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What is Macroeconomics?
--- Knut Wicksell and Macroeconomic Analysis ---

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1. What is Macroeconomics?

"What is Macroeconomics?" The answer to this question seems at first trivial. Macroeconomics is by definition a branch of economics which investigates the relationship among macroeconomic variables, such as national product, total employment, the monetary aggregate, the general price and the like.[1] It is contrasted with microeconomics which describes optimizing decisions of individual economic agents and the way they are balanced with each other in a vast number of markets for goods and services.

If, however, the distinction between macroeconomics and microeconomics is only that the former deals with macroeconomic variables and the latter with microeconomic variables, then why do we need macroeconomics as a distinct theoretical subject? Isn't it sufficient to have microeconomics as *the* economic theory, relegating the handling of macroeconomic variables to a statistical manual which tells us how to aggregate microeconomic data. Isn't macroeconomics merely a name for aggregated microeconomics, or worse, a name for the sloppy analysis of those who cannot handle more than two variables at the same time?

'Macroeconomics' is by no means a self-evident theoretical enterprise. Indeed, one of the most influential economists of today recently condemned 'macroeconomics' ("Keynesian" macroeconomics, to be precise) as "a surrender to [the] temptation" of relieving "the discomfort induced by discrepancies between theory and facts," and confessed his dream that the day will come when "the term 'macroeconomics' will simply disappear from use and the modifier 'micro' will become superfluous."[2] Is the ultimate fate of macroeconomics simply to disappear, only to be remembered as a token of the time when economics was still too primitive (and too trivial) a science to be called 'economics' without an adjectival modifier 'micro'?

Fortunately, however, or unfortunately, however, macroeconomics does not seem to die out so easily. Indeed, it is the main purpose of the present paper to state a case for macroeconomics. And our case, it turns out, rests critically upon the economic theory of Knut Wicksell, the founding father of the Stockholm school economics.

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1 Macroeconomics deals with the big picture --- with the macro aggregates of income, employment, and price levels," P.A. Samuelson, *Economics*, 7th edition, McGraw-Hill, 1967), p. 362; "Macroeconomics is concerned with the behavior of the economy as a whole --- with booms and recessions, the economy's total output of goods and services and the growth of output, the rates of inflation and employment, the balance of payments, and exchange rates," R. Dornbusch and S. Fischer, *Macroeconomics* , (2nd ed. McGraw-Hill, 1981) p.4; "Macroeconomics is the study of the major economic 'totals' or aggregates-- total production (GNP), total employment and unemployment, the average price level of all goods and services, the total money supply, and others," Robert J. Gordon, *Macroeconomics* (1978), p.11.

2 Robert E. Lucas, Jr., *Models of Business Cycles*, (Basil Blackwell: Oxford, 1987); pp.107-108.

2. Macroeconomic phenomenon as a symptom of market disequlibrium.

In neoclassical economics, a market economy is said to be in a state of 'equilibrium' if "every person is acting in such a way as to reach his most preferred position, subject to the opportunities open to him."[3] This is only the definition of 'static equilibrium'. In the case of intertemporal economy, it is said to be in 'equilibrium at a point in time', if every individual is reaching the most preferred position, subject to the constraints by which he or she is bound and with respect to the expectations that he or she has at that point in time; it is said to be in 'equilibrium over time' if it is in equilibrium in every point in time and if the expectations on which it is based are consistent with each other and with what actually happens. It goes without saying that the so-called 'rational expectations equilibrium' is equivalent to the equilibrium over time in an explicitly stochastic environment.

As long as an economy is in neoclassical equilibrium, every seller is able to sell as much goods and services as he or she decides to sell; and every buyer is able to buy as much goods and services as he or she decides to buy. No individual is prevented from carrying out what he or she decides to do in markets by what other individuals at the same time decide to do There is no conflict between microeconomic decisions made by individuals and macroeconomics constraints set by the very aggregative outcomes of these microeconomic decisions. In a state of neoclassical equilibrium, therefore, there is no phenomenon which can be properly called 'macroeconomic', and macroeconomics is no more and no less than an aggregation of microeconomics.

Once an economy is thrown out of neoclassical equilibrium, however, this harmonious relationship between microeconomics and macroeconomics breaks down immediately. To make the argument somewhat concrete, let us suppose that money wages are by some reason set too high in a labor market, so that labor demand falls short of labor supply. This is of course the most typical disequilibrium situation that can be found in any textbook of economics. And in such a disequilibrium labor market, we all know that some of the workers who decide to supply their labor-services at the going money wages are prevented from carrying out their decisions by simultaneous decisions made by their potential employers as well as by their fellow workers. Those workers are, in other words, involuntarily unemployed.

We have here a situation in which microeconomic decisions become incompatible with macroeconomic constraints. In order therefore to understand the performance of the labor market as a whole, we have to make a careful study of the way in which microeconomic decisions of individuals are frustrated by the existing macroeconomic constraints, thereby engendering a new macroeconomic condition which cannot be reduced to the mere aggregation of these microeconomic decisions. Though in a miniature scale, this is precisely what we mean by 'macroeconomic' phenomenon.

We of course cannot leave this story as it is. For, the disequilibrium in the labor market is bound to influence the conditions of other markets and to alter the whole configuration of the market economy. In particular, those workers who are involuntarily unemployed are forced to curtail their demands for goods and services in accordance with their lower than expected wage

[3] J.R. Hicks, *Value and Capital*, 2nd edition, (Clarendon Press: Oxford, 1946).

incomes. This will in turn discourage firms' demands for labor and enlarge the size of the already existing disequilibrium in the labor market. A second-round repercussion will thus be set off, and the so-called 'income multiplier process' will propagate itself throughout the entire economy.[4]

It must be emphasized, however, that the whole purpose of the above discussion is not to review this much too familiar story of the income multiplier process. It is rather to make a point (indeed, much too obvious a point) that a phenomenon which is properly called 'macroeconomic' is no more than a symptom of the economy's deviation from neoclassical equilibrium. If there is a place for 'macroeconomics', which is not a mere aggregation of microeconomics, it can be found only in the analysis of 'disequilibrium' situations of the market economy. Macroeconomics is in other words a synonym for disequilibrium economics.

3. Invisible Hand vs. 'non-market' forces.

The real difficulty begins precisely at this point. For, if macroeconomics is a synonym for disequilibrium economics, we can claim its practical relevance only in proportion to the prevalence of disequilibrium situations. Even if an economy is thrown out of neoclassical equilibrium and is experiencing a macroeconomic phenomenon, *if* the displacement from equilibrium is temporary and its restoration is only a matter of time, why do we have to allocate our scarce time to the analysis of such an evanescent phenomenon? Macroeconomics is hardly a serious undertaking, unless the market economy is liable to remain in disequilibrium at least for a non-negligible period of time.

But, does the market economy have such a liability? And, if it unfortunately has, what causes such a liability?

Before giving our own answer to this question, it is instructive to make a digression and illustrate the traditional way of answering to it. For this purpose, let us recall one of the most well-known passage in economics:

> [Every individual] generally, indeed, neither intends to promote the public interest, nor knows how much he is promoting it. .... He intends only his own gain, and he is in this, as in many other cases, led by an Invisible Hand to promote an end which was no part of his intention. (Adam Smith, *Wealth of Nations*; Book 4, Chap.2.)

By "Invisible Hand" Adam Smith meant the market mechanism which is supposed to raise the price of a commodity when demand exceeds supply and to lower it when supply exceeds demand. If we translate this passage of Adam Smith into the language of modern economics, it can be read as a claim that the market mechanism is able to achieve, without any centralized coordination, a state of equilibrium which equates the demand and supply of every commodity and allocates every scarce resource efficiently, as long as every market participant regards market prices as parametric signals and make demand and supply decisions accordingly.

It is worthwhile pointing out here that it is the discovery of this Invisible Hand which raised economics from the mere practical discourse to the honorable rank of a 'scientific' discipline. For

[4] R. F. Kahn, "The Financing of Public Works --- A Note," *Economic Journal* , September, 1932.

it guaranteed the existence of nature-like laws which lies beneath the seemingly chaotic surface of daily economic phenomena and is ready to be discovered by scientific eyes. And it is no exaggeration to say that the 'scientific' development of economics since Adam Smith has consisted mostly in elaborating and generalizing his analysis of the way the Invisible Hand works.[5]

Now, if we believe in the basic tenet of Adam Smith, the cause of market disequilibrium must be sought in outside of the market mechanism. For if the Invisible Hand is allowed to work freely, any displacement from equilibrium must be a temporary event and its restoration a matter of time. And, as a contra-position to this statement, if a certain form of disequilibrium persists in markets, it must be due to the forces which interfere the free workings of the Invisible Hand. In other words, the persistence of market disequilibrium must be blamed for the existence of 'non-market' forces which prevent the self-regulating tendency of the market mechanism from asserting itself. It sounds almost tautological to say that a market disequilibrium is caused by 'non-market' forces. But it is this way of thinking which has structured the economist's approach to the problem of market disequilibrium since the days of Adam Smith.[6]

To illustrate this, let us take up the previous example of labor market disequilibrium once again. Suppose then that an economy suffers from the persistence of involuntary unemployment, which is another name for an excess supply situation in the labor market. Whatever is its direct cause, if the Invisible Hand works smoothly in the labor market, the price of labor services must decline immediately so as to eliminate the existing excess supply. It then follows that, if excess labor supply fails to be eliminated within a reasonable period of time and involuntary unemployment persists in the labor market, it must be due to the resistance of money wages, i.e. prices of labor services, to decline freely. And if, as the argument goes, money wages are actually resistant to the downward pressure even in face of excess labor supply, it must be due to the 'irrationality' of workers whose labor supply decisions are unexplainable in terms of individualistic economic calculations or to the 'institutional' pressures of labor unions, governmental legislations, communal codes and all sorts of socio-political institutions which support a given level of money wages. The fundamental cause for labor market disequilibrium is thus located in the existence of some of these 'non-market' forces in the labor market.

4. On "Keynesian" vs. neoclassical controversy.

Now, if we look back from the above standpoint at the heated controversy between "Keynesian" economics and neoclassical economics, which has sharply divided the economics profession in the last fifty years, we can find more similarities than dissimilarities between them. By "Keynesian" economics we follow here the well-known labeling of Axel Leijonhufvud and include all the macroeconomists who rely upon the IS-LM analysis (or one of its variants) for

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[5] See, for instance, K.J. Arrow and F.H. Hahn, *General Competitive Analysis*, (Holden-Day; San Francisco, 1971) for an authoritative summary of this development.

[6] In the Japanese edition of my *Disequilibrium Dynamics*, (*Fukinkou Dogaku no Riron* ,Iwanami-Shoten: Tokyo, 1987) I have called this way of thinking the "economystic way of thinking."

the analysis of the economy's aggregative performance.[7] Since to talk about this "Keynesian" economics vs. neoclassical economics controversy is to talk about the current state of macroeconomics as a whole, we have to refrain from giving any references here.

It does not appear to be an overstatement to say that both "Keynesian" economists and neoclassical economists more or less share the same world view of Adam Smith that should money wages decline in face of excess labor supply the phenomenon of involuntary unemployment would soon eliminate itself within a reasonable period of time. If there is any disagreement between them, it can be located in the disagreement with respect to their empirical evaluation of the 'non-market' forces which hamper the otherwise smoothly working Invisible Hand.

"Keynesians" assume as an empirical fact that money wages have strong downward stickiness, so that the market economy has a chronic tendency to generate involuntary unemployment of workers. They therefore advocate the practical necessity of aggregate demand management as a 'second-best' policy, which aims at achieving full employment, provided the downward stickiness of money wages is taken as a fixed constraint on the system. Neoclassical economists, on the other hand, claim as an empirical fact that money wages are not as sticky as are usually believed. They therefore refuse any form of aggregate demand management as a myopic expediency and try to confine the role of economic policy to the setting-up of the market environment which guarantees the maximum freedom of the Invisible Hand. *Lassez-faire* is of course the 'first-best' policy for the world of Adam Smith.

The "Keynesian" economics is, if so interpreted, merely a 'second-best' neoclassical economics which differs from the 'first-best' theory only in its - ad hoc - but empirically reasonable hypothesis of the downward stickiness of money wages. The fact that it held sway over the economics profession during the 1950s and 1960s -- "the age of Keynesian economics" as someone said -- had little to do with the robustness of the theory itself. It can be explained only by its empirical success of explaining the phenomena of business cycles as well as by its practical success in guiding the economy to full employment.

It is easy to see how fragile this situation was. Who in the world, especially in the world created by Adam Smith, really wants to keep an allegiance to the 'second-best' theory, unless being forced by circumstances. If the empirical as well as practical relevance of the "Keynesian" economics became in doubt, there would remain no reason to retain its - ad hoc - hypothesis of the downward stickiness of money wages, which was introduced solely for its alleged realism. And, once the world-wide development of stagflation in the 1970s have actually caught the "Keynesian" economists offhand and left them helpless in giving convincing empirical explanations as well as practical policy prescriptions, nothing could stop economists, young economists with theoretical inclinations in particular, from shifting their allegiance to the neoclassical equilibrium theory which is now being advocated under the new banners of monetarism, rational expectations theory, supply-side economics and so on. It is after all not a matter of life or death decision but a mere change of a hypothesis within the same theoretical paradigm. Hence, a cumulative downfall of the "Keynesian" economics before our eyes.

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[7] See Axel Leijonhufvud, *On Keynesian Economics and the Economics of Keynes*, Oxford University Press: London, 1968.

5. Wicksell and the theory of cumulative process.

Economics has long been governed by the way of thinking which locates the fundamental cause of market disequilibrium in the existence of 'non-market' forces that interfere the smooth functioning of the Invisible Hand. And the role assigned to such 'non-market' forces is therefore to determine the extent to which the actual market economy deviates from the first-best world. They are, in other words, the 'negative' operators of the Invisible Hand algebra.

It is, we now claim, Knut Wicksell who first laid the theoretical foundation for the critique of this age-old way of thinking. Let us now review some of the essential features of his theory as were presented in *Interest and Prices* and, in a somewhat compact form, in Volume 2 of *Lectures on Political Economy*.[8]

As is well known, Wicksell's starting point was an attempt to revise the quantity theory of money from the price-theoretic perspective. As the author of *On Value, Capital and Rent* which successfully integrated Walrasian general equilibrium theory and Bohm-Bawerkian capital theory, Wicksell was too good a neoclassical economist to accept the mechanical manner in which the quantity theory relates the general price level to the total quantity of money. Instead, he proposed to explain the general movement of prices from the "detailed investigations into the causes of price changes."[9]

He thus began by recalling the neoclassical law of supply and demand that "every rise and fall in the price of a particular commodity presupposes a disturbance of the equilibrium between the supply of and demand for that commodity, whether the disturbance has actually taken place or is merely prospective," and then claimed that "what is true -- in this respect-- of each commodity separately must doubtless be true of all commodities collectively." If there is a general rise in prices, Wicksell insisted, it is "only conceivable on the supposition that the general demand has for some reason become, or is expected to become, greater than the supply." As a faithful student of Bohm-Bawerkian capital theory, Wicksell singled out the rate of interest as the most crucial variable which determines the relationship between general demand and general supply. In fact, he introduced the concept of the natural rate of interest as the level of the rate that equates general demand and general supply, and contrasted it with the market rate of interest which is quoted daily in the loanable fund market. For the limited purpose of this paper, however, we shall not go into these details of Wicksell's theory of cumulative process.

This was a decisive step. For it was tantamount to the refutation of Say's law, which asserted the identity between general demand and general supply by declaring "supply creates its own demand". But Wicksell was well aware that Say's law holds true only in the case of barter

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[8] Knut Wicksell, *Interest and Prices*, First English edition, 1936, (Reprinted by Kelly: New York, 1962);--------, *Lectures on Political Economy, Vol.2 Money* , English edition, (Routledge & Kegan Paul: London, 1935). The following account of Wicksell's theory of cumulative process partly repeats what was given in Chapter 1 of my *Disequilibrium Dynamics -- A Theoretical Analysis of Inflation and Unemployment*, Cowles Foundation Monograph 27, (New Haven: Yale University Press, 1981).

[9] *Lectures on Political Economy, Vol.2*, p.159.

economy which requires the double coincidence of wants for an exchange to take place. As soon as money enters into the middle link between the sale of a commodity and the purchase of another commodity as a general medium of exchange, the identity between general demand and general supply immediately breaks down. Wicksell therefore pronounced himself to be concerned with "what occurs … in the middle link in the final exchange of one good with another, which is formed by the demand of money for goods and the supply of goods against money."[10]

And what Wicksell found in this middle link is a new form of 'macroeconomic' phenomena, which cannot be reduced to a mere aggregation of microeconomic price-formation processes. He said that a general rise in prices is a "fundamentally different phenomenon" from that of an isolated rise in individual price. If the price of one particular commodity is raised, without being followed by others, the real conditions for demand and supply will be affected in a way to adjust the market to rectify its own disequilibrium. But, Wicksell argued, "once a rise in prices has been uniformly dispersed over all groups of commodities, equilibrium in respect to relative prices is once again restored; and relative prices are the only things that really matter so far as production and consumption are concerned."[11]

Hence, as long as the general demand remains higher than the general supply, the situation will be the same as before except for the higher nominal values of prices, and another round of simultaneous rise in prices will be induced. This will of course cancel out each other's effect and will re-establish the original structure of relative prices once again. The third round of simultaneous rise in prices will ensue, only to re-establish the same structure of relative prices. This is like a musical chair game, but with no guarantee for the eventual termination. Wicksell was therefore able to conclude that if the general demand is set and maintained above the general supply, no matter how small the gap, "prices will rise and will go on rising; or if they were already in the process of falling, they will fall more slowly and eventually began to rise."[12] A general rise in prices is a disequilibrium process which is "not only permanent, but also cumulative."[13]

This of course was not the whole story. For a cumulative rise in prices may in turn alter the relationship between general demand and general supply, thereby creating a new macroeconomic condition for its further development. In fact, the ultimate course such a later stage development will take hinges critically upon the monetary structure of the economy. In what Wicksell called the "pure credit economy", where all payments are supposed to be effected by means of bookkeeping transfers through the private banking system,[14] the rising prices in themselves will have no impact on either general demand or general supply. Worse; Wicksell was careful enough to point out that if people begin to expect a further rise in prices, it will have the same effect on the general demand as that of an easing of credit. It will, he said, "create its own draught" by widening the disequilibrium between general demand and general supply, and will further aggravate

[10] *Lectures on Political Economy, Vol.2*; p.159.
[11] *Interest and Prices*; p.94.
[12] *Interest and Prices*; p.120.
[13] *Interest and Prices*; p.94.
[14] *Interest and Prices*; pp.70-71.

the on-going cumulative rise in prices.[15] Note that the effect of the expected inflation on the credit conditions in financial markets Wicksell discussed here is nothing but the so-called "Fisher effect" in the modern macroeconomics.

Of course, as long as a certain form of outside money is being used for economic payments, rising prices will have the effect of reducing its real value and will work to narrow down the gap between general demand and general supply, either by discouraging directly the demand for consumption goods or by discouraging the demand for investment goods indirectly through the tightening of financial markets. Even in this general case, however, there is no *a priori* reason to believe the latter stabilizing tendency strong enough to overcome the former destabilizing tendency, without any help from monetary and fiscal policies. The same argument applies equally well to the case of a cumulative fall in prices.

Wicksell's conclusion was emancipation, or at least a first step away, from the spell of the Invisible Hand. The equilibrium between general demand and general supply was seen to have no self-regulating tendency in itself; any deviation from it will trigger a disequilibrium process which drives the general price level cumulatively away from it. The Invisible Hand is not working in the Wicksellian system. No, it is not only not working, but also causing the very instability of the market economy. For it is the "musical chair" nature of a simultaneous rise or fall of all prices in the economy which is responsible for such cumulative movement of prices.

The world of Adam Smith was thus turned upside down. And, such an upside-down of the home world of economists was bound to force the rethinking of the traditional approach to market disequilibrium, as we shall now see.

6. Myrdal and Keynes on the stabilizer of the market economy.

The picture of the market economy painted by Knut Wicksell, or to put it more precisely, the picture of the laissez-faire market economy which would have been painted by Wicksell if he had pursued the logical implications of his theory to its extreme, was that of a self-destructive one. Any disequilibrium between general supply and general demand would set off a dynamic process which would move the general price level cumulatively away from equilibrium. Unless some outside authority intervenes to restore equilibrium, its ultimate destination would be a hyper-inflation if the general demand continued to exceed the general supply or a great depression if the general demand continued to fall short of the general supply. Whichever course it might take, it would certainly end up with endangering the very foundation of the market economy.

But -- and this is a critical "but" -- the actual market economy in which we live does not appear to be so violently self-destructive. Of course, booms and slumps have always been with us as the different phases of regular business cycles; but hyper-inflations and great depressions were rare exceptions in the history. To quote Keynes,

> "It is an outstanding characteristic of the economic system in which we live that, whilst it is subject to severe fluctuations in respect of output and employment, it is not violently

[15] *Interest and Prices*; p.96-97.

> unstable. Indeed, it seems capable of remaining in a chronic condition of sub-normal activity for a considerable period without any marked tendency either towards recovery or towards complete collapse. …. Fluctuations may start briskly but seem to wear themselves out before they have proceeded to great extremes, and an intermediate situation which is neither desperate nor satisfactory is our normal lot."[16]

We are thus led to pose a question, which should sound paradoxical to those who used to live in the world of Adam Smith: "What saves the market economy from its self-destructive tendency?"

Once the question has been posed in this manner, the answer to it, though as paradoxical as the question itself, comes up immediately. For it is not hard to notice that Wicksell's theory of cumulative process presupposed one critical assumption. It is the assumption that the price of - every - commodity, including that of labor-services, is assumed to respond flexibly to any disequilibrium between demand and supply of that commodity. Wicksell was after all too pure a neoclassical economist to introduce any imperfections into his theory.

"This assumption is, however, untenable," so protested Gunnar Myrdal in his *Monetary Equilibrium*.[17] There are many prices in actual economy, which are more or less sticky, on account of "different institutional circumstances" --- of "law, convention, consumption habits, methods of production, patterns of marketing, price policies, monopolistic elements of all sorts, and many other circumstances."

And if some prices are actually sticky, Myrdal then argued, "every primary change of some importance in the price system will disturb the parallelism within the complex of price relations." As a result, even if a cumulative process were triggered by some macroscopic disequilibrium, "the flexible prices [would] adapt themselves to the absolute level of the sticky ones," and "the general price movement would pretty soon come to an end." A musical chair game is over, and Myrdal was able to claim that "the sticky prices would act as a restraint on the price system."[18] Indeed, Myrdal wrote elsewhere in *Monetary Equilibrium* that "the absence of immediate adaptation of prices is, of course, included in the basic hypothesis" of Wicksell. For

> if the flexibility of the system were assumed to be infinite, a cumulative process, which takes time, could not occur -- instead there would be an avalanche.[19]

John Maynard Keynes was a Wicksellian before he himself became a "Keynesian". Keynes, for instance, wrote the following in a footnote of *A Treatise on Money: The Pure Theory of Money*,[20]

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[16] J. M. Keynes, *The General Theory of Employment, Interest, and Money* , MacMillan: London, 1936); reprinted as Volume VII of *The Collected Writings of John Maynard Keynes*, (MacMillan: London, 1973); pp.249-259.

[17] Gunnar Myrdal. *Monetary Equilibrium*, First English edition, 1939, (Reprinted by Kelly: New York, 1965); p.134.

[18] *Monetary Equilibrium*; pp.134-135.

[19] *Monetary Equilibrium*; p.146.

[20] (MacMillan: London, 1930); reprinted as Volume V of *The Collected Writings of John Maynard*

"There are many small indications, not lending themselves to quotation, by which one writer can feel whether another writer has at the back of his head the same root ideas or different ones. On this test I feel that what I am trying to say is the same at root as what Wicksell was trying to say."

The method of analysis Keynes developed in *A Treatise on Money* in order "to discover the dynamical laws governing the passage of a monetary system from one position of equilibrium to another" was quite similar in spirit to that of Wicksell and the Stockholm School economists.[21] And, even in *The General Theory of Employment, Interest and Money*, which transformed Keynes into a "Keynesian", he sounded very much like Myrdal when he wrote the following passage:

> If ... money wages were to fall without limit whenever there was a tendency for the less than full employment, ... there would be no resting place below full employment until either the rate of interest was incapable of falling further or wages were zero. In fact, we must have some factor, the value of which in terms of money is, if not fixed, at least sticky, to give us any stability of values in a monetary system.[22]

What Keynes found as a factor whose monetary value is, if not fixed, at least sticky, is of course "labour". In a wage bargaining, he wrote, "labour stipulates (within limits) for a money-wage rather than a real wage." It is of course "illogical" from the standpoint of individual rationality "for labour to resist a reduction of money-wages but not to resist a reduction of real wages," and it is often necessarily to invoke the existence of some 'institutional' pressures from labor unions, government legislations, communal codes and the like in order to explain such behaviors.[23]

Whether logical or illogical, the real paradox is that it is this seemingly illogical behavior of workers which gives us a certain degree of stability in a market economy, by making money wages, if not fixed, at least sticky in the downward direction. It is, in other words, the existence of 'non-market' forces which saves the market economy from its self-destructive tendency!

It should be, however, emphasized here that the suppression of the cumulative process in no way implies the disappearance of disequilibrium from the market economy. On the contrary, the downward stickiness of money wages will merely replace one form of market disequilibrium by another. Indeed, under the downward stickiness of money wages, the market economy tends to suffer a chronic unemployment of workers, as we have already seen. It is perhaps for this reason, Myrdal devoted a considerable portion of his *Monetary Equilibrium* to the analysis of the problems of unemployment,[24] and Keynes, as we all know, devoted the entire volume of *The General Theory* to the study of "the forces which determine changes in the scale of output and employment as a whole."[25] The phenomenon of involuntary unemployment is a 'macroeconomic' price we have to

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Keynes ,(MacMillan: London, 1971); p.177.

[21] *A Treatise on Money*; p.xvii.

[22] Keynes, *The General Theory...* ; p.303-304.

[23] Keynes, *The General Theory...*; p.9.

[24] *Monetary Equilibrium;* p.143 and after.

[25] *The General Theory ...* ; p.vii.

pay in order to remove the inherent instability of the market economy. (By the same token, when money wages are upwardly sticky, the market economy has a chronic tendency to leave some of job-vacancies unfilled. It should be noted, however, that the actual market economy is embedded a certain asymmetry and is more likely to have downward stickiness of money wages than the upward stickiness of money wages. Hence, we experience cumulative rises in prices more often than cumulative falls and involuntarily unemployed workers more often than unfilled job-vacancies.)

If the economics of John Maynard Keynes has any difference from the so-called "Keynesian" economics, it lies in his recognition of this fundamental paradox of the market economy, which would be impossible without his previous Wicksellian analysis of market disequilibrium. The recent downfall of "Keynesian" economics, we discussed in section 4, is nothing but the cumulative consequence of its forgetting of its own Wicksellian origin.

7. Everything is macroeconomic after Wicksell.

We are now able to bring back a question we asked in the first section of this paper: "Why do we need macroeconomics as a distinct theoretical subject?"

In the world of Adam Smith, there was little room for macroeconomics. As long as the Invisible Hand works its daily wonders, every microeconomic decision is coordinated into a harmonious macro economic situation, and any macroeconomic analysis of a market economy can be reduced to a mere aggregation of component-by-component microeconomic analyses. If there exists any macroeconomic phenomenon which cannot be reduced to a mere aggregation of microeconomic decisions, it must be due to the existence of some 'non-market' forces which interfere the coordinating mechanism of the Invisible Hand. Macroeconomic phenomenon is merely an artifact of the 'irrationality' of workers or the 'institutional' pressures of labor unions, government legislations, communal codes and the like; it disappears from the economy as soon as these 'non-market' forces cease to operate in markets.

After Wicksell, however, the 'non-market' forces can no longer be regarded as the sole causative factor of 'macroeconomic' phenomena. If all the prices, including money wages, happen to be flexible, any disturbance of the equilibrium relationship between general demand and general supply immediately sets off a cumulative process of all the prices in the economy. This is of course a full-fledged 'macroeconomic' phenomenon, which can be regarded as a dynamic metamorphosis of the logical impossibility of raising or lowering all the relative prices simultaneously. If, on the other hand, some of the prices become sticky, a market economy is able to obtain a certain immunity from cumulative process, but only at the expense of exposing itself to another form of macroeconomic phenomena. For instance, when money wages happen to be downwardly sticky, the economy is possessed by a chronic tendency to leave some of the workers involuntarily unemployed, and when money wages are upwardly sticky, it is possessed by an opposite tendency to leave some of the job-vacancies unfilled. Needless to say, both involuntary unemployment of workers and unfilled vacancies of jobs are 'macroeconomic' phenomena in the fullest sense of the word.

There is thus no way to eliminate 'macroeconomic' phenomena from our market economy. When money wages are flexible, there are cumulative processes of prices and wages, and when money wages are sticky, there are involuntarily unemployed workers or unfilled job-vacancies. We therefore need the Wicksellian theory when dealing with a flexible money wage economy and the Myrdalian or Keynesian theory when dealing with a sticky money wage economy.[26]

After Wicksell, macroeconomics is all that should have mattered.

8. Towards new macroeconomics.

Let us conclude the present paper by pointing to one hypothesis of the Wicksellian theory which still calls for a critical re-examination in order for it to survive as a workable foundation for modern macroeconomics.

Everything started from Wicksell having been too good a neoclassical economist, as we saw in section 5. He was unable to accept the mechanical nature of the quantity theory of money, and proposed in its stead to explain the movement of the general price level by invoking the law of supply and demand, the law that says that if the demand is greater than the supply, the price will rise; if it is less, the price will fall.[27] But, looking back from now, Wicksell failed to be thoroughly neoclassical at least in the way he approached to the law of supply and demand in itself. For a truly neoclassical economist would not accept its too mechanical a formulation and must have asked the following question: "whose behavior is thereby expressed? And how is that behavior motivated?", a question Tjalling Koopmans actually asked some time ago.[28]

Indeed, if the market is assumed to be perfectly competitive in the sense that every buyer and seller regards the price as a parametric signal and make demand and supply decisions accordingly, as Wicksell assumed without much ado, we have a paradoxical situation in which "there is no one left over whose job it is to make a decision on price."[29]

It may well be that Wicksell used the law of supply and demand as an equation which describes the behavior of a "market auctioneer" Leon Walras superimposed onto his general equilibrium model. The problem is, however, that if we take the Walrasian model literally, Say's law of markets will once again come to life under the new name of "Walras law".[30] For the role assigned to the Walrasian auctioneer is to adjust the price of every commodity whose demand and supply are in disequilibrium, without allowing any actual transactions, until all the markets find

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[26] See Part II of the author's *Disequilibrium Dynamics* for the more systematic attempt at integrating the Wicksellian theory of cumulative process and the Keynesian principle of effective demand.

[27] This characterization of the law of supply and demand is taken from K. Wicksell, *Lectures on Political Economy, Volume I: General Theory*, First English edition, 1934, (Reprinted by Kelly : New York, 1967); pp.19-20.

[28] Tjalling Koopmans, *Three Essays on the State of Economic Science*, (New York: McGraw Hill, 1957); p.179.

[29] Kenneth Arrow, "Towards a theory of price adjustment," in M. Abramovitz (ed.), *The Allocation of Economic Resources*, (Stanford University Press: Stanford, 1957).

[30] See Robert Clower, "The Keynesian counter-revolution: a theoretical appraisal," in F.H.Hahn and F.R.P.Brechling, eds, *The Theory of Interest Rates*, (MacMillan: London, 1965).

their equilibrium positions simultaneously. This guarantees the identity between general demand and general supply and makes the use of money superfluous in any market transactions. Needless to say, wherever there is Say's law, there is no room for the development of Wicksellian cumulative process. In fact, the recent renovation of neoclassical equilibrium theory, under the new guise of rational expectations theory, has taught us how far we can go within the framework of Walrasian general equilibrium model, without sacrificing the fundamental neoclassical axiom of market clearing.[31] The intellectual predecessor of rational expectations theory was of course Milton Friedman's monetarism, which revived the traditional quantity theory of money in modern macroeconomics.[32]

True, we can have a short-run correlation between real and nominal variables (if there is temporary confusion between relative and monetary prices), and we can even have a serially correlated movement of some of the real variables (if there is inertia in stock adjustment). But we cannot have any cumulative movement of prices and wages, unless it is forced by some outside authority. Instead, Thomas Sargent and Neil Wallace has, for example, found the indeterminatedness of the general price level under the assumption of pure credit economy.[33]

We have to take the question of Tjalling Koopmans seriously. But, can we respond to it in a meaningful manner? The answer is affirmative, and that answer, it turns out, was already suggested by none other than Erik Lindahl long before the question was even raised by Tjalling Koopmans. In an introductory chapter to *Studies in the Theory of Money and Capital*, Lindahl reconsidered his earlier works which more or less relied upon the Walrasian method, first in the form of intertemporal equilibrium model and later in the form of temporary equilibrium model, and made the following remark:

> The pricing problem is often treated under the assumption of free competition, whereby the prices operating in a certain period can be regarded as the "result" of the operation of certain given demand and supply functions during the period. This construction is quite appropriate when used for the analysis of the equilibrium position of a price or a system of prices. But it is not always so appropriate when the pricing problem is analyzed from a more realistic point of view. In an actual dynamic case, there is no necessity for equality of demand and supply. .... For the analysis of the pricing process a more careful study of its elements is required.[34]

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[31] See, for example, Robert E. Lucas Jr. and Thomas Sargent (eds), *Rational Expectations and Econometric Practice*, (University of Minnesota Press: Minneapolis, 1981); Robert E. Lucas Jr., *Models of Business Cycles*.

[32] See, for example, M. Freedman (ed), *Studies in the Quantity Theory of Money*, Chicago University Press: Chicago, 1956; or M. Freedman, *The Optimum Quantity of Money and Other Essays* , (Aldine: Chicago, 1969).

[33] See "'Rational' expectations, the optimal monetary instrument, and the optimal money supply rule," in *Journal of Political Economy*, 1975, vol. 83, no.2.

[34] Erik Lindahl, *Studies in the Theory of Money and Capital*, First English edition, 1939, (Reprinted by Kelly: New York, 1970); p. 60.

And what Lindahl advocated for such "careful study" was to introduce "the realistic assumption that the prices quoted in the market are regarded as the supply prices of sellers (or in certain exceptional cases as the demand prices of buyers)," namely, the assumption of monopolistic (and in some rare cases, monopsonistic) determination of prices. Indeed, this enabled him to make the following crucial observation for the microeconomic theory of price-formation process:

> These prices are, it is true, based on sellers' anticipations of the magnitude of demand at different prices, but the anticipations are often more or less false. It is the deviations between the transactions anticipated by sellers and those actually carried out, and the associated changes in stocks and orders, which are the most important factors influencing the decisions of sellers to alter their prices from one period to the next. The method thus has the advantages of being realistic and clearly displaying the motive forces behind price movements, namely the excess or deficiency in demand anticipated by sellers when fixing their previous prices.[35]

The question of Koopmans was resolved at least partly. If the price of a commodity moves in response to a disturbance of the equilibrium between demand and supply, such price movement expresses the imperfectly competitive behavior of sellers (or in some cases buyers), which is motivated by their intermittent adjustment of anticipations in light of the observed discrepancies between *ex ante* and *ex post*, revealed in the form of excess demand or excess supply in markets.

Indeed, it is almost tautological to say that if a price really rises or falls in a market without any centralized coordination of the Walrasian auctioneer, it must be raised or lowered by sellers or buyers who are actively participating in market transactions. Price is after all not a free floating manna, but a decision variable of real economic agents. This is of course tantamount to saying that the "market" can never be perfectly competitive so long as price changes in it, and we have by the force of logic to introduce some elements of imperfect competition into any explanation of price-formation process. The "detailed investigations into the causes of price changes" Wicksell had proposed have inevitably led us to the theory of imperfect competition.

Unfortunately, Lindahl did not pursue this line of research any further, and we are left with a mere sketch of the truly dynamic theory of disequilibrium process. Today, after 50 years of the formation of the Stockholm school economics, the stream in the economics profession is running towards the old world of Adam Smith, and macroeconomics appears to be in deep trouble. But it is our belief that the only way out of this impasse is to follow the lead of Erik Lindahl and to reconstruct the Wicksellian theory of macroeconomics on the explicit hypothesis of imperfect competition. It will indeed be an attempt to make the Wicksellian theory more Wicksellian than Wicksell's original formulation.[36]

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[35] Erik Lindahl, *Studies in the Theory of Money and Capital*;pp. 64-65.

[36] See the author's *Disequilibrium Dynamics* as an example of such attempt.