayek: Eine Richtigstellung

Die Analogie zwischen Hayeks monetärer Dynamik und der Akzelerator-Hypothese von Friedman und Phelps ist problematischer als manche Kommentatoren bereit waren zuzugeben. Hayeks Präsentation seiner Ideen in den 30er Jahren brachte kein überzeugendes Argument zur Verteidigung der Annahme, daß ein dauerhaftes Ansteigen des Sparens zwangsläufig zu einem Ansteigen der Inflation führen müsse. Andererseits gilt aber nach wie vor der Hinweis der *Austrian Economics*, daß ein durch wirtschaftspolitische Maßnahmen hervorgerufener Boom keineswegs nachhaltig sein kann.