

Version November 1<sup>st</sup>, 2011.  
Secciones III y IV revisadas.

Some Lessons for Monetary Policy Based on Interest Rates  
Rules from *Myrdal's Monetary Equilibrium*.

Why Should We Read Myrdal as complement of Wicksell?

Adrián de León-Arias.  
CUCEA-Universidad de Guadalajara (Mexico).  
Email address: leonarias@yahoo.com  
Mailing address: Secretaría Académica, Edificio de Rectoría, CUCEA  
Av. Periférico Norte 799, Núcleo los Belenes.  
Zapopan, Jalisco, Mexico 45100.

Key Words: , Myrdal, Wicksell, monetary policy, interest rates rules  
JEL Codes: B22, E52, N14

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## Abstract

Monetary policy based on interest rates rules has become a *staple* in world economic landscape. Now, it is widely known that there is a negative relationship between (future) prices and (current) interest rates. This knowledge mostly came from a set of empirical and institutional features of current economies based on a narrow economic model, also known as Keynesian consensus model, developed in static or stationary state with limited uncertainty and more or less isolated from the rest of the economic policy. Exploring the efficiency of those rules out of such state is an urgent and relevant task in current teaching of macroeconomics due to the developments of the 2008-? financial/banking crisis.

In this paper, I review the analysis which Gunnar Myrdal (1898-1987) developed in his *Monetary Equilibrium [1932, 1939] (ME)*. The analysis of monetary rules by Myrdal, as I present in this paper, has relevant lessons to be included in the current literature since this Swedish economist reviewed the efficiency of monetary rules in a **non equilibrium dynamic perspective**<sup>1</sup> with unlimited uncertainty, and located monetary rules in a wider context of institutional relevant features and the rest of economic policy.

Regarding the lessons by ME, Myrdal considered, in his context, the limitations of monetary rules as stabilizing policies in face of economic depression due to an unanticipated increase of savings. He also concluded that “equilibrium” interest rate should be considered as a component of the whole set of economic policies, in particular, its relation with the fiscal policy and income distribution. Furthermore, Myrdal also contributed to the theory of monetary rules by identifying a more precise target price index where investment goods prices and monopolistic price structure should be taken into consideration. He also pointed out the existence of an “indifference field”, i.e., same *monetary equilibrium* can be gotten with different credit conditions and interest rates, and therefore, different impacts on income distribution. There is not a “neutral” policy in relation to income distribution. Among other interesting contributions.

It is relevant to note that while other studies on Myrdal’s institutional economics approach have focused on its relation to the Keynesian revolution or as precursor of non-equilibrium dynamic economics, this paper -in my best knowledge- is one of few that review the Myrdal’s contribution to the field of monetary rules based on interest rates as foundation to an evolutionary approach to the monetary policy analysis.

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<sup>1</sup> This approach is also known as temporary equilibrium model (see Hicks, 1985) also developed by other Swedish economists such as Lindahl (1939, 1970) and Hansen (1982).

While some foundations for monetary rules (prices-interest rates) are based in Wicksell's *Interest and Prices*, I argue in this paper that Myrdal's *Monetary Equilibrium (ME)* offers a richer groundwork for extending, developing and better understanding those rules.

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### Introduction

The historical background of analytical framework for developing a monetary policy based on interest rates rules has been found in the contributions of the Swedish economist Kurt Wicksell (1851-1926) (see Jonung, 1979, De Aguirre, 2000b, and Woodford, 2003). In this article, I argue that the Wicksellian foundation of a monetary policy based on interest rates rules is extended in a relevant way for current issues in monetary theory and policy by Gunnar Myrdal in his *Monetary Equilibrium* ([1932]1939) (ME). According to Shackle (1967), Myrdal's contribution is considered as one of the main developments in the Years of the High Theory, 1926-1939<sup>2</sup>. However, no recent review of that work has been made in the perspective of looking for a better explanation of the analytics of current monetary rules, and even more, regarding their efficiency under the financial/banking crisis 2008-?

The objective of this article is then to present the extension/development which Myrdal made of the Wicksellian theoretical model in relation to monetary policy based on interest rates rules and identify in what respect the Myrdalian contribution can be considered as a more robust analysis of these rules. The wider conclusion of this article is, therefore, that from the reading of Myrdal's *ME* economists and maybe general public can get relevant lessons for a better understanding of the current challenges of monetary policy.

This better understanding comes from Myrdal's model because, among other contributions, his analysis is developed in a dynamic, saving/investment (*ex post/ex ante*), framework which evaluates its feasibility in a non stationary state with unlimited uncertainty and with some limitations, results in a relevant structure for the non equilibrium dynamic analysis. Furthermore, the Myrdalian analysis in ME includes the institutional facts involving the context and determining

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<sup>2</sup> Since in this article, I analyze the foundation of monetary rules based on interest rates from Wicksell, I am not going to review others extensions of the Wicksellian ideas such as those found in Hayek's *Price and Productions*, and Keynes' *Treatise of Money*, as those works do not have as main topic the analysis of those monetary rules...

of monetary policy making based on interest rates rules. While Myrdal offers a reformulation of the relevant price index, he is able to identify an “indifference field” where different credit conditions, term structure of interest rates and institutional facts give the same monetary equilibrium (price stabilization) but with different implication in long term economic sustainability and income distribution.

Nonetheless, in ME, Myrdal identifies the limitations of a monetary policy based exclusively on interest rates rules under an economic depression when analyzing monetary policy during the Great Depression in Sweden. Collaterally, this work offers very interesting insights in economic methodology and about its writing style; it is not of less interest for non specialized public.

With this paper, I would expect to encourage Central Bank policy makers, monetary theory and policy professors as well as students that Myrdal’s *Monetary Equilibrium* is worth for reading altogether with Wicksell’s *Interest and Prices*, as complement of the current way in teaching the relationship between interest rates and prices. Even more, that book is a valuable reading for general public interested in regulating those policy makers and the understanding of the *nuts and bolts* of the “current” monetary policy.

In this article, I also answer why Myrdal’s work is a more complete contribution than Wicksell’s on the scope and limits of monetary rules, as there is not, in my best knowledge, any reference for that book in the current literature on monetary rules.

### **I. Background: Wicksell’s *Prices and interest Rates*.**

In this section, I sketch briefly the general theoretical background of - as Myrdal wrote- “the new beginnings of monetary theory that start with Wicksell” (ME, p. 10)<sup>3</sup>. Here, the normative principle of the Wicksellian hypothesis is the desirability of price stability under the analytical model of an economy based on credit, more than on unconvertible money under the gold standard. That is, the foundational questions for this analysis are: Is it possible to stabilize prices in an economy based on credit? What would be the most efficient policy instrument? How should Central Bank do?

First, we have to consider that answers to those questions should be explored while the “traditional” answer (based on the Money Quantity Theory) is, for an economy based on convertible money, the regulation of the money base. However, in an economy based on credit such policy rule does not apply<sup>4</sup>, a new policy rule should be found. It is relevant to say that, at the time when Wicksell wrote *Interest Rates and Prices*, 1898, that situation was not only theoretical but also a practical problem. Wicksell (1898, 2000) described events where a change in prices was observed without a correspondent change in money base and *vice versa*.

The monetary rule, according to Wicksell, should also have a practical implementation in times when national money loses its convertibility under the gold standard. That rule should be

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<sup>3</sup> In this paper, references to Myrdal (1932, 1939) will be referred as (ME, page number).

<sup>4</sup> That is, an economy with unlimited velocity of money.

substituted by other monetary rules allowing price stability without convertible money. A monetary rule based on money supply does not appear effective in a monetary economy based on credit and flexible exchange rates.

The Wicksell's theory, or his hypothesis as he preferred to call it, takes as departure point the transformation in monetary and banking institutions was occurring along the XIX century. *Fiduciary* money was becoming a current fact (see De Aguirre, 2000, p. 28).

Looking at the desirability of the policy objective as price stability is relevant to point out that Wicksell related it to the undesirable effects on income distribution (see Wicksell (1898, 1965, 2000, chapter 1)) and later on stabilization of business cycles.

Wicksell, in developing his hypothesis, took the concept of (macroeconomic?) equilibrium in the way of the Austrian School of Economics (in particular, that of Böhm-Bawerk) adapted to the context of an economy based on credit and with the policy objective of price stability, advancing the monetary rule that monetary/banking policy makers can follow; this rule was identified in the equalization of the money and the natural rate of interest.

In this regard, the central idea of Wicksell (1898, 1965, 2000) is that the monetary equilibrium corresponds to the condition where the "normal rate of interest" must be equal to the marginal technical productivity of real capital (natural rate of interest), guaranteeing a stable price level. In the Wicksellian explanation, both interest rates play a fundamental role. The normal/money is determined in the credit and money markets and it is equal to the cost of a unit of capital disposal during a unit period of time (Wicksell, *Ibid*). According to the central theory of prices, following Böhm-Bawerk, the "natural or real" interest rate is that rate determined by the supply and demand of real capital as it was in specie, without money intervention (Wicksell, *Ibid*)<sup>5</sup>.

Money is not a veil in an economy based on credit. There are not goods which are lending, it is money that is lent, and then, capital as real goods is sold by money. Therefore, there is no need in the coincidence of the money rate with the "natural or real" rate of interest. "La oferta de capital real está materialmente limitada mientras que la oferta de dinero, en teoría, es ilimitada y en la práctica se mantiene dentro de límites bastante elásticos" (De Aguirre, 2000a p. 13)

Even more, in this Wicksellian world "la persistencia de cualquier clase de desviación entre las *dos tasas de interés* provocará un cambio en los precios de las mercancías y que ese cambio continuará progresivamente." (De Aguirre, *Ibid*, p. 13)

The main role in the Wicksellian process is the entrepreneur who is making a comparison between the *money* and the *natural* interest rate when he/she is planning his/her productive activities. If the natural rate of interest is higher than the money rate, the entrepreneur will have an unexpected increase in his/her profit at the end of the productive period. This situation will induce him/her to increase his/her investments (larger roundabout process of production). Given the

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<sup>5</sup> I will not debate whether the natural rate of interest can be effectively defined in this way. However, there is an interesting analysis in De Aguirre (2000a y 2000b).

stationary state of the economy, this result will be reflected in an increase in the general level of prices, which takes the entrepreneur to register another unexpected increase in profits. When the natural rate of interest is lower than the money rate, the entrepreneur will have an unexpected loss, his/her real capital value will decrease and he/she will be induced to reduce investments, capital expenses. Then, a decrease in level of prices will happen. (Here, I am only sketching the process because there are many interpretations of this progression, including chapter 9 in Wicksell, *Ibid*).

For Wicksell, the foundation of price disequilibrium, as other classic and heterodox economists, surges of an unbalance between the nominal or money supply and demand of goods. As Myrdal wrote:

“Any monetary theory of value which wants to deserve the name must, therefore, be able to show how and why the monetary or pecuniary demand for commodities can exceed the supply of commodities under given circumstances, or, *vice versa*, can fall short of it”(ME, 21). In the Wicksellian model of an economy, particularly the inequality between money and natural rate of interest is translated in an increase in the generalized demand of goods due to a change in the *expected profit*.

An important digression goes into the time by which the price “disequilibrium” can be sustained. In this aspect, Wicksell pointed out “[In the long run] “No obstante, está claro que, tarde o temprano, la tasa de interés del dinero tendrá que coincidir con la tasa de interés natural del capital. En otras palabras, la tasa de interés del dinero, en último término [my underline], viene determinado por el exceso o la escasez relativa de los bienes de capital real....con el sistema monetario existente, la tasa de interés de los préstamos, más pronto o más tarde, será situada en línea con el nivel corriente de la tasa de interés natural sobre el capital” (Wicksell, *Ibid*, p. 13).

In terms of a practical policy, given the difficulties to identify the natural rate of interest, Wicksell found that at the end, if the hypothesis is correct, monetary authorities, by just observing the rise or fall of general level of prices, will cause the falling or raising of the money rate of interest. [Wicksell (1898) pp. 189 ff. as quoted in Myrdal (ME., p. 129, footnote 5)]

Until here, I have reviewed Wicksell (1898, 1965, 2000), but it is also interesting the analysis of this topic in Wicksell’s *Lectures of Political Economy* (LEP), published between 1901 and 1906. While some economists, such as Laider (1991) considered both works as a continuation/extension, other economic thought experts such as Uhr (1960) y De Aguirre (2000) observed a difference. Specifically, the issue came about if equality between the amount of savings and investment should be included as a monetary equilibrium condition.

In my point of view, the main difference is that, in Wicksell (1898), the analysis is on an economy based on credit in a stationary state (with no uncertainty) and, in LEP, it is based on an economy out of the stationary state with limited uncertainty.

We may recall that Wicksell (1898) framed his analysis in a model of an economy in stationary state (without uncertainty). In principle in this kind of economy is “warranted” by definition the

equality in the amount of investment and savings. Households are saving whatever they are willing to spending the future, not more o less. Also because there is not uncertainty whatever they are sure to spend in the future. In the other hand, the (capital real) investors, firms, are planning to invest those resources made available through those savings.

In his LPE, vol. II, Wicksell extends his analysis for an economy out of the stationary state, that is, with unexpected variations in planned savings and investment. In this context, of course, the analysis of the relationship between interest rates and price dynamics is more “appealing” and more direct. However, I am not going to review LPE here while the objective of this article is a review of Myrdal’s EM. In this regard, Myrdal pointed out that “In his *Lectures* his presentation is more direct and realistic, but very short and not as thorough as in the older work” (ME, p.20)

In particular, Myrdal identified the Wicksellian monetary equilibrium as where “the “normal rate of interest” must

- (1) be equal the marginal technical productivity of real capital (natural rate of interest);
- (2) equate the supply and the demand for savings is equal. And finally,
- (3) guarantee a stable price level, primarily of consumption goods”. (ME, p. 37-38)

According to Myrdal, “Wicksell assumes that the three criteria for the normal rate of interest are equivalent-i.e. never mutually inconsistent” (ME, p. 38). In fact, the central feature of the Wicksellian heritage taken by Myrdal was to identify the monetary equilibrium through those three conditions.

It is relevant to note that regarding the equilibrium condition 3), Lindahl (1939, 1970), among other economists, while found of interest to analyze the Wicksellian hypothesis in an economy in disequilibrium, they developed that hypothesis in different perspectives. In particular, Lindahl emphasized the monetary equilibrium as reflected in the prices of consumption goods. We have to note that Wicksell referred those differences as much as reflected in the general level of prices.

According to Wicksell, (1898, p. 138) “Se deduce pues que ...el descenso de la tasa de descuento...tiene que reducir las tasas de interés a largo plazo, estimulando la producción y el comercio, y alterando la relación entre la demanda y oferta de bienes de tal forma que necesariamente provoca una elevación de *todos* [my underline] precios”.

As we can observe in that quotation, the difference between natural and money interest rates are reflected in prices in general due to a difference between the general demand and supply of goods, again in general.

Nonetheless, the difference is not essential at this moment, but we have to note that Myrdal adopted the Lindahl redefinition of equilibrium condition 3). While this article is a review of ME, I considered that this change is not essential for its development, although it could be relevant for further research, to analyze the difference/extension between the Wicksell’s analysis on monetary

rule based on interest rate in *Interest Rates and Prices* and LPE for a better understanding of the Wicksellian contribution to the economic theory.

## II. Historical Background: the Swedish economy in the 1930's.

### II.1 Introduction

The analysis of monetary rules for an economy based on credit, unconvertible currency, from the last years of Wicksell until the post First World War, and even until the beginning of the decade 1930's, just remained as a theoretical model while the "actual" (in those times) economies was based on the gold standard. Some Swedish economists, Davidson and Lindahl among others, were interested in advanced this kind of model in a more dynamic perspective, but always Just as a hypothetical model.

While the world was abandoning the gold standard after I WW, in the beginning of the decade of 1930's, Central Banks were having the need to find a reliable monetary rule to control the price stabilization. In Swede, a couple of circumstances was assembled to find this new monetary rule: Wicksell's hypothesis which was surviving in the mind of younger Swedish economists and a Central Bank which acknowledged the opinion of those economists in seeing as practical the new rule for the (then) *new economy*.

According to Jonung (1998), when Sweden left the gold standard in the fall of 1931, the government, under the influence of the economics profession, introduced a monetary program of stabilization of the domestic price level. It was launched at the onset of the depression, initially to arrest the fall in prices as well as mitigating widespread fears of rising prices. The monetary declaration of 1931, consisting of one sentence, "**The domestic purchasing of the krona should be preserver "using all means available<sup>6</sup>**", evolved in several steps into a full monetary program before it was finally approved by the Parliament, the Riksdag, in 1932. It is relevant to note that the Swedish experience of the 1930s anticipated much of present discussion of monetary policy for central banks with price stability as their primary objective.

Myrdal (quoted in Carlosn, 2011, p.35) acknowledges the relevance of this economic policy, comparing with Great Britain where "the British pound had turned into a paper currency "without any declaration of a monetary programme whatsoever". Sweden, however, had "done what Britain should have done" and the target of the constant price level constituted "the best possible monetary programme at the moment".

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<sup>6</sup> Mr. Felix Hamrin, Swede's Minister of Finance, 27<sup>th</sup> of September, 1931, as quoted in Jonung (1998).

In that historical circumstance, Myrdal offers his contribution that evaluate how practical/recommendable the Wicksellian monetary rule was for obtain price stability as well as output stabilization, employment included. In the theoretical field, he continues the analysis of that monetary rule in a non stationary economy and introduces a development of Wicksellian hypothesis. In particular, Myrdal points out that

“This essay bears the mark of the time [spring of 1932] at which it was written and the background of its author. It belongs among the attempts made during the early years of the great depression to reach a basis for a deeper and more comprehensive monetary theory”. (ME, p. v)

Just for the record, Myrdal’s ME as the original Swedish text was published in *Ekonomisk Tidskrift*, 1931. A German translation in a collection of essays edited by Hayek, Vienna, 1933. And, as Myrdal wrote “The three introductory chapters were added to the German edition and certain sections containing contributions toward the settlement of purely Swedish controversies were omitted. As now [1939] published in English, the essay is a translation of the German text without consequential modifications.” (ME, p. vi) For a detailed comparison between those three versions, see Pallander (1953).

## II.2 The Wicksell-Myrdal Connection

Myrdal in ME, in order to evaluate the pertinence of monetary rules, considered as relevant to begin of a review of the Wicksellian hypothesis, as he wrote:

“For decades Knut Wicksell’s monetary theory has been the centre of discussion in Sweden. Rather than pioneer with a wholly new approach, it was quite natural for the present author [Myrdal] to project his own ideas within Wicksell’s old framework” (v)

In particular, Myrdal adopted a methodological procedure known as immanent methodological approach that he explained as:

“My analysis will be of an *immanent* nature in so far as I shall take over in the beginning the fundamental features of Wicksell’s monetary theory and shall develop my own arguments under the assumption of the fundamental correctness of his explanation. The Wicksellian formulation, we shall find, will need modification in several directions.

The reasons for choosing this immanent method for the analysis and for presenting my own results as a development of Wicksell’s theory instead of arranging my exposition more directly and systematically according to positive theoretical principles, are, first, my belief that particularly in the present state of economic theory we should clearly trace the lines of tradition -positive as well as negative- from the older generations of economists in order to prevent our literature from falling any more than necessary into Babylonian barbarism”. (30-31)

It is relevant to note that what Myrdal also values positively about Wicksell is the analysis of monetary policy in an economy based on credit instead of, like usual in those times, in a fixed amount of means of payments, while

“Another type of monetary analysis is arising nowadays which no longer places the main emphasis on the amount of means of payment. To a certain degree this is a new phenomenon,” (ME, p. 5).

Then, economic analysis now should be based in this new “type” of economy. However, Myrdal not only acknowledged this advantage in the Wicksell hypothesis but also its limitations while the analysis is developed for an economy in stationary state.

In this context, even more, “One must first show which among the equilibrium relationships that are fulfilled in the stationary state are really important from the viewpoint of monetary theory; and one has also to demonstrate how these relationships look under non-stationary conditions” (ME, p. 40). In fact,

“Our central statement of the problem in the subsequent chapters is therefore the following: From the standpoint of the fundamental idea of Wicksell’s monetary theory, what do the properties of a price situation in a non-stationary course of events have to be in order that this situation can be characterized as a position of monetary equilibrium?” (ME, p. 42).

In fact, Woodford (2003, footnote 2, p. 5) acknowledges in Myrdal (1931) a distinct approach different from “[Wicksell’s] general equilibrium approach [which] meant a *static* model of resource allocation, not obviously applicable to the problems of intertemporal resource allocation with which they were primarily concerned.”

### **II.3 Myrdal’s immanent critique of Wicksell’s equilibrium conditions**

As I described it before, Myrdal (ME, p. 38), identified the Wicksellian monetary equilibrium as

The “normal rate of interest” must

- (1) equal the marginal technical productivity of real capital (natural rate of interest);
- (2) equate the supply and the demand for savings. And finally,
- (3) guarantee a stable price level, primarily of consumption goods.

And according to Myrdal (Ibid), “Wicksell assumes that the three criteria for the normal rate of interest are equivalent- i.e. never mutually inconsistent”

For Myrdal, the Wicksell’s three monetary equilibrium conditions should be reformulated in such a way that at the same time they are fulfilled, they show the “technical” and institutional limits of price stability.

In particular, Myrdal develops an analysis of monetary equilibrium for an economy in non stationary state, although the dominant trends, including the expectations are in equilibrium (see Seccareccia, 1992).

However, the Wicksell analysis is able to go beyond while Myrdal acknowledged that although the theoretical limitations, Wicksell's insights are very powerful for the analysis of monetary equilibrium.

### III. The transformation of Wicksell's three monetary equilibrium conditions by Myrdal

#### III.1 The first monetary equilibrium condition

Regarding the first monetary equilibrium, i.e., "normal rate of interest" must be equal the marginal technical productivity of real capital (natural rate of interest), Myrdal is clear that this definition take us to all the theoretical limitations that implies the determination of capital profits independently of the interest rates (see, for instance, Sraffa (1960), Chiodi (1991) and the so called *Cambridge* debate). However, Myrdal identifies another analytical approach where the first condition can be reformulated and be linked to the monetary equilibrium in a economic dynamic approach. In this sense, for instance, Seccareccia (1992, p. 155) explained that

"This [first] condition can be partially salvaged, according to Myrdal, if the natural rate is defined, instead, as an *ex ante* expectational variable giving the anticipated monetary return on an investment."

In his analysis, Myrdal acknowledges that given theoretical and analytical limitations in defining the natural rate of interest, Wicksell's first condition; in fact, it cannot be a practical guide to identify the monetary equilibrium. However, in Myrdal's more complete analysis of that equilibrium, is transformed, from the Wicksell framework and something else, the first equilibrium condition into a relationship between investment and interest rate that it will be useful in explaining the second equilibrium condition.

In order to explain the Myrdalian process of such transformation, it is necessary to define the concept *yield of real capital* which is "the productivity rate which is reckoned in monetary terms and expressed in a price relation" (p.54). Even more, this yield should be identified, in a dynamic context, as a variable in *ex ante* and *ex post* moments. While *ex ante*, this yield can be related to the expected profitability of the capital. While *ex post* is when the capital profitability is registered in the accounting books at the end of the period. However, it is relevant to note in this argument that "it is [the] calculation *ex ante* which corresponds to the main argument in Wicksell's theory."<sup>7</sup>

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<sup>7</sup> For that reason, in this section, I am not going into the *ex post* analysis. For that analysis, see Myrdal, ME, chapter IV).

In general, then, *ex ante* “the yield ( $y_1$ ) is obtained by dividing the net return by the capital values of the capital value  $c'_1$  of the capital goods at the time of calculations” (ME p.59)

$$y'_1 = \frac{e'}{c'_1}$$

where:  $y'_1$  = yield of existing real capital,

$e'$  = net return, and

$c'_1$  = value of existing real capital.

For this and further equations: “accents are attached to small letters to distinguish values pertaining to different individual firms. Subscripts  $_1$  and  $_2$  signify that the values refer to existing real capital or new investment respectively” (ME, p. 85).

In ME, Myrdal also extends the concept of *value of existing real capital*, including the concepts of depreciation and appreciation of capital values along the period in order to the value of real capital remains constant: “otherwise the net return contains not only an amount corresponding to interest but also an item of amortization” (Myrdal, ME, p. 55).

From another point of view on real capital, for Myrdal capital values are *also* the discounted sum of all future gross incomes minus operating costs...“The capital is thus equal to the capitalized value of a perpetual net return of the size of the net return of the next unit period”...The capital value from this standpoint is in other words way a price reflections of the two magnitudes: Net return and “market rate of interest” (ME, p.62).

That is, if capital values are the capitalized value of a perpetual net return, they can be defined as:

$$c_1 = \frac{e}{i}$$

where:  $c_1$  = value of existing real capital,

$e$  = net return and,

$i$  = market rate of interest (the “money rate” of interest).

Myrdal points out “This means among other things that there is always and necessarily a conformity between the yield thus defined and the interest rate in the market; for capital value and value return are defined in such a way that they must constantly fulfill [sic] this equation” (ME p.63).

From this argument, any discrepancies between the *yield of real capital* and interest rate in the market came from problems in the anticipations of the relevant rate of interest or the “correct” anticipations in value of depreciation/appreciation in capital values.

“The result of our analysis so far is that, if the yield of real capital is to fit into Wicksell’s monetary theory, it has to be defined in such a way that it always by definition equals the market rate of interest. At first sight this result seems to be quite dangerous to his whole train of thought. For Wicksell assumes that a difference between the natural and the money rate of interest can exist. But it is to be noticed that the argument so far relates only to the real capital *already existing*. And the effect of the difference between the natural and the money rate of interest, according to Wicksell, is precisely that it stimulates *investment*, i.e., construction of new capital.<sup>8</sup> Wicksell’s theoretical argument requires, therefore, that in calculating the yield, which I use in place of Wicksell’s natural rate, account be taken not of existing real capital but of plans for new construction.” (ME, p. 65)

Myrdal (ME, p. 65) then defined the yield of planned investments as “the ratio between the net return on the projected real investment and the cost or their production [where] the cost of production means the cost as anticipated at the moment in question.”

$$y'_2 = \frac{e'}{r'_1}$$

where:  $y'_2$  = yield of new investment,

$e'$  = net return, and

$r'_1$  = cost of reproduction of existing real capital.

In fact, “The yield of planned investments as just defined is the rate of profitability which corresponds to that implied in Wicksell’s concept of natural rate of interest. It is an expression for the anticipated “investment gain” (...) in relation to the capital sum being invested, i. e., for the rate of capital gain which the entrepreneur could make by buying means of production and transforming them into real capital, which, at its time of completion, is anticipated to have a higher value than the sum of its costs of production, if the investment gain is positive. This anticipated investment gain is obviously equal to the capitalized value of the difference between the expected net return and the interest (market rate) on the capital invested.” (ME, p. 65)

However, Myrdal wrote that “for practical reasons...we prefer to replace the net return on the planned investment by the net return on the existing real capital.” (EM, p.66)... which means an approximation...the equilibrium condition can, however, be put in another form which means the same but which does not encounter the same difficulties if applied in the analysis of an actual situation” (p. 70). In this way, according to the following definitions:

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<sup>8</sup> Wicksell, *Vorlesungen*, pp. 218-219 [Vol. I, p. 192]: “An interest rate which forms such a direct expression of the real capital interest rate we call normal. In order to define this concept clearly we have to clear ideas about the proper concept of real capital. We do not mean, of course, the more or less fixed capital which is already tied up in production, such as buildings, ships, machines, &c., whose return has only an indirect influence on the interest rate in so far as it stimulates or deters the employment of new capital in production. This latter, the capital in its liquid, free and movable form is precisely what matters in this connection.”

$$i = \frac{e'}{c_1} = \frac{e''}{c_1''} \text{ \&c} ;$$

and

$$y_2 = \frac{e'}{r_1} = \frac{e''}{r_1''} \text{ \&c} ;$$

where:  $i$  = market rate of interest (the “money” rate of interest),

$c_1$  = value of existing real capital,

$e$  = net return,

$y_2$  = yield of new investment, and

$r_1$  = cost of reproduction of existing real capital.

The equation  $i = y_2$  implies the equation  $c_1 = r_1$ .

Then, “If restated in terms of existing real capital –which means an approximation- the condition of monetary equilibrium, could be formulated as the condition of *equality between the capital value and the cost of reproduction of existing real capital.*” (ME, p. 70)

It is relevant to note that this definition, if we may know  $c_1$  y  $r_1$ , from other sources, Myrdal in particular discuss the stock market, it may be easier to empirically to identify such concept. Here, this discussion gives a Tobin-q flavor.<sup>9</sup>

Now, also the difference between  $c_1$  minus  $r_1$  can be reflected as a *profit margin*, that is

$$q' = (c_1' - r_1')$$

where:  $q'$  = profit margin,

$c_1'$  = value of existing real capital, and

$r_1'$  = cost of reproduction of existing real capital.

And if we, following Myrdal, relate the elasticity of investment in relation to profit margin, such as

$$r_2' = f(c_1' - r_1') = f(q)$$

where:  $r_2'$  = cost of production of new investment,

$c_1'$  = value of existing real capital,

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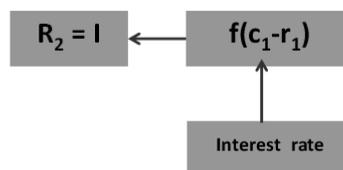
<sup>9</sup> I am not digging into details, but Myrdal’s is a very valuable analyst that complements the Tobian analysis while the former added several unique institutional features which are missing in other analysis.

$r_1'$  = cost of reproduction of existing real capital, and

$q$  = profit margin.

Then, after we relate the elasticity of investment in relation to profit margin, we may identify the relation between investment and interest rate, while interest rates affect  $c_1$ .

In the next figure, I illustrate the relationship between investment,  $R_2$ , or  $I$ , investment, and interest rate through the impact of interest rate on the value of existing real capital. An increase (decrease) in interest rates reduce (increase) that value and therefore the difference between  $c_1' - r_1'$  which induces a decrease (increase) in investment.



In this context, besides  $c_1 = r_1 q$  where  $R_2$ , investment, is equal to zero, that is in stationary state, we have investment as undetermined out of that state and we have to go to the Wicksell second equilibrium condition where the first condition will make more sense in terms of monetary equilibrium.

### III.2 The second Wicksellian monetary equilibrium condition according to Myrdal.

Once Myrdal has established the relationship between investment and interest rate, and we have an “undetermined” amount of investment, the second Wicksellian monetary equilibrium condition, i.e., The “normal rate of interest” must equate the supply and the demand for savings is under analysis. For Myrdal, the analysis of this equality take us, in framework of a non stationary economy with stable expectations, to consider that equality/inequality between the amount of savings and investments, in two moments in the period, as planned or desired at the beginning of the period (*ex ante*) and results, at the end of the period, as *ex post*.

Before proceeding into the analysis of the second condition, we have to analyze the *immanent* critique of Myrdal on it. Myrdal points out that while “From the point of view of monetary theory, the rôle of the first formula is merely to explain *why* and *how* equilibrium is or is not maintained in the capital market...Wicksell himself has set forth this second formula only very loosely and obscurely. (87)...”The obscurity in Wicksell’s discussion of the second formula comes from the fact that he has never really defined what he meant by saving and investing -or by supply of and demand for savings, as he usually says- and the fact that he has even less clearly shown the connexion of this relation with the profit relation discussed in the last chapter. (ME, p. 87-88)”

It is clear then that the definition of savings does not imply “real capital” as sometime suggested by Wicksell, savings should be defined as a part of income, namely that part which is not used in the demand for consumption goods. In consequence,

“Intermediate between the decision of the saver not to consume his whole money income and the decision of the entrepreneur to make real investments with his own or someone’s capital, is the whole process of price formation” (ME, p. 90)

In Myrdal, the equality of savings and investment is identified in two moments: *ex ante* and *ex post*. *Ex post* equality is obtained in a book-keeping process therefore is obtained “by default”. The *ex ante* equality is identified as the equality between the savings and reserves for depreciation in relation to gross real investment plan. This situation gives place to the following equation:

“If one wants to isolate real investment instead of saving on one side of the equation, one can formulate the second equilibrium condition as follows: The money rate of interest is normal if it brings about an *equality between gross real investment on the one side and saving plus total anticipated value-change of the real capital, i.e., plus expected decreases in value minus increases in value of the existing real capital, on the other side.* (96)”

Myrdal continues:

“In this equation gross real investment,  $R_2$ , is compared with a magnitude, which I [Myrdal] will call “waiting” or “free capital disposal,”  $W$ , and which contains besides saving proper,  $S$ , the term anticipated value-change, i.e., depreciation minus appreciation,  $D$ . This capital disposal,  $W$ , is “free” from the standpoint of the private entrepreneur in the sense that, aside from the saved part of his income, and without selling or mortgaging his real capital, he can dispose of exactly such a part of the invested property value as corresponds to the amount of depreciation minus appreciation. For depreciation and appreciation are nothing else than calculated terms, subtracted or added to the balance of gross returns less operating costs only in order to make the net returns (=income) by definition congruent with the notion of interest. (ME, p. 97).”

It is relevant to analyze another definition of savings by Myrdal:

“Therefore, depending upon the nature of his real capital, the amount of free disposal [savings] is more or less than the individual entrepreneur –his income and his consumption being given– decides to devote to the increase or decrease of his property.” (ME, p. 97)

Note that savings is not a residual like in Keynes’ General Theory. Here, savings are a *desired* amount. More like the desired savings à la Harrod. This is a relevant definition in order to obtain a dynamic analysis.

Going back to Wicksell’s second equilibrium formula, this should, therefore, be written as:

$$R_2 = W = (S + D) \quad (1) \quad (\text{ME, p. 97})$$

where:  $R_2$  = cost of production of new investment,

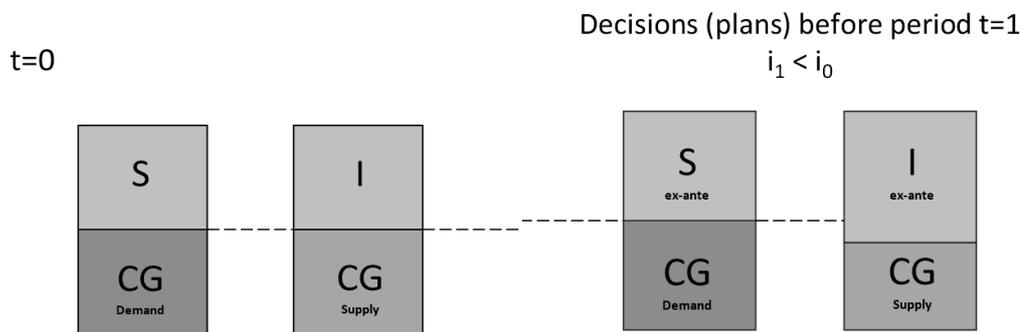
$W$  = free capital disposal,

S = savings proper, and

D = value-change defined as anticipated depreciation minus appreciation.

Myrdal wrote that “We have to note that “free capital disposal” would correspond to the “wage fund” in classical theory, provided the concept was modified in such a way as to fit into a non-stationary analysis.” (ME, p. 97)

In order to illustrate the mechanisms of the movement of inequality between *ex ante* savings and investment towards the *ex post* equality:



During period t=1

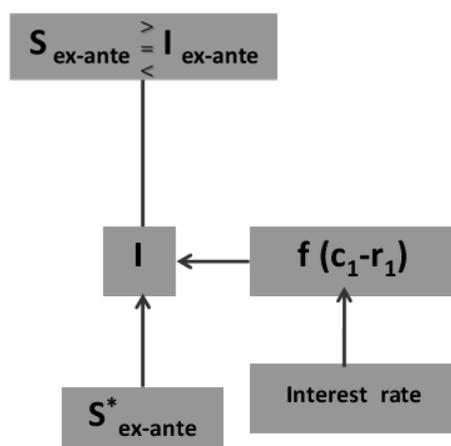
At the end of period t=1



In Myrdal’s word, when the position of monetary equilibrium  $R_2 = W = (S + D)$  is affected by lowering the money rate of interest as in our former illustration is described as follows: firstly, “increased values of real capital immediately result. The profit margin rises, and consequently a tendency towards *increased real investments* is brought about in this initial position” (ME, p. 104). He goes to explain that, while no a change in anticipations or consumption, free capital remained unchanged and secondly “[while] free capital disposal would thus remained unchanged...real investment would of course be further stimulated by the altered anticipations causing the profit margin to rise more than it should have under constant anticipations. But if, with increasing incomes (increasing because of the change in anticipations), the *demand for consumption goods* rises too, then free capital disposal declines, while at the same time real investment increases still more” (ME, pp. 105-106).

It is relevant to note that this process can be pictured as an accumulative, while entrepreneurs maintain his expectations of increasing prices. The accumulative feature of this analysis highly appreciated in Wicksell (1898) and further Myrdal's work. It may be said that this feature was one of the most valuable for Myrdal in later years.

Now, we can identify, with Myrdal, the relationship between *ex ante* savings, as free capital, and planned investment with the first monetary equilibrium condition. To a given amount of (*ex ante*) savings, there is an equivalent amount of planned investment that warranting the *ex ante* equilibrium. This investment, as defined by Myrdal, is determined by the interest rate.



Therefore, in the extension of the of the Wicksellian first and second monetary equilibrium conditions by Myrdal, both conditions are not independent from each other and converge in one where a given interest rate maintains the equality between free capital and planned investment

Here, again, this process of equilibrium/disequilibrium, in Myrdal, is described in dynamic terms by means of an analysis of the anticipated and realized profits, i.e., *ex ante* and *ex post*. Any difference between *ex ante* savings and planned investment would make entrepreneurs to take home loses or benefits in the *ex post* values of real capital which reflects the monetary yield of the investment related to his monetary costs.

Even more, Myrdal, following to Lindahl, translates those differences between savings and investment as excendent of deficient demand on consumption goods. Then, any inequality such that planned investment is greater (lesser) than *ex ante* savings would be reflected in an increase (decrease) in the prices however not in general or of consumption goods, as in Wicksell or Lindahl, but in a very particular approach. This analysis takes us to the third monetary equilibrium condition.

### III.3 The third Wicksellian monetary equilibrium condition according to Myrdal.

Myrdal wrote in relation to the “original” statement of the Wicksell’s third monetary equilibrium condition

“By a third determination of the monetary equilibrium position, Wicksell wished to relate it to the conditions on the commodity market. The normal rate of interest, he said, is the money rate which is just necessary in order to keep the “general price level” of finished commodities constant. However, Wicksell was unable to furnish a real proof of this proposition. Moreover, this idea is false, as I shall presently prove.” (ME, p. 126)

While as Myrdal has been arguing, the two previous monetary equilibrium conditions has to be redefined “[Wicksell] could not derive from the two preceding equilibrium criteria a theoretically consistent equilibrium formula for the price level”. Even more, here, Myrdal advances the hypothesis that “In fact, he [Wicksell] accepted the comfortable formula of a constant price level more by sentiment and as a result of a normative, *a priori*, intuition...And since monetary equilibrium was for him [Wicksell] not only a theoretical instrument but also an ideal for monetary policy, again he reached the conclusion that the money rate would guarantee an unchanging price level of consumption goods if it were normal and corresponded to the natural rate. (ME, p. 128).

In fact, Myrdal (ME, p. 133) wrote in relation to this third equilibrium condition, “The development of the price level would seem to have nothing to do with monetary equilibrium.”

Myrdal point out in relation to the acceptance of the Wicksellian hypothesis, at least in Swede, that “A formulation by no means clear in principle appeared to be correct because it proved to be “practical”; something desired became truth; a rather old experience in the history of economic doctrines. And in emphasizing “the general price level” he established close contact with the traditions of the old quantity theory, which Wicksell never intended to displace but only to improve. (ME, p. 129)”<sup>10</sup>

In fact, according to Myrdal, although the three Wicksellian monetary equilibrium conditions can be flawed in the beginning, they could be reinterpreted in order to fulfill the Wicksell’s intuition. Myrdal certainly finds a relationship between interest rates and prices based on a set of economic observations and principles. In doing that, he also finds the scope and limitations of the Wicksellian hypothesis. But before Myrdal “rebuilds” the Wicksellian structure, he redefined the concept of the relevant “general” price index.

As Myrdal points out “the [monetary] equilibrium character of a situation cannot...be characterized sufficiently by a mere study of the general price movements” (ME, p. 142). In developing the concept, that I call, Myrdalian price index, Myrdal emphasized, firstly, the institutional fact that no all the prices are affected in the same way by the disequilibrium related

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<sup>10</sup> This statement has relevant implications of the debate on the relationship between Wicksell’s hypothesis and quantity theory; however we are going to contribute to that debate.

to savings and investment, nor their relation to consumption goods, ever more, Myrdal consider, firstly, the fact that some prices are sticky because of the institutional arrangements in the goods and labor markets.

In the Myrdal framework, the price index is related to the monetary equilibrium as defined by the second equilibrium condition and institutional facts. In this way, Myrdal clarified that “Even apart from ...contracts, fixing returns and costs for certain economic subjects, there is a general element of *inertia* in the adjustment of the economic system to primary changes” (134). Even more “also they [prices] depend “upon different institutional circumstances -upon law, conventions, consumption habits, methods of production, patterns of marketing, price policies, monopolistic elements of all sorts”, ..(ME, p. 135).

Here, it is relevant to note that while most of current literature based the stickiness of prices in market imperfections, Myrdal focus also in its institutional foundations.

Following Myrdal’s conceptual construction, it is possible to identify among all the prices in the economy, a dichotomy between “sticky” and flexible prices. This dichotomy has relevant policy implications “The sticky prices would act as a restrain on the price system: A monetary policy aimed to preserve the equilibrium relations must, therefore, *adapt the flexible prices to the absolute level of the sticky ones*”. [cursives in the original, Myrdal, ME, p. 135). The policy objective is to “adjust” price stability to the “sticky” prices. In particular, “*When we talk about sticky and flexible prices we are already thinking in terms of indices of different price levels, of which the first sets a limit to the movement of the price system under conditions of a monetary equilibrium*” (ME, p. 136)

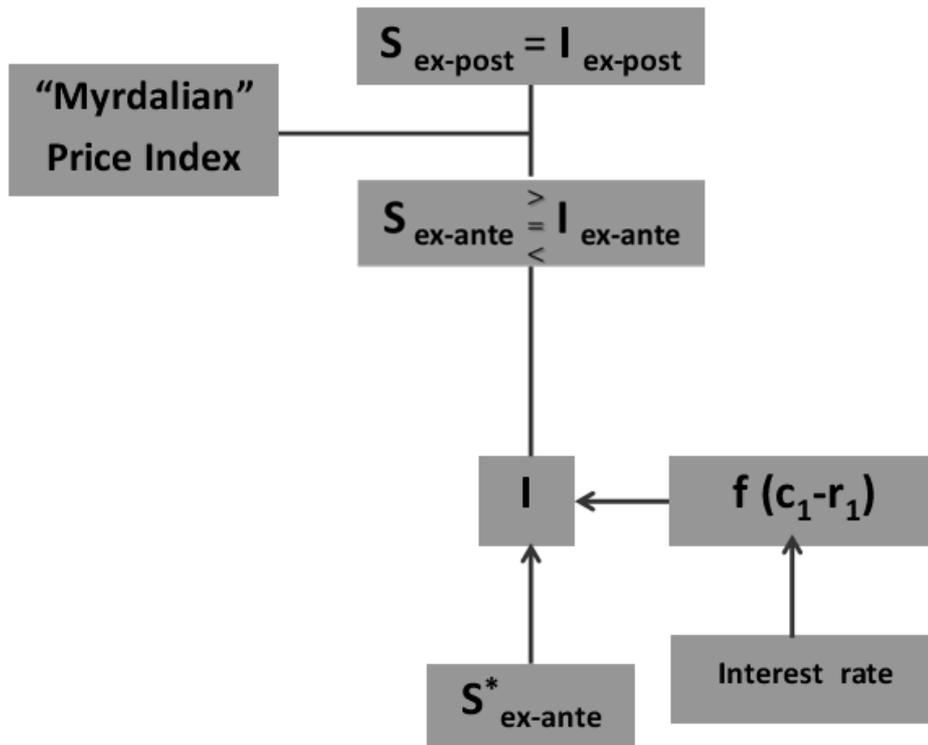
Even more, the Myrdalian price index should focus not only in sticky prices, but also taking into account, the relative importance of their relation to investment goods. In particular, the Myrdalian price index...“should be defined as an index which the individual price are weighted, first, with respect to their stickiness of reaction, and second, with respect to their relative importance in the calculations of profitability by entrepreneurs and consequently in the volume of real investment” (ME, p. 136-137).

In particular, in this index “prices of various goods, or of the same goods in various markets, are weighted with respect to their stickiness and according to their significance for real investment” (ME, p. 194)

Even with the practical difficulties in building this index, see Pallander (1953), it is relevant to point out that such index take into consideration the institutional circumstances that allows us to go from theory to reality, Myrdal is essential in this regard while wrote:

“By means of further analysis of the weighting system...monetary theory is brought into touch with all the institutional circumstances which determine price formation in reality, but which are overlooked so often in abstract theory. Only by being confronted in this way with realities of social life via the stickiness of prices can a perfection of monetary theory be expected in future”. (137)

In the Myrdal framework where the three Wicksell monetary equilibrium conditions are transformed and “collapsed” in a particular level price, they are related directly to the difference between money and real interest rate. In the following figure, it is presented a graphic approach to the relation among the three conditions.



#### EXPLAIN THE FIGURE

Myrdal then offers a complete framework that *nicely* complement the Wicksell hypothesis while it allows the analysis of monetary policy based on interest rates rules be developed in a stationary and non stationary state of a credit based economy. Even more, Myrdal also offers an analytical approach to locate monetary policy in a wider institutional context as I will explain in the next section.

#### IV. Lessons from Myrdal's *Monetary Equilibrium*.

Then, the fulfilling of the three monetary equilibrium conditions, as developed by Myrdal, allows obtaining some relevant lessons for the analysis of the monetary rules. In particular, the so called indifference field of monetary equilibrium, the efficiency of monetary policy under interest rate rules in a economic depression, monetary equilibrium (norm) as stabilizing policy and the limitations of monetary policy as employment policy, as well, as the monetary policy as social policy . These five lessons are analyzed in de León (2011) this section. In this paper, I only give a

broad presentation of the indifference field in monetary policy and monetary equilibrium as stabilizing policy.

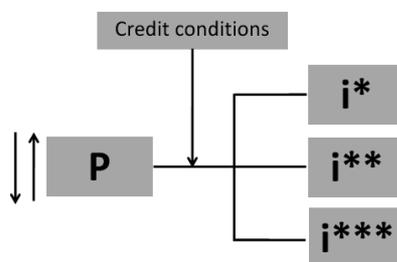
#### IV.1 The indifference field of monetary equilibrium

From the Myrdalian framework, in the latter figure we are able to see, in fact, that interest rates as monetary equilibrium policy depends of the “stability” of savings ex-ante<sup>11</sup>. In developing the concept of indifference field of monetary equilibrium, Myrdal firstly focus on the possibility to have the same effect on monetary equilibrium from a variety of interest rates and credit conditions.

If, in Wicksell’s hypothesis, the money rate of interest is considered as an abstraction of a mixed group of various rates of interest in an also variable group of credit conditions, in the reality, we may think of different combinations, more in particular, Myrdal points out:

“[Because] The fact that in reality there is not a single ‘rate of interest’ but a heterogeneous system of credit conditions of various kind ..it must be possible to think of various combinations of different interest rates, and of interest rates with other combinations, which in a given situation would have equal effect in bringing about monetary equilibrium” (159)

I look for an illustration of the latter case in the Myrdalian framework in the following figure



In a latter moment in the analysis, Myrdal (ME, p. 160) includes in his framework, other changes in other factors influencing the price identified in the Myrdalian price index. He suggest that it may be useful to group together all those social factors which are, or can be, subject to public control, as *menas of monetary policy*, proper of monetary equilibrium, and those *uncontrollable* economic factors. In this context, Myrdal added that “ The line of demarcation is entirely determined by the institutional and political structure of the economy concerned at the time and is thus not fixed.” (ME, p. 160)

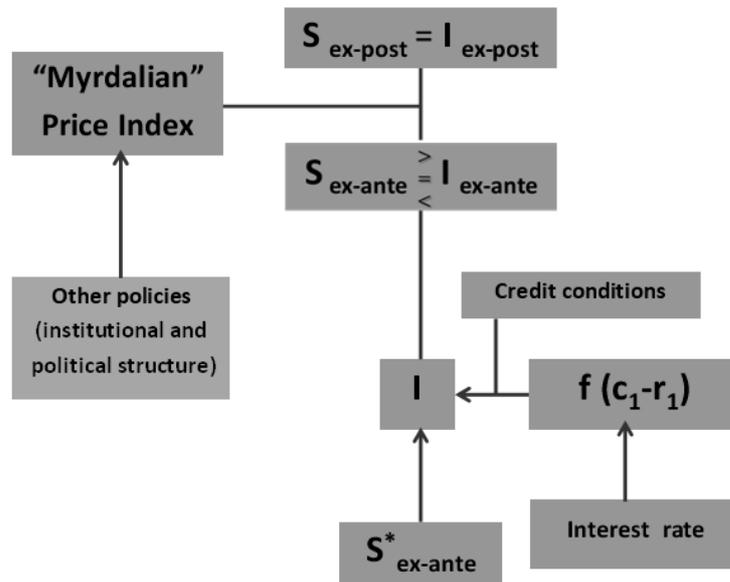
<sup>11</sup> In fact, from the trends of an increasing ex ante savings, after the economic depression in early 1930’s in Swede, Myrdal identify a relative ineffectiveness of interest rate, see de León (2011).

He also pointed that “In admitting the possibility of different combinations with regard to which the conditions of monetary equilibrium are “indifferent” within a large field, one is not yet, however, outside the realm of the equilibrium concept. On the contrary, these combinations can be discussed only in the framework of the equilibrium concept” (ME, p. 161)

That combination opens the possibility of an indifference field of monetary equilibrium. This field is even wider, in thinking the conditions of the monetary equilibrium determined by circumstances such as:

- All social factors, beside credit conditions, which can be made subject to public control.
- Short/long term rates of interest
- Closed/open economy
- Impacts on consumption goods
- Savings rate across rentists and entrepreneurs.

In the following figure I present, according to my interpretation of ME, the complete framework that gives place to illustrate the mechanics of monetary equilibrium and its indifference field.



“Maintaining a monetary equilibrium becomes a question not only of a monetary policy but of economic policy as a whole, social policy and the institutions which rule the labor market, cartel legislation and all related factors. Various combinations of these heterogeneous things, more or less under political control, together with appropriate values of the standard combination of credit conditions, produce stable monetary equilibrium conditions.” (ME, p. 184)

Although the highest importance for further development of monetary theory and especially important for the discussion of monetary policy, Myrdal (ME, p. 161) as he wrote “The problem of the indifference field of monetary equilibrium cannot be dealt with here in details.” He went instead to contribute to the debate on *ineffectiveness of the Discount Rate* in Swede around 1932, concerning to the effects of a tightening of credit conditions in monetary equilibrium in order to prevent the depreciation of the Krona. Unregarding of the interest in this case, the analysis is developed plenty of insights on the relevant factors which may interact with credit conditions, and their results in terms of that policy objective and consequences in terms of terms of production, employment, and social policy. See ME, pp.161-176. Here I offer a long quotation that intends to summarize those results:

“There are certain general inferences to be drawn from the broad indifference regions, illustrated by the examples discussed above. First, it is wrong to conclude from the supposition of a fairly stable situation on the capital market, or from relative stable price or exchange relations, that just the credit policy, discount rates and credit restrictions exist, or have existed, which are necessary to maintain monetary equilibrium. For it is possible, and, in times of crisis like the present, even probable, that monetary equilibrium would be maintained either by a substantially more or a substantially less severe credit pressure –and, to be sure, with a larger or smaller volume of production and employment and a more or less strained social policy. One is naturally guilty of a still more dangerous error if, from the same assumptions, one draws the conclusion that in credit policy we have actually a means at hand with which we can practically and effectively control and stabilize the given situation. If it is actually stabilized for a certain period, that is the result of a very complicated system of causes, and the ability of the credit policy to attain the same result with important shifts among the other causes is certainly not proved by this stability...

“The worst mistake of all would, of course, arise if one saw in such a situation a proof of the efficacy of the rate of discount in particular. The Central Bank might be able to maintain a very low or a very high rate of discount at will, and in either case attain equality in the relation between the volume of real investment and free capital disposal. Nevertheless, the shift... is not without importance, not only for the profitability of the banks ... and, in general, for the distribution of incomes in the society [underlined by me]” (ME, p. 175- 176).

Even more, regarding implications of the indifference field, “Monetary equilibrium can be attained by quite different combinations of credit conditions. Further, these different combinations are not politically indifferent but necessarily signify a discrimination between various types of demand of credit...various social groups would be interested in different combinations of credit conditions”. (ME, p.182)

But immediately the problem of monetary policy is really taken up for discussion...the problem of the connection between monetary policy and all other economic policy necessarily becomes important”(ME, p.185)

In this approach, Myrdal identifies that although there is an open field of indifference to obtain price stability, this indifference is not unrelated to a specific economic policy in a wider sense, including those associated directly or indirectly to income distribution.

#### **IV.2 Monetary equilibrium (norm) as stabilizing policy in business cycle**

Myrdal in his ME presents us a relevant extension of Wicksell analysis on business cycle. According to disequilibrium, price stability would reduce variability in other variables, such as income and employment.

For Myrdal, “the Wicksellian monetary...contains complete business cycle theory in a nutshell, which at least in this respect –but only in this respect- is of the “monetary type,” for it stresses certain monetary relationships and events ..” (ME, p. 179).

Myrdal did not discuss how much price variation determines output variation, or for the case, if there is a *natural* business cycle, he is not going into the debate whether and to what degree there is really a general, undisputed advantage in eliminating business cycles.” (ME, p. 180). In any case, he would explore if, at any rate, price stability would help in reducing output instability. In particular, he pointed out

“In what follows we shall proceed upon the *value premise* that cyclical movements should be made less severe and the *factual premise* that this requires primarily the maintenance of the conditions of monetary equilibrium” (ME, p.181)

Regarding his *factual premise*, he acknowledges that “the economic process is of so complicated a nature that a complete elimination of business cycles cannot be achieved merely by the continuous fulfilment [sic, in the original] of the monetary equilibrium conditions. Without going into the full range of... [the indifference field of monetary equilibrium] again, I would like to recall that it is quite possible for a relatively complete cycle [movements of prices, production, employment, wages....] to take place under a constantly maintained monetary equilibrium, during which, R<sub>2</sub> [investment] and W [saving, free capital] certainly would change, too, but remain equal”. [All the latter] means that maintaining monetary equilibrium does not necessarily mean eliminating business cycles” (ME, p.180-181).

“However, there is hardly a doubt that most cycles actually develop in connexion [sic] with some deviations from monetary equilibrium, and derive their large amplitude from this. Therefore, even if the business cycle cannot be completely eliminated simply by monetary equilibrium, the desire to make the cycle less severe may nevertheless justify such a policy. ” (ME, p. 181).

Here a quote that contributes to the Wicksell’s approach to business cycle:

“He [Wicksell] was not among those who wished to reduce business cycles to purely monetary phenomena, which might have been suggested by the monetary policy which he built up. The monetary and credit relations only give the cycles their acutement, as he always emphasized” (181, footnote 3).

The Myrdalian analysis is developed under the assumption of that only regulation of credit condition is available and other policies are given and for this analysis, the problem dealt before with respect to the “ineffectiveness” of credit policy is disregarded.

Because of the implications of the indifference field of monetary equilibrium that we reviewed before, again, as Myrdal wrote (ME p. 183) “The norm of monetary policy here discussed leaves room for some discrimination. This is not without political importance, since two credit situations of differing degree of ‘easiness’ in both of which the monetary equilibrium relations are in balance, would have different effects, particularly upon the distribution of income and wealth.”

Myrdal, in his analysis of monetary equilibrium a norm of stabilizing policy, disregards the indifference field issue, and look upon a monetary policy quite isolated from all other economic policies. As he wrote: “This monetary policy, the objective of which is stable monetary equilibrium, has only the regulation of credit conditions at its disposal, while all other policy is kept free of monetary considerations.” (ME, p. 187).

In this analysis, Myrdal recalled the relation  $C_1 - R_1$ , where credit conditions have direct effect upon  $C_1$ . “The monetary policy must strive, by continuously changing the terms of credit, adapt  $C_1$  to such a relation to  $R_1$ , that the general equilibrium condition,  $R_2 = W$ , will be continuously satisfied. According to our assumptions  $R_1$  is thus the variable independent of monetary policy; in other words, it is the factor which represents the changes to which the monetary policy must adapt itself by all means in its power in order to fulfil [sic] the equilibrium condition. ..The changes in the independent variable contain the result of all primary economic changes plus the results of all other economic policies besides monetary policy” (188).

According to Myrdal while “it is very probable that the majority of forces within the system of price formation which tend to increase  $R_1$ , will gather strength...the result of this will be that the monetary policy can easily imply a continuous increase of  $R_1$ , necessarily accompanied by a corresponding increase of  $C_1$ , and of course, finally, a general upward price movement, although under a continuously maintained monetary equilibrium.”(ME, 188-189). Then, there is a conflict between business stabilization and price stabilization.

Although, initial assumptions, Myrdal also considered the efficiency in fixing  $C_1$  and adapt  $R_1$  to it, such procedure might well be desired, by example, while business risks (relating to value of existing capital) would be reduced to a minimum. Here, we have to abandon the assumption of of monetary policy as isolated premise, but the rest of policy is hard to carry on by Central Bank. He also refers that “it is evident that  $C_1$  is the last price level that one should try to stabilize in a capitalist society with an organization of monetary policy of the kind just described. Stabilizing capital values would plunge the economy continually into Wicksellian process in one direction or the other as soon as  $R_1$  changed.” (ME, p. 193)

Also, according to Myrdal (ME, p. 191) there is another issue, “since  $R_1$ , as a result of many kinds of primary economic changes, is continually in motion, monetary policy cannot guarantee a constant level of  $C_1$  (or, in general, of “price levels”). The resulting consequences for the distribution of

incomes and wealth and related matters have already been noted. If these consequences appear undesirable and the Central Bank wants to prevent them, it has, as a consequence of the given institutional isolation, no other choice but *to abandon monetary equilibrium as a standard of monetary policy*. It must attempt, during the credit cycles brought on by its own policy, to maintain the stability of  $C_1$ - or another "price level"- even when this requires deviations from the relation of  $C_1$  to  $R_1$  which gives  $R_2 = W$ . At the bottom of this lies the *theoretical conflict, under the existing political and institutional circumstances, between business stabilization and price stabilization*".

In general, Myrdal considered that "Irrespective of what price level is stabilized, and because of various changes in the price system (many of which are certainly of a cyclical nature, and connected among other things with the durability of real capital), and also because of various changes in economic regulations, price stabilization cannot be attained without disturbing monetary equilibrium. The more progressive and cumulative the tendency of the Wicksellian process, the more severe will be the changes in credit conditions and price ratios necessary to prevent general price movements. Thus, the business cycle is not eliminated by this policy" (ME, p. 191).

However, according to Myrdal (ME, p. 192) the competing and contradictory objectives between price stabilization and stabilization of the business cycle must be qualified while this conflict is a matter of degree, depending on what kind of price level is stabilized.

In particular, Myrdal (ME, *ibid*) clarifies "If one desires the greatest possible diminution of the business cycle, but at the same time wants a guarantee against too great , and especially unidirectional, price movements, which naturally affect distribution most severely, then one must try to stabilize an index of those prices which are sticky in themselves. This would often lead in practice to a stabilization of wages".

It is relevant to note, interpreting Myrdal in this part of his analysis, that he used as synonymous stabilization of wages, sticky prices and what I call before the Myrdalian price index. In particular "To construct a price index whose stabilization would bring about a maximum reduction in the business cycle, one would of course have to weight the sticky prices with respect to their importance in the profitability and investment calculations of the entrepreneurs concerned. We would thus arrive at the same [Myrdalian] which we discussed in more detail..and in which the prices of various goods, or of the same good in various markets, are weighted with respect to their stickiness and according to their significance for real investment." (ME, p. 193-4)

In this context, Myrdal (ME, p. 192) points out that "Stability of the level of the sticky prices permits a certain freedom for all other price levels, including capital values. From our point of view, it is especially important that the Central Bank can adjust  $C_1$  to the changes in  $R_1$  without disturbing the index of sticky prices, until the movement of  $R_1$  itself begins to interfere with this adjustment."

In particular, "It is thus the "indeterminateness" of such a price stabilization as a norm for monetary policy in the short period which constitutes its advantage from the standpoint of business stabilization. And quite often it is only the accumulated effects of uni-directional price movements on income distribution in the long period which one actually desires to prevent, and desires to prevent sufficiently to be ready to accept an occasional deviation from monetary equilibrium and the ensuing disturbances as part of the bargain" (ME, p. 192-3).

In reference to Sweden in 1932 where the price level objective was the wholesale price index (WPI), Myrdal (EM, p.193) considered that stabilizing WPI would also plunge the economy continually into a Wicksellian process in one direction or the other as soon as  $R_1$  changed.

As conclusion, Myrdal (ME, p. 194-5) indicates that "The rule, that such a price index should be stabilized in order to obtain the maximum mitigation of the business cycle without too great a general price movement in one direction, is thus the conclusion from our two premises of fact and value. I emphasize once again, that from the standpoint of the interests of various social groups, a standard of monetary policy so formulated is not determinate in its actual content. The content is determined only when all the rest of the economic policy is determined."

It is relevant to note that this analysis allows Myrdal to offer a policy proposal for monetary policy in the Swedish economy, Spring 1932, and that has a resounding echo in our time, that is:

"A situation like the present (Spring 1932) is obviously not one of monetary equilibrium. A depressive Wicksellian process has been in progress for several years with the result that even inflexible prices are slowly falling with some lag. In order to commence such a monetary policy, one must, naturally, increase capital values and all other flexible prices to a level which restores monetary equilibrium at the existing level of sticky prices. Only by this means can the progressive fall of sticky prices, accompanied by continually deepening depression, be prevented" (ME, p. 194).

#### **V. Reasons why we should read Myrdal, as complement to Wicksell, in the foundation of monetary policy based on interest rate rules and one open question.**

In this paper, I expect to have argued that ME helps to have a robust framework where to analyze monetary policy based on interest rates rules in wider context and in a relevant especial case. While the current conventional approach only analyzes the effectiveness of those interest rates rules in a stationary state and singles out the monetary policy from the rest of economic policy, this approach is not very useful in times of economic distress like Great Depression I and the financial/banking crisis 2008-? Or taking into account the institutional facts around monetary policy.

In this way, ME contributes to some interesting insights to follow in current literature such as Myrdalian price index and advances the concept of *indifference field* which allows to explore the interrelationship between monetary policy along with the explicit and implicit economic policy. **As well as monetary equilibrium as stabilizing policies.**

As Myrdal argued in ME, while the Wicksell hypothesis –and I added most of current literature on the subject- is developed for its practical implications but not for its robust analytical foundations, ME contributes to build those fundamentals.

Even more, Myrdal in ME helps to explain that the relation between prices and interest rates, goes through equilibrium between ex post savings and planned investment, and in face of disequilibrium between them, the efficiency of monetary rules are limited.

If those are valuable contributions in the foundations and for the analysis of monetary policy based on interest rates, why these lessons have been kind of forgetting in the current literature?. I advance here a series of hypothesis:

Firstly, one of this hypothesis is related to the own limitations of the analysis. Myrdal, in this respect, the own Myrdal pointed out:

“There is not reason to hide the fact that the analysis has been more successful in discovering then in solving problems” (ME; p. 204).

In the same context, Myrdal’s work shows some simplicity as he acknowledged that “It may be admitted without hesitation that a certain journalistic superficiality during this period had a real value” (p.1).

Myrdal afterwards, in late years in his life, did not really appreciated his contribution to monetary policy, see –for instance- Myrdal (1958), as quoted in Appelqvist and Anderson (2005:21)

“Our [Swedish economists] during these years [1930-32] in early thirties, and before were engulfed in practical and political tasks, are the foundation of what doubtful claim we may have to the esteem in which the so-called Stockholm School has occasionally been held abroad. If it ever existed, now at any rate it is dispersed.”

Is relevant to note that, at that time, 1931, the political implications of ME was hotly discussed in the Swedish press, see Carlson (2011, p.45 ) “Around Christmas 1931, Myrdal published his monetary programme – in competition with Heckscher – in the book *Sveriges väg genom penningkrisen* (Sweden’s way through the monetary crisis) (1931)<sup>12</sup>. This programme was immediately denounced by *DN [Dagens Nyheter]* as “monetary bolshevism”. The argument was that Myrdal did not want to restore a stable currency but wished to subordinate monetary policy under a general policy with social ambitions. Two economists of the status of Heckscher and Myrdal had arrived at contradictory conclusions: “Professor Heckscher seeks to show the way to free trade and individual responsibility, professor Myrdal to a bolshevist planned economy.” However, a debate article in *NDA [Nya Gaglit Allehanda]* was well-disposed towards Myrdal while the “reactionary” preaching in the leading organ of Stockholm liberalism (*DN*) was rejected with reference to Keynes’s radical liberalism in Britain.

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<sup>12</sup> I have to note that I just recently realized of the existence, through the article of Carlson (2011) of the book *Sveriges väg genom penningkrisen*. Stockholm: Natur och Kultur. 1931, by Myrdal.

Other possible answer, it is offered by Jonung (Jonung (1979, footnote in p. 491), “The latter (Stockholm School) is based on a number of new concepts introduced by Ohlin. These concepts are, however, difficult or impossible to use in empirical work, because one cannot find measurable quantities for them. Thus, the theory becomes impossible to disprove or verify through empirical work.” Myrdal (ME, p. 124) also acknowledged this limitation, while he wrote “We must leave unsettled the important questions of how Wicksell’s theory may be related to reality by restating his equilibrium formulas in observable and measurable terms. We have not hidden the difficulties. However, here, I would argue that that advances in national accounting in leading and anticipation indicators have certainly advanced and they can be worked out for this purpose. Or, we may find creative ways to conceptualize *ex ante* terms. For an illustration, see de León (2010) who empirically identified concepts such as desired or warranted savings à la Harrod.

Other reason is related with the fact that while most of the national economies follow a growth pattern that can be described as one of stationary state, analysis on non stationary state seems a very special case, and it went out of the academic mainstream interest. In fact, after the publication in English, 1939<sup>13</sup>, there were reviews by Robinson, Hicks, Ellis, Lerner, Palander, between 1939 y 1941. Later, Sackle, in 1967, Hansen (1982) and after those, mentions in a couple of chapters in Dostaler (1992) by Seccareccia and Velupillai, Laidler (1999), De Aguirre (2000b), Woodford (2003), more recently Tobon (2006) y Siven (2006).

In any case, they **did not** go into the analysis of monetary policy based on interest rates, rather they emphasize the role of anticipations in price formation, the mechanics of temporary equilibrium method or in his critique on the Wicksell’s hypothesis.

In conclusion, I expect to offer a motivation for reading ME and I would recommend that it may be good for the economist to keep the Myrdalian monetary analysis in their toolbox.

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<sup>13</sup> There is an earlier review in Thomas (1936) in English from the German translation.

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