

# The Wicksellian Heritage

AXEL LEIJONHUFVUD\*

*Wicksell's Geldzins und Güterpreise will soon be a hundred years old. The paper discusses its contribution to monetary theory and argues its continued and, indeed, renewed, relevance today<sup>1</sup>.*

## Introduction

One hundred years after it was written, *Geldzins und Güterpreise* retains its vitality. The intellectual independence and originality of its author is still palpable. Rereading the book reinforces the impression: modern monetary and macroeconomic theory starts *here*.

Two crucially important themes stem from this work. One, of course, starts from its explicit subject: the determination of the price level in an economic system in which metallic money was dwindling into insignificance so that the Quantity Theory (in its old form at least) was losing its relevance. The other is not elaborated in the book but hovers in the background, namely, the hypothesis of intertemporal disequilibrium as the key to the understanding of business cycles. Both these themes have been eclipsed for quite some time - Wicksell's analysis of the 'pure credit economy' at least since the ascendancy of monetarism in the United States and business cycle theories focused on intertemporal coordination failure as the rational expectations revolution put Keynesian theory on the sidelines.

The eclipse of these ideas is unlikely to be permanent. There are good reasons to try to reassess the Wicksellian heritage.

## 1.

David Ricardo and Thomas Tooke were the intellectual protagonists with whom Wicksell wrestled in *Geldzins und Güterpreise*. He admired Ricardo and respected Tooke. From Ricardo, he took the Quantity Theory which he regarded as a "completely sound and correct" (1898a, p. 49) theory of the price level - for a pure "cash economy". The demand for cash, Wicksell noted, varies only "within fairly narrow limits" and cash money "cannot circulate ... faster than a messenger boy can run" (1936, p. 54). His explanation of how the real balance effect would regulate the price level in a cash economy is one with which any monetarist would be satisfied.

But the cash economy model was too "narrow" even in Ricardo's day:

Although Ricardo in his lifetime succeeded in being victorious against all attacks, after his death a great champion ("en väldig kämpe") rose up on the other side against whom the Ricardians could not muster an equal. It was Thomas Tooke... (1898a, p. 49).

Bank money was credit money and, unlike metallic money, could not be in excess supply,

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\* Economics Department, Trento University, Via Inama 5, 38100 Trento, Italy.

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<sup>1</sup> I am grateful for discussions with Lars Jonung. He is not implicated in any errors or omissions.

Tooke maintained. An overissue by the banks would simply produce a "reflux" of notes in repayment of loans. If expansions and contractions of the banks drove the price level, rising prices should be associated with low interest rates and *vice versa*. But the evidence from the *History of Prices* was just the opposite. This "stylized fact" of Tooke's<sup>2</sup> became central to Wicksell's thinking on monetary matters. It loomed large in his rejection of monetary theories of the business cycle. Any theory of the relationship between money and the price level would have to be consistent with it.

Wicksell would not follow Tooke, however, to the anti-quantity theoretical conclusion that the price level determined the stock of money. This reverse causation hypothesis "may be true, in any case it contains a good dose of truth" (1898a, p. 49) *but* it left one with no tenable theory of the price level at all. Wicksell reviewed much of the contemporary (especially German language) literature to illustrate the prevailing confusion on this point and concluded (p. 50): "So it is no good; the Quantity Theory cannot just be thrown overboard".

The situation that Wicksell saw himself as confronting, therefore, was the following. The Quantity Theory was the only monetary theory with any claim to scientific status. But it left out the influence on the price level of credit-financed demand. This omission had become a steadily more serious deficiency with time as the evolution of both "simple" (trade) and "organized" (bank-intermediated) credit practices reduced the role of metallic money in the economy. The issue of small denomination notes had displaced gold coin from circulation and almost all business transactions were settled by check or by giro; the resulting transfers on the books of banks did not involve "money"<sup>3</sup> at all. The famous model of the pure credit economy, which everyone remembers as the original theoretical contribution of *Geldzins und Güterpreise*, dealt with the hypothetical limiting case to this historical-evolutionary process.

Wicksell presented the pure credit system model as "*a precise antithesis to the equally imaginary case of a pure cash system, in which credit plays no part whatever*" (1936, p. 70, italics added). The strategy for developing applied monetary theory, he suggested, was to regard actual monetary systems

... as *combinations* of these two extreme types. If we can obtain a clear picture of the causes responsible for the value of money in *both of these* imaginary cases, we shall, I think, have found the right key to a solution of the complications which monetary phenomena exhibit in practice. (*ibid.*).

This is a stroke of genius -- more original, in my opinion, than the cumulative process by itself. But it is by the same token deeply problematic, for Wicksell has very little to tell us about how to go about the task of fashioning a viable synthesis from his two antithetical models. In each particular case, they are to be combined "to taste", so to speak -- but without the guidance of a general "recipe".

This lack of an outline of the suggested synthesis has been unfortunate in that the Ricardian thesis and Tookean antithesis have been carried down to the present day as mutually exclusive theories with Monetarists denying the relevance of credit and Credit theorists still lacking a theory of the price level<sup>4</sup>. Thus Milton Friedman turned the evolutionary argument against Credit theories: monetary theory should focus on the banking system's liabilities and not on their assets which evolution had reduced to a minor component of total credit. More recently, monetary general equilibrium theorists have generally been content simply to brush credit under the

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<sup>2</sup> Mislabeled "Gibson's Paradox" by Keynes, a label that unfortunately has become generally accepted.

<sup>3</sup> Wicksell's usage may not have been altogether consistent at this time. He sometimes writes as if the term "money" refers to metallic money only: at other times it refers to all currency including bank notes. It is relevant to note that the situation in Sweden was changing at exactly this time. In 1897 legislation had been passed making note issue a State monopoly. Private bank notes were retired over the live-year period 1897-1902.

<sup>4</sup> In Sweden. as Laidler (1991, pp. 148-49) notes, Wicksell's legacy was not a synthesis of his two models. Instead the Stockholm School's monetary theory took "an extreme anti-quantity theory stance"

Modigliani-Miller rug<sup>5</sup>. On the other side, the Tookean tradition has its most persuasive advocate today in Basil Moore (1988). One notes, however, that the "horizontalist" position -- i.e., the proposition that the observed money stock is determined by demand -- has the same consequence here as in Tooke, namely, the price level is not explained by supply and demand. Theories with the anti-quantity theory lineage of Radcliffe-Kaldor-Moore tend, rather, to have prices determined by a mark-up on wages, and money wages in turn determined by the power of trade unions.

Wicksell's credit economy analysis did not solve the problem that he had identified in Tooke's position but rather evaded it. The model is "horizontalist" in Moore's sense: "...in our ideal state... the supply of money [is not] an independent magnitude, differing from the demand for money" (1936, p. 110). Consequently, it does not have a unique equilibrium price level. It determines, rather, the rate of change of the price level from some historically given position and does so, moreover, under assumptions of static or, at best, adaptive expectations. With rational expectations, for example, it is obvious that the price level is indeterminate<sup>6</sup>. Wicksell recognized the point:

In the extreme case in which the expected rise in prices is each time *fully* discounted, the annual rise in prices will be indefinitely great (1936, p. 148).

What the model did accomplish was an explanation for Tooke's stylized fact (Gibson's paradox). Starting from an initial position with the price level "at rest", a real impulse would raise the natural rate of interest and increase the amount of bank credit demanded at the prevailing market rate of interest. With market rate below natural rate, the expansion of bank credit would cause the price level to rise. The banks might now raise their rates but as long as the market rate did not catch up with the natural rate the inflation would continue -- and could continue indefinitely.

Wicksell went to considerable pains to convince his readers that if and when the market rate caught up with the natural rate, there would be no tendency operative in the hypothetical "pure credit economy" to reverse the price level movement that had taken place. The price level in this model, he claimed, would be in "*neutral equilibrium*" like a "cylinder ... on a horizontal plane"<sup>7</sup>.

Wicksell apparently thought of his work as bringing the monetary theory of Ricardo up to date, incorporating Tooke's insights and answering his objections. Yet, the pure credit model taken by itself obviously has no connection whatsoever with its Quantity Theory antithesis. So we are back with the question of the synthesis.

The answer would seem to be that, when the two antithetical models are combined in order to deal with some of "the complications which monetary phenomena exhibit in practice", the neutral equilibrium hypothesis of the pure credit case will not hold -- not quite, in any case:

[The cylinder] simply remains where it is so long as no opposite forces come into operation to push it back.

It is, of course, clear that such forces *can never be entirely absent*, no matter how developed the credit system may be, if a precious metal or some other material substance serves as a monetary basis... (1936, p. 101, italics added).

When the market and natural rates get back into line and the credit expansion stops, the demand for "cash money" at the elevated price level will exceed the supply. This real balance

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<sup>5</sup> See section 2 below

<sup>6</sup> Cf. again Laidler, *op. cit.*, p. 132

<sup>7</sup> (1936) p. 101. Note that a "modern" version of the model would have an infinity of rational expectations dynamic equilibria only a subset of which would be stationary like Wicksell's notion of "neutral equilibrium".

effect may be weak in Wicksell's theory and easily overridden by credit movements, but it is nonetheless present. So, a *mean-reversion* tendency will be built into the system. This is an extremely important property, even if the tendency is relatively weak. The objections to the pure credit model now have answers. The system has a determinate price level equilibrium and rational expectations would anticipate the return to it (thus enhancing its stability). Expectations would also tend to be "inelastic" in the Hicksian sense which means that monetary policy would have some leverage over real and not only over nominal magnitudes<sup>8</sup>.

In the end, metallic money "anchors" the nominal price level in Wicksell's theory. The question arises: How heavy an anchor is required? Wicksell clearly thought that the incentive to economize on the reserve medium was ever present and that the trend towards minimizing holdings of outside money had not played itself out. If the reserve medium were to become truly the "small change" of the financial system, could it still anchor the price level, or would an excess demand for it play itself out like the coin shortages of experience, that is, cause some inconvenience and added transactions cost but without the leverage over aggregate demand required to stabilize the price level?

Wicksell's "Day of Judgment" (if we may call it that) when the real demand for the reserve medium would shrink to epsilon was greatly postponed by regime changes already introduced before or shortly after his death. In particular, governments moved to monopolize the note issue and to impose reserve requirements on banks. The control over the banking system's total liabilities that the monetary authorities gained in this way greatly reduced the potential for the kind of instability that preoccupied Wicksell. It also gave the Quantity Theory a new lease of life, particularly in the United States.

But although Judgment Day was postponed it was not cancelled. It may not arrive quite in time to celebrate the centenary of *Geldzins und Güterpreise* but it may not be far behind! The monetary anchors on which 20th century central bank operating doctrines have relied are giving way. Technical developments are driving the process on two fronts. First, "smart cards" are circumventing the governmental note monopoly; the private sector is reentering the business of supplying currency. Second, banks are under increasing competitive pressure from nonbank financial institutions providing innovative payment or liquidity services; reserve requirements have become a discriminatory tax on banks that handicap them in this competition. The pressure to eliminate reserve requirements is consequently mounting. "Reserve requirements already are becoming a dead issue, killed by technology and competition" (Jordan and Stevens, 1996). Anchors aweigh<sup>9</sup>!

The decline in the real demand for base money is thus likely to accelerate. How far it will go and how fast, nobody knows. Jordan and Stevens discuss a scenario in which the demand for central bank money goes to zero at the end of each business day but where central bank clearing balances are recreated each morning - on terms which the central bank would still control<sup>10</sup>. Whether the relationship between aggregate demand in the economy and such a vanishingly small base will be "a stable function of only a few variables" seems doubtful.

The newest generation of jet fighter planes - of which the JAS25 built in Wicksell's home country is an example - are inherently unstable in the air and depend on extremely fast feedback-based electronic control (In fact, they cannot be flown by human pilots).

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<sup>8</sup> Cf. Leijonhufvud (1995).

<sup>9</sup> With apologies to A. Redish (1993).

<sup>10</sup> Jordan and Stevens (1996). Rhymes (1996) -- in part occasioned by Canada's abolishing of reserve requirements -- also relies on the use of Bank Rate to regulate the amount of clearing balances demanded by the banks. The question naturally arises whether the private sector is not likely to find some legal way to create a competing clearing mechanism not subject to politically motivated manipulation by the authorities. The hope of central bankers both in the U.S. and Canada is that the central bank's position as the government bank through which taxes has to flow will give it sufficient leverage to exercise monetary control.

Price level stabilization by Wicksellian bank rate policy may become similarly challenging before very long. Perhaps it is fortunate that we will be able to entrust it to a Nintendo-trained generation.

## 2.

Wicksell held a real theory of the business cycle<sup>11</sup>. This theory did not build on the cumulative process analysis of *Geldzins und Güterpreise*. Boianovsky capsulizes Wicksell's views:

The divergence between the 'natural' and the market rate of interest is the basis for the explanation of price dynamics according to his well-known cumulative process, *but is not essential for the study of the business cycle, which is explained by oscillations in the natural rate alone* (1995, p. 378, italics added).

Wicksell was, of course, opposed to monetary impulse theories of price dynamics as well as of output and employment fluctuations. But he was critical of theories focusing on discrepancies between the natural rate and the market rate also when the causal hypothesis was not necessarily monetary. Jonung (1979, p. 167n) quotes Bertil Ohlin: "When some students of his tried to develop it [the cumulative process] into a theory of the business cycle, Wicksell – always reluctant to give unfriendly criticism – could make almost scornful remarks".

Even with the much fuller picture of Wicksell's thinking on the subject of business fluctuations provided by Boianovsky, one still feels puzzled about this. While Wicksell liked to stress that relative prices and the price level were determined by entirely different forces, the book is full of pieces of analysis showing how a discrepancy between the natural and the real rate would distort relative prices and allocation. One can, for instance, imagine Mises or Hayek reading passages and finding ready-made elements for the overinvestment hypothesis:

An abnormally *large* amount of investment will now probably be devoted to durable goods. There may result a relative overproduction of such things as houses and a relative underproduction of other commodities (p. 96)<sup>12</sup>.

And the 'forced saving' idea is there for whoever wants to make more use of it than Wicksell chooses to do:

... it can be seen that credit institutions, by supporting long-term enterprises, can to some degree *force* the necessary capital out of the public. (p. 111).

It is not difficult to see how the book could stimulate work along theoretical lines with which its author was not much in sympathy.

If and when the market rate of interest differs from the natural (equilibrium) rate, a failure in the intertemporal coordination of resources will result. It is not clear that Wicksell drew this conclusion in his 1898 work. But others did, not long after. Between the two World Wars, the development of

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<sup>11</sup> Cf. esp. the excellent, very scholarly article by M. Boianovsky (1995).

<sup>12</sup> Wicksell's next sentence seems dismissive of the effect: "However this will merely mean a more rapid equalization of relative prices" (sic!) This after noting that in the example he is considering "the value of all permanent capital goods, for instance of dwelling-houses, will go up by 33,3 per cent".

these ideas in Vienna, Stockholm and Cambridge altogether dominated work in macroeconomic theory.

This influence of Wicksell's analytical ideas (as opposed to his theory) was still strong in the first decades after World War II. But gradually it was lost. One can trace the process and ask whether a reassertion of this Wicksellian theme -- presumably in more modern analytical garb -- is likely or would be useful.

In Keynes's theory, the idea that liquidity preference could prevent the long rate of interest from declining to a level where investment would absorb full employment saving was central to his explanation of persistent unemployment<sup>13</sup>. Early Keynesian theory retained this focus on failures of the intertemporal price mechanism to coordinate saving and investment. But later Keynesian unemployment theory shifted the focus back to the "classical" preoccupation with rigid or "sticky" wages.

In the debate between Keynesians and Monetarists, the latter eventually had to face the old objection to monetary theories of the cycle -- Tooke's stylized fact. The Monetarist response was to revive Irving Fisher's (1896) hypothesis that the comovement of interest rates and the price level was due to the effect of expected inflation (or deflation) on the inflation premium in nominal interest rates<sup>14</sup>. This development contributed to the eclipse of the Wicksellian theme since, while it did not by itself imply that the real rate would always be at its 'natural' level, standard macromodels incorporating the Fisher equation allowed one to assume so -- and the majority of macroeconomists apparently did assume so. In Monetarist macroeconomics especially, intertemporal coordination was a non-issue.

New Classical economics originated as a rational expectations refinement of this Monetarist theory. In its further development, this school adopted an intertemporal (complete markets) monetary general equilibrium framework<sup>15</sup>. This has two consequences. First, the theory produced anti-Quantity Theory results, demonstrating that the price level was not necessarily proportional to the contemporaneous stock of outside money in equilibrium. Second, the intertemporal GE model generalizes the Modigliani-Miller theorem and extends it to the entire economy. The theorem demonstrates that, given a system of consistent pricing, the valuation of capital resources should be independent of how they are financed. The macroeconomic generalization of Modigliani-Miller implies among other things Ricardian Equivalence, the Ineffectiveness of Open Market Operations and more generally the irrelevance of inside money and credit.

This then is macroeconomics and monetary theory stripped of all the issues and problems that preoccupied Wicksell and the generations of economists who followed in his footsteps. The question that arises in rereading *Geldzins und Güterpreise* today, therefore, is whether progress in economic theory has demonstrated that the issues were misconceived and the problems illusory so that the Wicksellian heritage is better forgotten. The answer, surely, is that the evidence for intertemporal coordination failures is all around us: the American Savings and Loan debacle, the Swedish and Finnish banking crises, the non-performing loans of the Japanese banks come immediately to mind but the examples could, of course, be multiplied.

This second Wicksellian theme will also have to be brought back into macroeconomic research. After 100 years, the intellectual stimulus deriving from *Geldzins und Güterpreise* is not yet spent.

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<sup>13</sup> For a detailed account of the material in this and following paragraphs, cf. my "Wicksell Connection" (1981).

<sup>14</sup> Wicksell discussed the Fisher hypothesis in *Geldzins und Güterpreise* but rejected it. Cf. Laidler's appraisal of Wicksell on this point (1991, pp. 139t). Note Laidler's comment that the Fisher idea "is nowadays regarded by the majority of economists as the correct explanation..." (The present author is in the minority).

<sup>15</sup> Cf. esp. Sargent (1987).

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