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Swedish Influences, Austrian Advances: The Contributions of the Swedish and Austrian Schools to Market Process Theory

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Abstract

In this paper we examine the history and evolution of the Austrian step-by-step analysis and the Swedish period analysis. In doing so, we highlight the similarities between the two methodologies, as well as the clear distinctions. It is our contention that, while both methodologies are similar in foundation – especially in terms of their analytical opposition to static general equilibrium analysis – the Austrians have market process analytical framework is far more comprehensive.

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I. Introduction

Market process theory finds its origins in the attempt to gain a richer understanding of how the invisible hand operates in coordinating the vast array of economic exchanges that occur on a daily basis. This is in stark contrast to general equilibrium theory, which seeks a price vector that allows all markets to simultaneously clear. As Ludwig von Mises wrote "What distinguishes the Austrian School and will lend it immortal fame is precisely the fact that it created a theory of economic action and not of economic equilibrium" (1978: 36). General equilibrium theory explains the achievement of the desired efficiency in terms of strict behavioral assumptions placed upon economic participants. In contrast, the former methodology focuses on the institutional structure that creates a unique incentive-based framework that in turn influences the behavior of actors. This behavior includes the dissemination of information which then directly influences the decisions and actions of agents in coordinating their activities and hence in improving the overall efficiency of the economic system. The Austrian School was certainly not the only economists who focused attention on the market process rather than the equilibrium state. The Swedish

school of economic made significant contributions to the development of a theory of the economic process as well. The Swedish and Austrian schools, while surely not the only contributors to market process theory, have made distinct contributions to the development of this methodology. These contributions have established market process theory as a distinct and robust explanation of economic activity.[1]

On January 27, 1941 Ludwig von Mises wrote a brief letter to F.A. Hayek. At the end of the letter, he commented on the American Economic Association meetings in New Orleans that he had just attended. In Mises' opinion, the most important theoretical paper at the conference was presented by Arthur Marget on Swedish period analysis, which Mises viewed as a new name for the Austrian step-by-step analysis. Both methodologies offered a distinct alternative to the standard method of static equilibrium analysis.[2]

In this paper, we will examine the history and evolution of the Austrian step-by-step analysis and the Swedish period analysis. In doing so, we will highlight the similarities between the two methodologies, as well as the clear distinctions. It is our contention that, while both methodologies are similar in foundation – especially in terms of their analytical opposition to static general equilibrium analysis – the Austrians have market process analytical framework is far more comprehensive.

Part II traces the historical evolution of the Austrian step-by-step analysis. Part II focuses on the development of the Swedish period analysis. In both of these discussions the connections between the development of the two methodologies will be highlighted.

[1] Boettke and Prychitko, eds. (1998a; 1998b) provide 2 volumes of selected readings in the development of market process theory from the classical school to neoclassicalism to modern heterodoxy. The major omission in this collection is a set of selections from the non-Ricardian British economists who argued for a science of catallaxy, e.g., Whatley.

[2] Letter from Ludwig von Mises to F.A. Hayek, January 27, 1941. From the Hayek Archives at the Hoover Institution on War, Revolution and Peace, Box #38, Folder 24.

Part IV examines the work of the modern Austrians and their role in further developing the Austrian theory of the market process. Part V summarizes and concludes.

II. Austrian Step-by-Step Analysis

Before providing a historical overview of the development of market process theory and, more specifically, step-by-step analysis in the Austrian school, we will first clarify what this methodology entails. Market process theories focus on the adjustments of the market economy to changing circumstances. Step-by-step analysis emphasizes the continually changing parameters of the dynamic economy over time and the subsequent impact on the movement of the economy toward equilibrium. This is in contrast to static general equilibrium models which frame economic analysis in terms of a state of general long-run equilibrium. Ludwig von Mises characterized this methodology when discussing his *The Theory of Money and Credit*:

> On all its pages I used the 'step-by-step' method which is allegedly being rediscovered today [1940] as 'period analysis' or 'process analysis'. It is the only permissible method, which renders superfluous the argument between short-run and long-run economics. It also makes the distinction between statics and dynamics an idle question…
> The step-by step analysis must consider the lapse of time. In such an analysis the time-lag between cause and effect becomes a multitude of time differences between single successive consequences... (1978: 57-9).

This analytical methodology offers a unique alternative to static analysis since it allows the economist to study the cause and effect of economic happenings as they work their way through the economy.[3] We now turn to a discussion of the development of the

[3] In the context of Mises's use of the 'step-by-step' method of analysis he also developed his theory of the non-neutrality of money. Previous Austrian theorists, such as Böhm-Bawerk, developed their theory of market economy with the assumption of the neutrality of money. In other words, the theory of the market process they developed was built on the imaginary construction of a direct exchange economy. Mises showed that this theory was incomplete. Mises in 1912, well before Keynes's call for such a theory, had developed a monetary theory of exchange and production, and demonstrated that the older, and mechanical, interpretations of the quantity theory of money were untenable. Mises offered a reinterpretation of the

Austrian method of market process analysis in the historical context of the interwar period.

The beginning of the interwar period (1919 - 1939) was a time of transition for the Austrian school. Eugene Böhm-Bawerk had died in 1914 and Carl Menger (who died in 1921) had retired from his university professorship. Friedrich von Weiser was the only major pre-war Austrian still teaching after the war. At the same time, a younger generation of economists, namely Ludwig von Mises and Hans Mayer, were ready to carry on the Austrian research program. Mayer assumed Weiser's chair at the University of Vienna upon his retirement. While Mises was never named to a chair, perhaps his greatest intellectual influence on the Austrian school at the time was his bi-weekly *Privatseminar*. As F.A Hayek, one of the participants recounts: "…during the final years of the Austrian school in Austria, it was the center not only for the Austrian School itself but attracted students from all over the world…(1994: 71-2). The seminar included several participants who later went on to international recognition in their respective fields including Hayek, Gottfried Haberler, Alfred Schütz and Erich Voeglin. Machlup best characterized the conceptual understanding of the Austrian school during this time period as: (1.) methodological individualism, (2.) methodological subjectivism, (3.) the importance of tastes and preferences, (4.) the importance of the concept of opportunity cost, (5.) marginalism and (6.) the time structure of production (Kirzner, 1994a: x). It is

quantity theory of money. Mises's major contribution in *The Theory of Money and Credit* was to demonstrate, through the use of step-by-step analysis, that changes in the purchasing power of money cause prices of different commodities to change unevenly and different times, and thus that it is incorrect to maintain that changes in the quantity of money bring about simultaneous and proportional changes in the price level. This emphasis on the raged adjustment process (Cantillon effects) as increases in the money supply works its way through an economy via relative price adjustments set the stage for his development of the Austrian theory of the trade cycle as well. We will discuss this contribution more in the text, but it is useful to point out that Mises never accepted the label the Austrian theory of the cycle and instead was

in these foundational tenets that we see the basis of the Austrian notion of market process. As Kirzner writes:

> In the fullness of time, this would generate an expansion in Machlup's 'Austrian list' so as to incorporate, especially, explicit attention to the importance of (disequilibrium) *process* set in motion by entrepreneurial *discovery* in a world of *open-ended ignorance* and *uncertainty* (1994a: x, italics original).

This quote shows what was in store for the future of the Austrian school. The foundational tenets of the Austrian program were in place and it was only a matter of time and research before the Austrian analytical framework was fully developed.

If Machlup's list characterized the doctrinal foundations of the Austrian school, it is in the early work of Mayer that we first see the application of the notion of market process analysis. In his article "The Cognitive Value of Functional Theories of Price: Critical and Positive Investigations Concerning the Price Problem" (1932), in addition to juxtaposing the market process with general equilibrium analysis, Mayer was the first author who recognized the importance of time in value theory. Further, he was the first to introduce the plans of individual agents into economic theory (see Morgenstern [1935]). Oscar Morgenstern further developed on the foundational contributions of Mayer. In addition to clarifying and extending the role of time in the economic process, Morgenstern also made the connection between the dynamics of the economy and the role of the entrepreneur (1935).

While Machlup, Mayer and Morgenstern clearly understood the importance of market process in economic analysis, it was Mises and Hayek who later put forth a mature rendering of the Austrian market process analysis. As the quote from Mises at the beginning of this section indicates, he employed the period analysis methodology in his

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quick to point out the contributions of the British Currency School and the Swede Knut Wicksell that he drew upon in developing a monetary theory of trade cycle (see Mises 1983).

The Theory of Money and Credit (1912).[4] In doing so, Mises analyzed the very broad macro-economic topic of money and general prices. At the time, monetary theory was analyzed at the macro level of aggregates completely separated from individual choice. Mises, ahead of his time, integrated micro- and macro-economic theory in developing his analysis of money, the regression theorem and the widespread affects of inflation and its role in the business cycle. This innovative business cycle analysis would become the foundation for Hayek's later work.[5] Mises' *Human Action*, which was released on September 14, 1949, was without a doubt his greatest work. The comprehensive treatise was grounded in the methodology of praxeology that Mises himself had developed. In covering a plethora of topics, Mises skillfully applied and developed the step-by-step methodology to the economics of time, uncertainty, economic calculations, the market economy, the process of price formation, interest, time preference, credit expansion, the trade cycle as well as many other topics. In this way, Mises expanded on the work of Mayer and Morgenstern in incorporating the dynamic element of the economic process into the Austrian analytical framework.

F.A. Hayek was also a key contributor the development of the Austrian market process methodological framework. In 1931, Hayek accepted a professorship at the London School of Economics and published his *Prices and Production*. This work, in addition to his *Profits, Interest and Investment: And Other Essays on the Theory of Industrial Fluctuations* in 1939 further developed Mises' business cycle theory. In addition to Mises' work, Hayek also drew on Knut Wicksell's theory of the "cumulative

[4] The first edition was published in German in 1912 as *Theori des Gledes und der Umlaufsmittel*. The first English translation was in 1934.
[5] Mises founded the Institute for Business Cycle Research in 1927 and installed Hayek in the position of director.

process" of inflation and the Continental tradition of multi-sector overinvestment in developing his theory of business cycle (more will be said about the influence of Wicksell in the next section).

In addition to his work on the business cycle, Hayek's 1937 essay, "Economics and Knowledge" was a critical addition to market process theory.[6] Hayek's major contribution was the development of a new framework for further market process analysis (Boettke and Prychitko, 1998a). His contention was that equilibrium was achieved when the plans of market participants were coordinated with one another. This coordination is the result of the process of mutual learning by all parties involved. This was in stark contrast to neoclassical price theory where the utility maximizing behavior of consumers is perfectly coordinated with the profit-maximizing behavior of firms (producers) so that an efficient product-mix is achieved. This theme continued in his later essay, "The Meaning of Competition", where Hayek focused on competition, not as an end state of equilibrium, but rather as an activity which directs the economy on the path toward equilibrium (Hayek 1946). Hayek's framework, further developed by Israel Kirzner led the Austrian market process theory to focus on the discovery function of the competitive market. Kirzner's contributions will be further discussed below.

While the initial foundations of the Austrian market process theory and step-by-step analysis can be traced to the 1930's, the complete rendering of this methodology was developed by Ludwig von Mises and F.A. Hayek. Both authors incorporated this methodology into their analytical frameworks and applied it to a wide range of macro issues, that focusing on the dynamic aspects of the economy which had been generally

[6] Many consider this essay to represent Hayek's break with his mentor, Mises. Hayek himself was nervous showing the paper to Mises, see Hayek, 1994: 72.

neglected by the economics profession. Earlier, we noted that Hayek had incorporated the work of Wicksell, a member of the Swedish, into his development of Mises' business cycle theory. There was clearly some overlap and connection between the step-by-step methodology of the Austrians and the period analysis of the Swedes. We next turn to a deeper consideration of the Swedish methodology.

III. The Contribution of the Swedish School: Period Analysis

The interest of English-speaking economists in the economic theory developed in Sweden after Wicksell's death peaked with the publication of Bertil Ohlin's 1937 articles in the *Economic Journal*. In these papers, Ohlin first mentioned the existence of a Stockholm (i.e., Swedish) school and also was the first to coin the phrase "process analysis". Before considering specific contributions to the Swedish school, it will be beneficial to highlight the underlying tenets of the Swedish period analysis.

The main idea of Swedish period analysis is that the plans of economic agents are the basis of economic behavior. All actions are directed to fulfilling those plans. As time passes and actions are undertaken, plans will be revised as necessary. Further, it is realized that plans will often be interrupted as expected occurrences fail to come to fruition. Expectations play a key role for the Swedes as they represent the crucial connection between past experiences and future plans. Period analysis can be thought of in two distinct but interrelated parts. Initially, the analysis focuses on a single period and more specifically, how *ex-ante* plans at the beginning of the period lead to *ex post* results at the end of the period. The second part of the analysis focuses on connection between the results of the prior period with the *ex ante* formulation of plans in the next period. Ohlin characterizes what he calls process analysis (i.e., period analysis) as a

> combination of *ex-post* and *ex-ante* analysis…after a description of actual events during a certain, finished period, and of the differences between these events and the expectations which existed at the beginning if the period, follows an account of those expectations for the future which…govern actions during the next period (1937a: 127).

The Swedes applied this two-part period analysis in a number of different ways including applications to static or stationary scenarios, intertemporal equilibrium, temporary equilibrium and disequilibrium (Hansson, 1991).

A static economic scenario is one in which the factors of the model or situation remain constant. Period analysis can be applied here in the context that the results in period X-1 lead to plans in the current period X that yield the same *ex post* results as in period X-1. While there is no direct reference to plans in determining equilibrium – plans are assumed to be fulfilled as expected *ex ante* – plans are important in explaining variances around the equilibrium level.

Intertemporal and temporary equilibrium analyses differ in structure but are related in purpose. The former involves a series of periods each of which differs from the others but where the outcomes of each period are known. The latter is structured so that only one single period is a pre-determined equilibrium while there is no guarantee that subsequent periods will be in equilibrium. The notion of plan is limited in intertemporal analysis since the outcome of future periods is pre-determined. However, it does allow for an analysis of plan coordination since the end result is known. That is, it allows for a consideration of whether plans in fact dovetail or if agents are met with disappointment. Temporary equilibrium allows the analyst to focus on how the plans of agents interact either to keep the economy at or around the initial equilibrium level or, how the lack of coordination steers the economy away from its initial equilibrium position.

A situation of disequilibrium is one in which the economic system begins at a position which is different from its equilibrium level. This type of analysis provides the closest approximation to the actual operations of the economy. It allows for the formulation of plans in a situation of uncertainty followed by the process through which the plans either dovetail with those of others or fail to do so. It provides the analyst with insight into the formulation of plans, the actions undertaken given those plans and the subsequent revision as new information is learned.

Writing in the late 19th century, Knut Wicksell made several important contributions to the dynamic analysis of the economy. Perhaps his greatest contribution was in the field of monetary theory. He developed the aggregate demand-supply or savings-investment approach to monetary phenomena. Incorporated in this analysis was an explanation of how the value of money impacted individual consumption expenditure and savings, as well as the production decisions of entrepreneurs. Wicksell's monetary theory had a large impact on the founders of the Swedish school.[7] Carl Uhr argues that while the Swedish school was founded by Lindahl and developed by Myrdal, Ohlin and Lundberg, among others, it was built on the "heritage of monetary doctrine which came to light in the protracted Wicksell-Davidson polemic over monetary policy norms and related matters" (1960:255). Axel Leijonhufvud (1981) contends that both the Swedes and the Austrians descend from what he refers to as the "Wicksell Connection". He maintains that both schools built on Wicksell's theme of savings and investment and the implications of a failure of the (real) interest rate, which equates the supply and demand for securities, to equate savings and investment.

[7] The impact of Wicksell's theory of Savings and Investment on the Swedes can also be seen in Ohlin 1937a & 1937b.

In his *Studies in the Theory of Money and Capital* (1939), Erik Lindahl not only recognized the critical role that plans played in the individual actions of economic agents, but attempted to put forth a notion of what a plan involved. Included in his rendering is the "prognoses of future developments" (40), ranking and choosing between the alternatives available (42), the realization of the interconnectedness between the present and future actions that are part of the plan, and the realization of a "degree of definiteness" that allows for the modification of plans as circumstances change (45). Lindahl's notion of plan clearly illustrates that he realized the importance of market process analysis in viewing and studying the economy as a dynamic process that changes over time. Further, he realized that individual agents, in carrying out their plans, deal with general uncertainty in bringing their plans to fruition.

The work of Wicksell and Lindahl was furthered by Eric Lundberg, Gunnar Mydral and Arthur Marget. Lundberg (1937) attempted to consider an economic system during a period of expansion and in doing so focused on the economic process and the impact of the expansion on that process. His analysis assumes that savings, consumption and production all increase at a certain rate and then asks whether, given expansion, this growth will continue in "some sort of dynamic equilibrium, or whether discrepancies must automatically come into being within the system itself…"(1973:180). Mydral (1939) built on the work of Wicksell and Lindahl in further developing their analysis of monetary equilibrium. He recognized the role of uncertainty and market process and warned of the danger of starting one's analysis from a stationary state of equilibrium. According to Mydral, the assumption of a stationary starting point avoids the theoretical problems and fails to solve them. A true theory of monetary phenomena focuses not just

on a stationary equilibrium but on how the relevant relationships look under non-stationary conditions (1937: 39-40). Further, he noted the importance of realizing the role of *ex post* and *ex ante* calculations across time periods. Finally, Marget (1942) presented a taxonomy of process theories as well as analytical distinctions regarding time and expectations.[8]

IV. Modern Austrians and the Development of Market Process Theory

It is our contention that both the Austrians and Swedes understood the importance of market process theory and accordingly developed an analytical framework which incorporated this understanding. However, while the Swedish school was absorbed into the Keynesian framework, the Austrian research program continued to develop the step-by-step methodology. As a result, we argue that the modern Austrians further developed their market process theory by building on the research paradigm of Mises and Hayek.

While not the focus of his work, Murray Rothbard, following in the footsteps of his mentor Mises, clearly understood the importance of the market process. In his treatise, *Man, Economy and State*, Rothbard employs the analogy of a mechanical rabbit (equilibrium) being chased by a dog (the market process) (1962: 275-6). Due to changing data – values, technology, knowledge, resources, etc. the economy could never reach a final state of equilibrium but would constantly tend toward it. And, while final equilibrium was the final goal to which the economy strives, it is never attainable given the dynamic data which characterizes all economic activity.

[8] John Egger (1985) argues that Marget was in close agreement with the Austrian school of Menger but disagreed with many of his followers. More specifically, Marget rejected the efforts of Menger's followers to use non-monetary general equilibrium constructs to explain the impact of monetary changes on the production process.

Ludwig Lachmann built on the market process theory of Mises and Hayek, both in terms of the ever changing information and knowledge that economic actors possess, and also in his work on capital theory. Lachmann emphasized the role of *radical ignorance* in the market process. That is, while agents have knowledge of the past and present, they face, to large extent, uncertainty of the future. There is a connection that can be made here between Erik Lindahl's notion of plan discussed above and Lachmann's work on the notion of plan. Like Lindahl, Lachmann recognized that individual plans would consist of past experiences, expectations about the future, and an element of flexibility to deal with the uncertainty of the future. That is, agents would need to adjust their plans as they discovered new information and knowledge.

In his *Capital and its Structure* (1956), Lachmann, building on the work of Hayek, clearly recognizes the role of the market process in capital markets. For Lachmann, the market processes of exchange and resource allocation reflect the transmission of knowledge which guides resources (capital) to their most economic uses (28-9). The capital market, grounded on the market price mechanism serves to allocate scarce capital amongst competing projects. Additionally, the profit and loss system will minimize the inefficient use of resources and maximize resource use in the most economic manner known to agents.

Israel Kirzner is the modern Austrian most responsible for furthering the Austrian market process theory. Hayek and Kirzner's writings overlapped in the 1960's and 1970's and, as mentioned above, focused on the emphasis of discovery in competitive markets. Kirzner's insight is that the competitive process provides the incentive of pure profit which compels participants to learn how to use knowledge and production

processes to their maximum capacity. In the series of books, *Competition and Entrepreneurship* (1973); *Perception, Opportunity, and Profit* (1979); and *Discovery and the Capitalist Process* (1985), Kirzner rigorously developed the Austrian market process theory, specifically in the context of the role of the entrepreneur.

The basis of Kirzner's analysis is that the market process is driven by the profit and loss mechanism (a point originally made by Mises in 1951). In the dynamic world in which they operate, entrepreneurs confront an array of technologically feasible production projects. Economic calculation provides the means through which the projects are selected and assures that resources are utilized in an economic manner. As a result of profit and loss accounting, errors will be quickly corrected and as a result, waste will be minimized. In this context, entrepreneurial activity is linked to consumer preferences and tastes as well as the endowment of resources and technological possibilities. Profits are realized only in those instances where resources and technological possibilities are arranged in such a manner that consumer wants are satisfied in the most economical fashion. Further, as consumer preferences and tastes continually change over time, the entrepreneur must continue to introduce new products via new combinations of resource and production possibilities to meet the new wants of the consumer. In doing so, if losses are incurred, resources will be reallocated to different and more economic efforts.

A key foundation of Kirzner's market process theory is that the underlying variables, including tastes, technology, resource endowment, and the induced variables of profit and loss accounting are "demonstrated to be one of a lag but determined order" (Boettke and Prychitko, 1998a). That is, given the dynamics of the economy, the

underlying variables, at any one point in time, are not perfectly aligned. The market discovery process provides the mechanism, through which the induced variables move in the same direction as the underlying variables. Overall, Kirzner's contribution to market process theory provides the missing link to the neoclassical theory. Given the institutional framework of private property and low barriers to entry, the process of entrepreneurship will lead to a pattern of production and exchange which guides the economy toward a state of equilibrium. The missing link that Kirzner provided was an understanding of the disequilibrium foundations of the economy as well as the path from disequilibrium to a state of equilibrium.

V. Conclusion

Both the Austrian and Swedish schools realized and made significant contributions to market process theory. As discussed, both were influenced by the earlier work of Knut Wicksell. Further, Mises and Hayek for the Austrians and Lindahl for the Swedes incorporated their understanding of the dynamic economy into their general analytical framework. The development of market process theory on the part of each school of thought stood in stark contrast to the widely accepted mainstream general equilibrium framework.

However, the influence of the Swedish school, as a distinct school of thought, culminated around 1937-8. Many of the Swedish contributions were absorbed into the Keynesian framework. The modern Austrians on the other hand further developed the early market process methodology put forth by Mises and Hayek. The market process and more specifically the step-by-step methodology was at the center of the work of

Rothbard, Lachmann and especially Kirzner. Further, the focus on the dynamic market process continues to be a central tenet of the Austrian research paradigm. Both the Swedish and Austrian schools of thought realized the importance of market process theory as being critical to their research programs. While both originally based their methodological framework on such realizations, it is the modern Austrians who have, and continue to, focus on developing their market process analytical framework in response the failings of the general equilibrium model to yield a realistic analysis of the operations of the market economy.

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