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Fu-Lai Tony Yu
Gary Moon-Cheung Shiu

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Department of Economics and Finance
Hong Kong Shue Yan University

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Please address any comments and further inquiries to:
Dr. Wai-Kee Thomas Yuen
Working Paper Series Coordinator
Department of Economics and Finance
Hong Kong Shue Yan University
10 Wai Tsui Crescent
Braemar Hill Road
North Point
Hong Kong
Fax: 2806-8044
Tel: 2806-5179 (Mr. Ken Tsui)
Email: wkyuen@hksyu.edu

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Fu-Lai Tony Yu
Professor, Department of Economics and Finance
Hong Kong Shue Yan University
North Point, Hong Kong
Email: flyu@hksyu.edu
and
Gary Moon-Cheung Shiu
Honorary Research Fellow
Hong Kong Institute of Asia-Pacific Studies
The Chinese University of Hong Kong
Shatin, Hong Kong

Abstract

This paper looks at the Austrian School of Economics from the subjectivist perspective. It begins by reviewing the major architects in the Austrian School, Carl Menger, Ludwig von Mises, Friedrich A. Hayek, Murray N. Rothbard, Ludwig M. Lachmann and Isaac M. Kirzner. The paper then elucidates the major tenets of the Austrian School of Economics, namely methodological subjectivism and interpretative economics; entrepreneurship, knowledge and coordination problems in the market process; central planning and Austrian business cycle. It highlights the agreements with public choice school, new institutional economics, evolutionary economics, feminist economics and disagreements with the Marxist economics, neo-Ricardian school and orthodox neoclassical paradigm. It also clarifies similarities and differences between the Chicago School and Austrian School of Economics. The paper ends with further suggestions on the Austrian subjectivist approach to economic problems by using two illustrations of recent international events, Financial Crisis in 2007 and nuclear meltdown in Japan.

Keywords: Austrian school of economics; subjectivism; knowledge and coordination problems; entrepreneurship; the market process; central planning; business cycle; Financial Crisis 2007; climate change

Major Architects of the Austrian School of Economics

The Austrian School of Economics is said to be officially formed in 1871 with the publication of Carl Menger's *Grundsätze (Principle of Economics)*. Menger views economics as a science dealing with human agency. He believes that "man himself is the beginning and the end of every economy" (Menger 1892:8; also see Salerno 1999:82). For Menger, economics is a study of human action regarding means and ends, and "our science is the theory of a human being's ability to deal with his wants."[1] (Yagi 1993:721; Salerno 1999:81). In his *Principles of Economics*, Menger (1871/2007: 51) claims that "all things are subject to the law of cause and effect. This great principle knows no exception". Therefore, Menger (1871/2007: 49) devoted special attention to

> the investigation of the causal connections between economic phenomena involving products and the corresponding agents of production, not only for the purpose of establishing a price theory based upon reality and placing all price phenomena… together under one unified point of view, but also because of the important insights we thereby gain into many other economic processes heretofore completely misunderstood. This is the very branch of our science, moreover, in which the events of economic life most distinctly appear to obey regular laws.

Furthermore, Menger departs from the Classical School's labor or cost of production theory of value and created his own version of subjective theory of value. As Menger (1871/2007:120-121) argues, "the value of goods is therefore nothing arbitrary, but always the necessary consequence of human knowledge that the maintenance of life, of well-being, or of some ever so insignificant part of them, depends upon control of a good or a quantity of goods. Regarding this knowledge, however, men can be in error about the value of goods just as they can be in error with respect to all other objects of human knowledge...it is a judgment made by economizing individuals about the importance their command of the things has for the maintenance of their lives and well-being." Hence, for the first time in economics, we understand human action in terms of time, uncertainty, error, knowledge and judgment. Such elements constitute what we now call Mengerian economics.

Eugen von Boehm-Bawerk and Friedrich von Wieser are two disciples of Menger who have made significant contribution to the theories of capital and subjective costs respectively. However, both Boehm-Bawerk and Wieser have not

[1] Text is originally in German: "Unsere Wissenschaft ist die Lehre der Fihigkeit des Menschen betr. ihre Bedurfnisse. (Yagi 1993: 721).

extended Mengerian method of subjectivism. It was left to Ludwig von Mises who single-handedly restores economics as a study of human action which is known as Praxeology and further extended the subjectivist method in economics. Mises directly imported Max Weber's method into his seminal work *Human Action: A Treatise on Economics* (1949). He explains the theory of human action with respect to time and uncertainty. The aim of human action, according to Mises (1949/1996:100),

> is always to render future conditions more satisfactory than they would be without the interference of action. The uneasiness that impels a man to act is caused by a dissatisfaction with expected future conditions as they would probably develop if nothing were done to alter them. In any case action can influence only the future, never the present that with every infinitesimal fraction of a second sinks down into the past. Man becomes conscious of time when he plans to convert a less satisfactory present state into a more satisfactory future state.

Since the future is inherently uncertain, we need to act. As Mises (1949/1996:105) argues "If man knew the future, he would not have to choose and would not act.". Furthermore, "action always aims at the removal of future uneasiness…. Between the setting in of action and the attainment of the end sought there always elapses a fraction of time, viz., the maturing time in which the seed sown by the action grows to maturity" (Mises 1949/1996:479).

Rothbard (1988:4) rightly concludes that "in addition to providing this comprehensive and integrated economic theory, *Human Action* defended sound, Austrian economics against all its methodological opponents, against historicists, positivists, and neo-classical practitioners of mathematical economics and econometrics. He also updated his critique of socialism and interventionism".

After Mises, the Austrian thought splits into two camps: neoclassical Austrians and radical subjectivist Austrians (Caldwell 1988:530, note 17). The former camp has Friedrich A. Hayek and Israel M. Kirzner as its intellectual leaders while the latter was championed by Ludwig M. Lachmann and Murray Rothbard.

Upon Lionel Robbins' invitation to teach at the London School of Economics in 1931, Friedrich Hayek was provided an opportunity to introduce Austrian teachings to audience in the Anglo-American world. Hayek argues that all economic problems could be reduced to the problem of how dispersed knowledge in society gets effectively mobilized and utilized in order to enable coordination among actions of

multitude of individuals in society.[2] However, Hayek's effort to promote Austrian economics suffered a setback as J.M. Keynes' view on macro-economic demand management took the world by storm during the economic slump in late 1930s.

Following Mises, Israel Kirzner (1973) has built his concept of entrepreneurship upon the foundation of Mises' human action theory. The basic concept in Kirzner's theory of entrepreneurship is alertness. The role of entrepreneurs lies in their alertness to hitherto unnoticed opportunities. Due to knowledge problems, the economy is always in disequilibrium. With the economy in a state of constant flux, one necessary consequence is that profit opportunities abound in the economy awaiting to be unlocked. Motivated by profits, entrepreneurs eliminate errors through artbitrageurship and better coordination among individual actions follows as a by product. As a result, the economy moves towards equilibrium. Although Hayek (1947) and Kirzner (1997) explicitly argued that economic analysis should focus on disequilibrium rather than equilibrium, they refused to take a radical step of giving up the theoretical construct of equilibrium in their analysis, as Ludwig Lachmann and Murray Rothbard (see below) did. Therefore, both Hayek and Kirzner are branded by Bruce Caldwell as Neoclassical Austrians.

Ludwig Lachmann was a student and colleague of Friedrich Hayek at the London School of Economics in the 1930s. Three major contributions to Austrian economics made by Lachmann can be identified: (1) interpretation as an economic method, (2) expectation, plan and capital structure and (3) social institutions. Firstly, Lachmann is a strong advocate of Max Weber's interpretive method in social science. He proposes that we should view economic events as texts which need to be 'read'. In Lachmann's words (1970:18),

> In interpreting a text, what essentially we are trying to do is to identify a 'meaning', an idea, to which the text in question is designed to give expression. In other words, interpretation is a method of comparative study by means of which we are attempting to establish a relation between an observable event (a readable text) and an idea which existed in a human mind prior to the writing of the text, and to which the latter is designed to lend expression.

Secondly, Lachmann offers us a heterogeneous theory of capital structure. In Lachmann's view (1956), the capital structure can only be understood in terms of individual expectation and plan. A production plan involves a combination of capital goods and labor resources for the production of an output. These capital goods are

[2] Further discussion of the knowledge problem can be found in the later part of the paper.

complementary to each other and have to be compatible with each other within a production plan. Furthermore, each plan has to be seen as part of an overall plan that is defined by entrepreneurs' knowledge and expectations. Profit and loss govern the feasibility of the plan in the market process (Lewin 1994). Unexpected changes prompt the entrepreneurs to shift plans and reshuffle capital resources rendered necessary by the plan shift. Lachmann's theory of capital depicts a dynamic process of entrepreneurial interpretation and adjustment of an ever-changing external environment.

Thirdly, Lachmann (1970) regards social institutions as shared sets of rules and conventions for individual actors to follow. They are like signposts which guide human agents to orient their plans and actions. These signposts allow actors to predict the actions and plans of others to some degree. As a result, institutions reduce uncertainty and hence, economic activities of individuals in an economy can be better coordinated with institutions than without.

Murray Rothbard strictly follows the teaching of Mises. Rothbard makes three major contributions to Austrian economics (Hoppe 1999: 223-241). First, Rothbard is an outspoken critic of historicism, empiricism, positivism, falsificationism, and skepticism. He defends Mises' view that economic laws are aprioristic. Second, Rothbard is the most comprehensive system-builder within the Austrian school of economics. His book *Man, Economy and State* can be regarded as a textbook version of Mises' *Human Action* (Gordon 2007). Third, Rothbard is a great supporter of laissez-faire and in defence of capitalism. In addition to Hoppe's suggestions, it is also worthwhile to mention that Rothbard's collection of Frank Fetter's essays entitled *Capital, Interest, and Rent*: *Essays in the Theory of Distribution* rekindles interest in the subjective time preference theory of interest rate determination. Major figures of the Austrian School of Economics are listed in Figure 1.[3]

Key Tenets of Austrian Economics

Methodological subjectivism

Following Menger, Austrian economics deals with human agents. Human experience is the sole foundation of factual knowledge. Austrian economists do not

[3] For those readers who want to consult further on the Austrian School of economics, Rothbard (1962) is generally recognized as a classic restatement of Mises' seminal work, *Human Action: A Treatise of Economics* (1949/1966). For comprehensive works on the history of Austrian economics, see Oakly (1997; 1999). Ludwig von Mises Institute, affiliated with Auburn University, holds annual "Austrian Scholar Conference" which is regarded as a pilgrim for Austrian economists.

deny objective facts (O'Driscoll and Rizzo 1985:30). However, all objective facts have to be interpreted and classified by the human mind. Therefore, there is no objective standard of value. All values are subjective, e.g. price and cost are subjective in terms of what people perceive them to be. Putting it in other way, Austrian economists examine human action and economic phenomena from the "first person perspective" (Addleson 1995). Hence, firms and organizations in economics should be the same as firms and organizations in everyday life. Producers and consumers in economics should be the same as business people and households in the real world. Understanding economic phenomena is an interpretive act.

Economics as an interpretative science

Austrian economists including Mises (1949); Rothbard (1962), Lachmann (1970) and O'Driscoll and Rizzo (1985) use the method of Verstehen introduced by Max Weber. Verstehen means interpretive or subjective understanding. Max Weber (1947/1964:115-119) and Alfred Schutz (1967:3-20), a sociologist influenced by the Austrian teachings, argue that human action has meaning attached to it as people make sense out of their everyday life. Making sense of the external world means interpretation (Weick 1995:13-14). Interpretation and understanding help bring about economic coordination as they facilitate market participants to attain a certain degree of mutual understanding of each other's actions and plans. A stock of knowledge for each individual is gradually built up through accumulation of experiences from everyday life. At any given point of time, therefore, human agents find themselves endowed with a stock of knowledge at hand which would serve them as a scheme for interpreting their past and present experiences, and would thereby allow them to formulate expectations with regard to unfolding events (Schutz 1970:74). Our knowledge grows in tandem with experience. Experiences enter individual's consciousness via learning in everyday life, such as daily contact with parents, face-to-face interaction with friends and neighborhood, watching television, movies and so on. These live experiences are then typified and crystallized into routines or rules of thumb which can then be used as a problem-solving technique for human agents in their everyday life.

Economic problems as knowledge and coordination problems

The economic problem confronting our societies, inspired by the work of Lord Robbins, is usually defined in introductory economics textbooks as one of how best to allocate limited means to satisfy unlimited wants.

Defining the economic problem this way is problematic. Austrian economists, most notably Hayek (1945), we can point out two serious flaws with this

characterization of the economic problem. The first flaw is that such characterization commits the fallacy of composition. While it is sensible to talk about how an individual contemplates to utilize the means within his disposal to satisfy his wants the best he can, it is wrong to think that a social planner exists who will do the same calculus for the society as whole. The second flaw relates to the first. By imagining the presence of an omniscient planner whose job is to find ways to satisfy a given hierarchy of ends with known resources, one assumes away the knowledge problem which Austrian economists conceive as the real problem societies face.

To Austrian economists, knowledge about means and ends is dispersed among each and every member of society. Under such circumstances, each individual when planning his actions would have to incorporate expectations of what others plan to do for successful implementation of his plan. The economic problem, for the Austrian School, is then a matter of how best to coordinate the multitude of individual plans.

It is with this knowledge problem in mind that Austrian economists consider the market to be the most effective means humans have stumbled upon through history to address the problem compared with alternative institutional arrangements like central planning. Prices in a market system perform two functions which help coordinate individual plans. The first function is best illustrated from an example Hayek uses in his classic paper on dispersed knowledge (Hayek 1945). Imagine that a source of supply of tin is exhausted or suddenly men find a new way to use tin, the prices of tin will increase as a result. There is no need for the users of tin to figure out which is the real reason behind the rise of tin prices. All they need to do is to conserve on their use of tin. The prices of tin serve a signal communicating to the users of tin that the material has become relatively less available without the need for them to know exactly why that is the case. The prices thus also economize on the knowledge individuals have to possess (i.e., they do not need to find out themselves what new use of tin has been discovered or exactly how many tons of tin have been used up) before they could formulate plans that are consistent with those of the others in response to the arrival of new knowledge which disturbs the original equilibrium.

In the example above, the prices of tin are assumed to accurately reflect the relative scarcity of tin in each and every moment in time. Prices are presumed to adjust automatically subsequent to changes in demand and/or supply conditions.

The above portrait of the market order is incomplete. Someone has to bring about the needed changes in the prices of good or services for them to be an accurate reflection of the underlying demand and/or supply conditions. That role is fulfilled by entrepreneurs (Kirzner 1973). Suppose apples are sold at different prices in two nearby markets just blocks away. The price for an apple in market A is 10 dollars while the same apple sold for 5 dollars in market B. The price differential indicates

that the underlying market conditions in the two places are not accurately reflected in apple prices. Suppose some apple lovers in market A are left without apples because they are willing to pay 7 dollars for an apple at the maximum, a valuation higher than the marginal customer places on the same apple in market B. But prices will not change automatically so that the underlying market reality can be more accurately embodied in them. They would need to be changed. Who is going to do the job?

The price differential in the example above embeds an opportunity for someone alert enough to notice it to make a profit. An entrepreneur can buy apples at 5 dollars in market B and resell them at higher prices in market A for a profit. The opportunity for such profitable arbitrage would be exhausted when the price differential is eliminated. How can we be so sure that someone is going to do the job? The answer is profit. By buying apples from market B and resell them in market A, the entrepreneur would be able to pocket the price difference for apples. So long as current prices do not accurately reflect the underlying market conditions, systematic forces exist for them to align with those conditions as a by-product of entrepreneurial activities in pursuit of profits. The second function of price is therefore to provide an incentive for entrepreneurs to bring about the changes needed for price to accurately reflect underlying market condition.

Impossibility of central planning

One of the paramount problems which would beset the planning bureaucracy of a centrally directed economy, according to the Austrians, is that of the calculation problem. As the calculation problem was the first topic of debate in the 1920s among those economists who believe in the feasibility of socialism and the Austrians, it is worthwhile to rehearse the main thrust of that debate as well as its significance in the history of the development of economic ideas.

What is the calculation problem? In a competitive market economy, the prices of goods and services do not simply reflect the evaluations consumers place on them at the margin. These prices also represent the values of other goods and services that alternative uses of the same combination of inputs currently utilized to produce a particular good or service could have produced. Therefore, the prices of goods and services measure the values of alternative outputs sacrificed by deploying a set of resources one way rather than one of the alternative ways in which it could be used.

An example might help to shed light on how exactly economic calculation is rendered impossible in a centrally planned economy. Suppose a committee of engineers and technicians is assigned the task of running an enterprise. Two available production processes are now available for the committee to choose from in order to produce a given target output level. Process A entails 50 tons of steel and 40 tons of

timber per week while process B requires 40 tons of steel and 50 tons of timber for the same time duration. While engineers and technicians might be able to assure the central authority that the two processes would deliver the same target output level from an engineering perspective, that same knowledge would not help them in making a choice between the two processes though. Of course if a third process exists, where only 20 tons of steel and 20 tons of timber are required to produce the target level of production, it is obvious that process C would be the preferred choice of production technique. But between A and B, the committee stands perplexed.

Process A would enable us to save on timber, but at the expense of requiring more steel. Process B, on the other hand, would allow us to save on steel, but at the expense of requiring more timber in the production process. Except in the highly improbable case that the two methods are equally "economical" or "efficient", one of them will be more "economical" or "efficient" than the other. But the question is which one? Engineering knowledge is unhelpful here in guiding us to choose the better method.

To know which process is more "economical" or "efficient" compared with the other alternative, we have to find some way of comparing steel and timber through finding a measure to convert them into a common unit. It is important to mention that any and all physical units, such as weight or volume, would be irrelevant. A gallon of water ought not to be equated with a gallon of oil nor should a ton of timber be treated as the same thing as a ton of steel.

In the market, such comparisons are rendered possible because of the existence of price. Managers of an enterprise can look at the relative prices of steel and timber in helping them to identify the production process which is less expensive. If the price of steel is $1000 per ton and the price of timber $2000 per ton, then process A would be cheaper than process B. Hence, prices serving as a common denominator enable us to make a choice among two production plans.

To conclude, the main thrust of the problem confronting the planners in a centrally planned economy without prices is not that whether physically a factory can or cannot be built. It is that without prices, central planners have no way of knowing whether those resources now committed to the building of a factory have other, may be more valuable, uses than its current one, i.e., the construction of a factory.

More needs to be said about the significance of the calculation debate. At the most simplistic characterization of the position adopted by socialist economists, they contemplate first a world where a perfectly competitive equilibrium has already achieved. Absence further disturbances to the economic system, the equilibrium state implies a set of relative prices which fully and accurately reflects the underlying set of supply and demand conditions. Individuals, in turn, take those prices as parameters

and make their plans accordingly. Prices in such a state of affairs serve no useful function other than a veil, and socialist economists believe that such a state of affairs once attained would render the substitution of planning over market feasible.

The Austrian challenge to this simple characterization of the economic problem, first appeared in Mises (1920), is that there is no reason to think that the current set of relative prices is the one consistent with the result of the perfectly competitive equilibrium in the first place. This is so because in the real world, the underlying structure of the economy is always shifting and data therefore could not be treated as given as economists who believe in the workability of socialism do.

When the current set of relative prices is not the one which would characterize a perfectly competitive equilibrium (false prices), there is no guarantee that individual plans would be coordinated simply by taking prices as parameters. Indeed it is not difficult to imagine that the existing set of false prices would bring further dis-coordination among individual plans. One of the Austrian contributions to the debate then is to propose a theory on how individuals, in their entrepreneurial capacity and motivated by the profit opportunities embedded in a set of false relative prices, might help bring about a state of affairs *closer* to the equilibrium ideal assuming no further changes in the market order's underlying demand and supply conditions.

Indeed it is only through the exchanges between Austrians and mainstream economists who believe in the workability of planning that the major divide which separates their approaches towards economics was clearly articulated. The Austrians believe that it is the scattered nature of knowledge among millions of individuals that gives prices an indispensable role in coordinating individual plans through the generation of incentives for knowledge discovery and dissemination. The economists who believe in the feasibility of socialism, on the other hand, through their reliance on the model of perfectly competitive equilibrium, begin their analysis by by-passing the problem of scattered knowledge altogether.

Finally, as mentioned above, the fundamental flaw in the idea of a centrally planned economy can be attributed to the confusion of an economy and that of a market order (spontaneous order). Economy refers to the situation of an individual or an organization where means are being consciously deployed for the fulfillment of a uniform hierarchy of ends. While there is no question that an organization or an individual has such rank-ordered set of ends, the society as a whole simply does not have such hierarchy of ends. In an economy or organization, only the knowledge of the organizers or managers would need to be utilized in formulating decisions with regard to how best to fulfill a well-defined set of goals and objectives. Contrast this with the market order, where knowledge of all market participants matters and no one particular participant's hierarchy of ends dominates another. The central planners

simply do not and cannot have the knowledge required to do coordinate individual plans. The absence of such knowledge renders the actual operation of any planned economy arbitrary at best and chaotic at worse.

The lessons of the Austrian economists' critiques of socialism are still relevant today despite the fact that central planning is no longer in vogue. For the knowledge problem the Austrians have highlighted in the debate applies to any economy, not just the centrally planned ones. So even in a market economy, we now know that one cannot automatically assume that government action, for instance, the use a piece of regulation to remedy a market failure, is always effective. For a governmental action to be a successful one, the government officials involved in planning and carrying it out would need to have all the requisite information which is by its nature dispersed among many individuals. The Austrians critiques of central planning thus cast doubt on the ability of these officials to collect and combine all the relevant information needed for the successful formulation and implementation of a government policy.

The Austrian business cycle theory

In discussing the role of entrepreneurship above, we do not need to consider the time element involved in the adjustment process made possible by the entrepreneurs which results in better coordination among individual plans. The reason is that in our example used there, no production process is required. In other words, the entrepreneurs in our earlier example are simply engaging in arbitraging activities, not committing resources in a production process needed to meet anticipated consumer demand for a profit.

The inclusion of a temporal production process in the analysis extends the Austrian School's core research problem, the coordination problem, to one where coordination has to take place not just in a moment of time through time. To the Austrian economists, an economy is in inter-temporal equilibrium when investment plans made by entrepreneurs embodying a schedule of temporal distribution of consumption goods mesh with the time preferences of individuals regarding their temporal consumption patterns.

To see how entrepreneurs again play a pivotal role in bringing forth an inter-temporal equilibrium, we examine the case where consumers' time preference of consumption shifts from current to more distant future. Following such a shift in time preference, individuals are now willing to save more at each and every level of interest rate. In other words, the upward sloping supply curve for loanable funds shift to the right with the demand curve stays put. The result is a drop in the market rate of interest. As the fall in the market rate reflects a prior change in individuals' time preference, the change in market interest rate also represents a change in the natural

rate of interest. Coined by the Swedish economist Knut Wicksell, the natural rate of interest refers to the rate which governs the allocation of resources between current consumption and investment for the purpose of providing consumption goods in the future.

A fall in the natural rate of interests indicates that individuals have become more willing to abstain from current consumption in order to have a more expanded set of consumption opportunities in the future. Such an enlarged set of consumption opportunities is made possible by the deployment of resources freed up as a result of an enhanced inclination to save on the part of individuals. The freed up resources will be then be redeployed to the investments where more time is needed before inputs could be transformed into consumables. Eugen von Bohm-Bawerk describes the production plans where a more extended time period is required before consumables are produced a more "roundabout process of production" than those that are in existence prior to the shift in time preference.

How would entrepreneurs react in response to a shift in consumers' time preference?. Following such a shift in time preference, existing input prices involved in the production stage very close to the generation of consumables would be higher than those which would result if the economy were to be fully adjusted to the shift in time preference. Similarly, at existing level, prices for inputs involved in the production stage further removed from the generation of consumption goods would be lower than consistent with the final state of inter-temporal equilibrium. Under such circumstances, profit opportunities embedded in the set of relative prices between inputs in different stages of the production process would prompt entrepreneurs into action. Arbitrage opportunity now exists similar to the apple example discussed above, even though in the current discussion the opportunity exists across time rather time in a given period of time.

Sensing that the pattern of input prices is inconsistent with the now lower natural rate of interest, entrepreneurs would start demanding more of the inputs which are now underpriced, i.e. those inputs which are needed for a production plan which would require more time before consumables are produced, and would start curbing demand for those inputs which are over-priced, i.e. inputs which are needed in production plans which would generate output sooner. Given anticipated prices of consumables after the time preference shift, the underpriced inputs mean devoting the resources in a more time-consuming production plan would be more profitable than a shorter one where input prices there were now overpriced relative to the final equilibrium where all adjustments have been made following the shift in time preference. In the process, input prices in the production stages closer to the generation of consumption goods would start to fall while those further removed from

consumption goods would start to rise. Initially inconsistent pattern of input prices for different production plans with dissimilar time horizon is thus made consistent through the pursuit of profit on the part of entrepreneurs. Individual plans are coordinated as a by-product of the same process. Entrepreneurial acts triggered by a new, lower natural rate help redistribute resources across different production plans across time in a manner which dovetails with the new time profile of consumption of consumers.

In our discussion above, we have examined how a real change in the underlying condition of the economy (a time preference) triggers an entrepreneurial process which helps bring the economy towards an inter-temporal equilibrium. In what follows we briefly describe how an artificial lowering of the interest rate, by driving a wedge between market and natural rate of interest, distorts individual plans by providing "false" signals to market participants, especially entrepreneurs.

Imagine that a central bank has orchestrated an artificial lowering of the market interest rate resulting in it being lower than the natural rate. Similar to the initial response to a shift in time preference, the low market interest rate renders investment projects which would require more time before fruition to become relatively more attractive to entrepreneurs than they were before. Previously unprofitable projects suddenly become profitable and entrepreneurs, always on the look-out for profit opportunities, seize upon those opportunities now opened up as a result of a fall in the interest rate, albeit an artificial one. In other words, the entrepreneurs misread the signal sent by the lower market rate as one of shifting time preferences favoring future consumption on the part of savers when in reality those time preferences remain unchanged. Distorted price signal (market interest rate) therefore leads entrepreneurs to formulate production plans that are inconsistent with those of the savers as the plans of the former are built upon information which does not reflect the underlying realities of the economy.

Hence, at the same time that the demand for loanable funds on the part of entrepreneurs increases following a reduction in the market interest rate, savers are now being prompted by the same low rate to save less. So instead of channeling more savings to finance new investment projects launched by the entrepreneurs, the demand for current consumption on the part of savers actually goes up following the artificial fall of the market interest rate. Both investment and consumption increase for a brief while. This is the boom phase in the Austrian business cycle theory. However, this situation is not sustainable as we have a situation where the plans of the entrepreneurs are based upon the expectation that savers are now more willing to defer their consumption into the future when in fact they do not. Sooner or later, entrepreneurs would realize that individuals' time preferences have not changed and that their hope

for future demand does not materialize rendering their investments for the production of future consumables unprofitable. Liquidation of unprofitable investment projects ensues marking the beginning of an economic downturn.

The fact that entrepreneurs' actions in reaction to what appears as a relative price change (interest rate is a relative price) ends up in a recession should caution against any governmental actions which may distort relative prices.[4] The reason for that is the very same one Hayek mentions in his 1945 paper pinpointing the vital role prices play as information communicator.

In that paper, Hayek shows how changes in prices alone would be sufficient to prompt users of tin to economize on its use following a prior increase in demand of the metal. Tin users do not need to know the rationale behind the sudden increase in the demand of tin. Indeed, one of the virtues of the market is that entrepreneurs do not need to know what causes tin prices to change so that cognitive resources on the part of market participants can be conserved. All they need to know is that the hike in tin prices means they have to be frugal with the usage of tin. Prices will serve the same communicator function when the initial source of demand or supply shift is caused by governmental action rather than reflecting any underlying change in the economy (preferences and technology). Therefore, any government intervention which distorts relative prices will cause harm to the economy through sending misleading signals with negative ripple effects throughout the economy. Investment plans will be distorted and a source of dis-coordination is injected into the economy as entrepreneurs act in response to such distorted price change. This is so because entrepreneurs take those prices they face as parameters and formulate their investment plans accordingly without realizing that the particular price change is an artificial one caused by the government. The costs, in terms of resources misallocated as a result of having wrong signals in the market's relative price structure, may far outweigh whatever expected benefits a particular government intervention might bring in the

[4] Within the context of the Austrian theory of the business cycle, a referee queries why the entrepreneur cannot distinguish between a distorted interest rate and one formed under market forces. It is important to recognize that entrepreneurs, at least of the Kirznerian variant discussed above, are alert to the opportunities embedded in the structure of relative prices. Some of the elements of that price structure may not reflect underlying reality like preferences and scarcity of resources due to government distortions like an expansionary monetary policy. This in turn would lead entrepreneurs to form wrong expectations about the existence of profit opportunities when there are none. Entrepreneurial mistakes and errors are certainly permissible under the Austrian theory of entrepreneurship. The entrepreneurs, while alert to profitable opportunities, are not omniscient beings after all.

first case.

Agreements with Other Schools of Economics

Public Choice School: Since its inception, the Public Choice School has gradually evolved into two streams: namely neoclassical Public Choice School and subjectivist Public Choice School. The former uses neoclassical optimization method to study the operation of government, while the latter evaluates the workings of the government through the subjectivist perspective. Austrian economics shares similar outlook with the subjectivist Public Choice School. The affinity between Austrian and subjectivist Public Choice School is most obviously seen in the approach to cost. James Buchanan has made it clear that subjective cost theory is a crucial element in his work in public choice and public policy. In his little but important book *Cost and Choice* (1969[1999]), Buchanan states that "[c]ost is subjective, it exists in the mind of the decision-maker and nowhere else…Cost cannot be measured by someone other than the decision maker because there is no way that subjective experience can be directly observed." (Buchanan 1999:41) In contrast, mainstream economists generally treat cost as an objective measure and can be estimated ex post by external observers.

Buchanan also shares with the Austrians the latter's rigorous application of methodological individualism in economic research. As Public Choice economist Thomas DiLorenzo points out, "[t]he idea that the individual should be the unit of analysis has spared public choice and Austrian economists from many of the mistakes of what might be collected economics" (DiLorenzo 1990:189). Through his insistence on constructing economic arguments from individual acts, Buchanan is able to pinpoint the futility of building welfare economics upon the existence of a social welfare function. To him, the government is an institution through which collective activities are being carried out not an actor itself as in traditional public finance.

Austrian economists' deep skepticism towards the ability of government in imposing particular outcomes in markets is also shared by Buchanan and the Public Choice School. To the Austrians, disperse knowledge and the impossibility of officials to get their hands on such knowledge renders any governmental action beyond laying the ground rules for cooperation dubious. Public Choice economists, on the other hand, see officials as self-interested individuals pursuing their own interests rather than the public interests. The Austrians and the Public Choice economists thus proffer complementary arguments challenging governmental actions built upon officials' circumscribed knowledge ability and the incentives they face respectively.

New Institutional Economics: From the beginning, Austrian economists accept the view that institutions matter and incorporate institutional analysis in their works (Koppl 2005). For example, Carl Menger's (1892) theory of the evolution of money is

a classic illustration of an Austrian theory of institutions. New institutional economics (NIE) also tries to explain the emergence, evolution, and significance of the underlying institutional order in which market processes operate. According to Ebeling (2007: 94), some of the new institutional scholars (e.g. Kasper and Steit 1998; Furubotn and Richter 1998) have consciously incorporated elements of the Austrian perspective in their theories.

A good example can be found in the work of one of the founding members of the New Institutional Economics, Oliver Williamson (1975, 1985). Austrian economists view the market as an ongoing process rather than a state of affairs. Analyzing how the market process unfolds is thus one of the central questions Austrian economists attempt to answer (Kirzner 1992). Indeed, one can also trace an element of process analysis in Williamson's theory of why vertical integration exists. According to the Williamsonian theory of vertical integration, transaction hazards exist when a transaction necessitates specific investments unique to the particular transaction in question. In such a situation, one of the partners in the transaction may act opportunistically and threaten to terminate their trading relationship ex post in order to extract surplus from the other trading partner stuck with the specific investments. Vertical integration thus serves as a means to eliminate such transaction hazards. Notice the process element inherent in this particular Williamsonian theory. Before a commitment has been made by the trading partner who has to make the relation-specific investments, he or she has many potential trading partners to choose from. Hold-up problem, therefore, does not arise. However, once a contract is signed and investments made by one of the trading partners in the transaction, the two parties are then locked into in a bilateral relationship instead of a multilateral one. Exit becomes costly for the trading party who has made the relation-specific investments and opportunity for the other party to extract surplus arises.

Feminist Economics: Common ground between the Austrians and feminist economics exists and has been noted by some Austrian economists (Horwitz 1995 and Vaugh 1994). For instance, according to Horwitz (1995, p. 264), "mainstream economic theory has ignored so-called 'women's work.'" The point is that work done by women at home like house-keeping and child care is not accounted for in economic statistics like GDP despite the fact that these activities certainly improve peoples' lives. With regard to this neglect on the important work being done inside the family by the neoclassical economics, Vaugh also expresses her agreement with the feminist economists when she laments about the "utterly misleading use of the 'economic approach to human behaviour' to analyze relationships and decisions about resource use within families. (In fact, Becker's analysis has so infuriated women with its condescending assumptions and its wrong-headed analysis, that had it never have

been written, feminism might not have been a rallying point in economics!) Economists who too willingly slip into the assumption that the only alternative to market work is leisure thereby ignoring or denigrating the value created by both men and women in households, I regard as either blind or perverse."[5] (Vaugh 1994: p. 309) Similarly, both the feminist school of economics and the Austrians see the paramount importance attached to mathematical formalism by the neoclassical economists as misguided. Despite the existence of commonalities, differences remain between the two schools of thought. However, dialogue between scholars from the two schools has just begun and more exchanges between them are expected in the future.

Evolutionary Economics: The approach of Austrian economics can be regarded as evolutionary. Menger (1883[1985]:10) claims that "as many individuals act, the effects of their action are seen to comprise elements that no single individual ever contemplated and that were never contemplated by individuals acting in concert since there was no concert to begin with". Although Austrian scholars recognize the significance of culture, social norms and institution in economic analysis, they refuse to accept historical determinism, as put forward by Marxist and the Historical School. Instead, Austrian economists always recognize the creative power of human agency. However, people create the future that they do not know in advance (Hayek 1979:150). A new idea or innovation has to go through the market test. Profitability is the criterion market uses to select winners and losers. Through the filtering processes embedded in the market process, those new ideas which happen to become profitable will stick while those result in losses are eliminated or phased out. Once new ways of doing things are found profitable, others will start imitating the successful few who first brought the new ideas to the market place. On the other hand, new ways of doing things which ended up in losses would help dissuade others to abandon them. Such is the way through which effective means of doing businesses are spread while unsuccessful ones discarded in the market process. More importantly, people learn and accumulate experiences from the continuous process of experimenting with new ideas. These experiences and learning serve as the cognitive foundation upon which entrepreneurs formulate their next wave of new business ideas. Once new methods of conducting businesses are proven in the market place and before new ones introduced, people will continue to use them until displaced by better ones later. When sufficient number of market participants adopts similar means to go about doing their businesses, such as choosing corporate form of organization rather than say partnership, institutions are thus formed.

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[5] Vaugh is referring to Nobel Laureate Gary Becker's work on the family in the quote cited in the text. See Becker (1993) for his economic approach to family.

Disagreements with Other Schools of Economics

The mainstream neoclassical approach to economic problems has long been criticized by Austrian economists. Mainstream neoclassical notions like Paretian efficiency, its fixitation on equilibrium states and mathematical modeling have been subjects of criticism of Austrian economists. To Austrian economists, mainstream neoclassical economists fail to address adequately problems related to uncertainty, institutional complexity and the dynamic adjustment processes among individual plans in a constantly changing world. In the neoclassical model, there is limited room for entrepreneurship, clever strategies, ingenious schemes, brilliant innovations, and charisma leadership (Baumol 1968:68). The theories of human action and market process (see above) formulated by Mises and later popularized by Rothbard represent a reaction to the weaknesses of mainstream neoclassical paradigm.

The Austrians oppose the high level of aggregation needed in the construction of the Neoclassical Keynesian macroeconomic theory. The major contention between the Austrians and the Keynesians is that Austrians consider the latter's reliance on economic theories built upon relations between aggregate variables as wrong-headed, and that economic recessions are caused by fundamental micro-economic factors not macroeconomic ones. The Austrians also think that the IS-LM version of Keynesian economics developed by Hicks and Hanson oversimplifies the complexity of the real world phenomena. Furthermore, the Austrians oppose mainstream Keynesian economists' reliance on expansionary fiscal and monetary policies to in fighting recessions. For the Austrians, what starts out as temporary governmental spending programs usually become permanent and continue to expand even when the economy recovers resulting in suppression of private sector initiatives.

Austrian economists never agree with Marxist economics based on labor theory of value. For the Austrians, the value of a commodity is never determined by the amount of labor input. Rather, value is entirely subjective in nature and depends on the personal assessment of the individual which in turn is influenced by the stock of knowledge the individual possesses. For Menger, value does not exist outside the consciousness of men. The process of valuation of a good is a subjectivist interpretation of external reality. Furthermore, Mises and Hayek consistently argue the impossibility of central planning for the reasons discussed above. Austrian economists are also unhappy with the neo-Ricardian School led by Piero Sraffa. The Neo-Ricardian School extends Ricardo's labor theory of value and adopts a long term aggregation equilibrium approach. Rejecting the labor theory of value and the notion of long term aggregation equilibrium, the Austrians attempt to understand human action in the market process.

One of the essential features of the old institutional economics of John R.

Commons and Thorstein Veblen is its emphasis on the importance of institutions and institutional changes and the interactions between individuals and their institutional environment. Austrian economists also take institutions and institutional change seriously since Carl Menger's (1892) work on how money evolved as an unintended consequence of the separate actions of individuals.

The two schools hold different views on the working properties of spontaneously evolved institutions however. Given their generally non-interventionist stance, Austrians economists "especially Menger and Hayek, have placed special emphasis on the spontaneous, invisible hand, processes that produce (beneficial) social rules as the unintentional consequences of intentional actions" (Rutherford 1994, p.532). According to Rutherford (1994), the old institutionalists do not deny the existence of institutions that emerge spontaneously. Indeed, for Commons whose concern is the way in which a workable social order could arise out of conflict of interest, he recognizes that a lot of the rules that help establish such an order emerge spontaneously in the form of customs and norms. The crux of the old institutionalists disagreement with the Austrians lies on the latter's seemingly unconditional faith in the visible hand's ability to generate institutions that are beneficial to society. Old institutionlists, on the other hand, are concerned about the possibility of the failure of the invisible hand. As a consequence, old institutionalists consider it indispensable for organized institutions such as the polity and the judicial system to serve as a means of conflict resolution in order to establish a workable social order.

Although the Austrians share similar outlook with the Chicago School of economics in defense of free market and against government intervention, they have never agreed with the Chicago approach to economic problems. Chicago school economists regard economics as an empirical science. They believe that, given assumptions and careful investigation, economics can be as exact as natural science. Hence, predictions of positive economics can be as objective and precise as that of the natural science. For the Austrians, economics differs from natural science. Economics as science of human action consists in meaningful behavior and meaning cannot be observed as the objects studied in natural science. Instead, they use Max Weber's Verstehen method in interpreting the subjective meaning of human actions.

Further suggestions to the Austrian approach to economic problems

The Austrian School of Economics has much to offer in understanding economic phenomena. We can use two recent events to illustrate this point.

Financial crisis 2007 as a business cycle

The financial tsunami broke out in 2007. In the high tide of the financial tsunami,

none of the sophisticated orthodox macroeconomic models can offer a solution to deal with the crises. Government officials are left on their own without any credible economic advice to rely on in formulating economic policies. Without a sound theoretical framework as guidance, government policies tackling financial tsunami are confusing, and as a result become a further source of uncertainty hindering private sector recovery. This is a tragedy because economics is claimed to be the queen of social science. The Austrian School of Economics which has been ignored in the mainstream academia has always put human agency at the forefront in its analysis. Austrian economic theories have their focus on uncertainty, expectation, errors, plans revision in light of new knowledge, etc. Hence, a business cycle is viewed by the Austrian economists as a cluster of errors in investment and/or consumption which accumulates over time. Along this line of reasoning, policy recommendation would rely on the importance of understanding human action in general and entrepreneurship in particular. Solutions on current financial tsunami should be focused on how to motivate entrepreneurs in the private sector to rectify past errors made earlier by market participants. As investment errors are eliminated, the economy shall be able to recover on its own through the efforts of human agents' desire to improve their own conditions. Hitherto, though there are some works (for example, Rothbard 1963; 1969; Vihanto 1999; Cowan 2009:17-20) to relate economic errors with the business cycle, a satisfactory explanation of today financial crisis in Austrian perspectives remains to be explored.

Understanding the role of human action in climate change

In recent decades, environmental problems such as global warming, species extinction, pollutions, toxic wastes, resource depletion and nuclear meltdown have been the topics of heated debate in policy circles around the globe. Specifically, international agreements on climate change have encountered setbacks with some governments refusing to cooperate. Some may think that Austrian economists would suggest a libertarian approach towards tackling environmental issues (for example, see Cordato 2004). That is a free market solution incorporating the concept of property rights is all it requires in order to resolve environmental problems. However, there is an alternative approach. Our Austrian perspective can help us understand how and why people view and treat the environment the way they are and help us understand global environmental issues through evocation of notions such as subjectivism, uncertainty, ignorance and dispersed knowledge.

To do so, we assume that the state of the environment is affected by a diverse of group of players such as private business firms and households; the environmental conservationists such as Greenpeace and Friends of the Earth; national governments

and non-governmental organizations (NGO), special interest groups and citizens. Austrian economics argues that human beings are ignorant. They only possess a small knowledge base with regard to their environment and then they go on act according to their necessarily partial and limited knowledge and experience. At the same time, individuals always want to improve their well-beings under uncertainty. They consciously choose certain methods to exploit natural resources in order to attain their goals. Given ignorance, human agents may 'erroneously' believe that they have chosen the correct methods to take advantage of natural resources as could be found in the environment. For example, Japan had experienced rapid industrialization after the World War II. With limited natural resources, Japanese attempted to explore new sources of energy to feed its rapid industrial demand. Around 40 years ago, they thought that nuclear energy was the best solution for as a source of alternative energy. At that time, under genuine uncertainty, no one could possibly imagine what the scenario would likely be if there were a nuclear meltdown such as the one experienced in Japan in 2011 in the aftermath of a devastating quake. Hence, when the Japanese government supported the proposal of building nuclear energy plants put forward by the private firm, namely the Tokyo Electric Power Company, it only asked the company to ensure that the nuclear plants have high safety and environmental standards. Environmental conservationists had a weak voice at that time because Three Mile Island nuclear plant accident and Chernobyl disaster had not occurred yet. The general public felt that the plants could provide them with an economical source of energy. The Japanese thought that they had done enough safeguards against the outbreak of nuclear meltdown. Rejecting long run and short run time concept in mainstream neoclassical economics, Austrian economists in general argue that human agents continually receive new information and revise their plans and actions accordingly upon receiving such new pieces of knowledge. On 11 March, 2011, earthquake and tsunami hit Tōhoku, Japan. The reactor cooling systems at Fukushima I failed to function. This new event has never been experienced by human agents in history before anywhere. Given new information, human agents revise their old thinking and form new expectations concerning the safety of nuclear energy. The general public starts to lose confidence on nuclear energy. The environmental conservationists now have a much stronger voice and call for all governments to ban nuclear energy. The Tokyo Electric Power Company is currently busy handling the disaster. Furthermore, the Japanese government is a learner too. It can be foreseen that all governments around the world will seriously seek alternative safe and sustainable energy sources other than nuclear energy. This example shows that, global environmental development is a process which entails learning on the part of human agents as well as trial and error embodied in humans' efforts to ever improve their

conditions. This development process is a discovery process, a process of refutation and conjectures. An environmental outcome is thus a result of social interaction between the government, special interest groups, private firms and general citizens. The outcome is unpredictable, an unintended consequence of collaborative human actions involving surprise and novelty. Given uncertainty, the best our globe is cruising into the unknown future.

Our above two cases illustrate that if we want to tackle economic problems such as financial crisis or climate change, the crucial prerequisite is to understand human action in the market process, as strongly suggested by Austrian scholars. Without understanding human action in economic life, any policy recommendation would be unsound. It is worthwhile to note that many government interventions are made on good social intention but end up in economic disaster because policy analyses are constructed under unrealistic assumptions, or worse, out of economists' imagination (for example, the notions of perfect competition, optimality, economic distortion and equilibrium) without referring to the real world phenomena. Austrian economics, taking human agency as the centre of economic analysis, therefore, has much to be commended.

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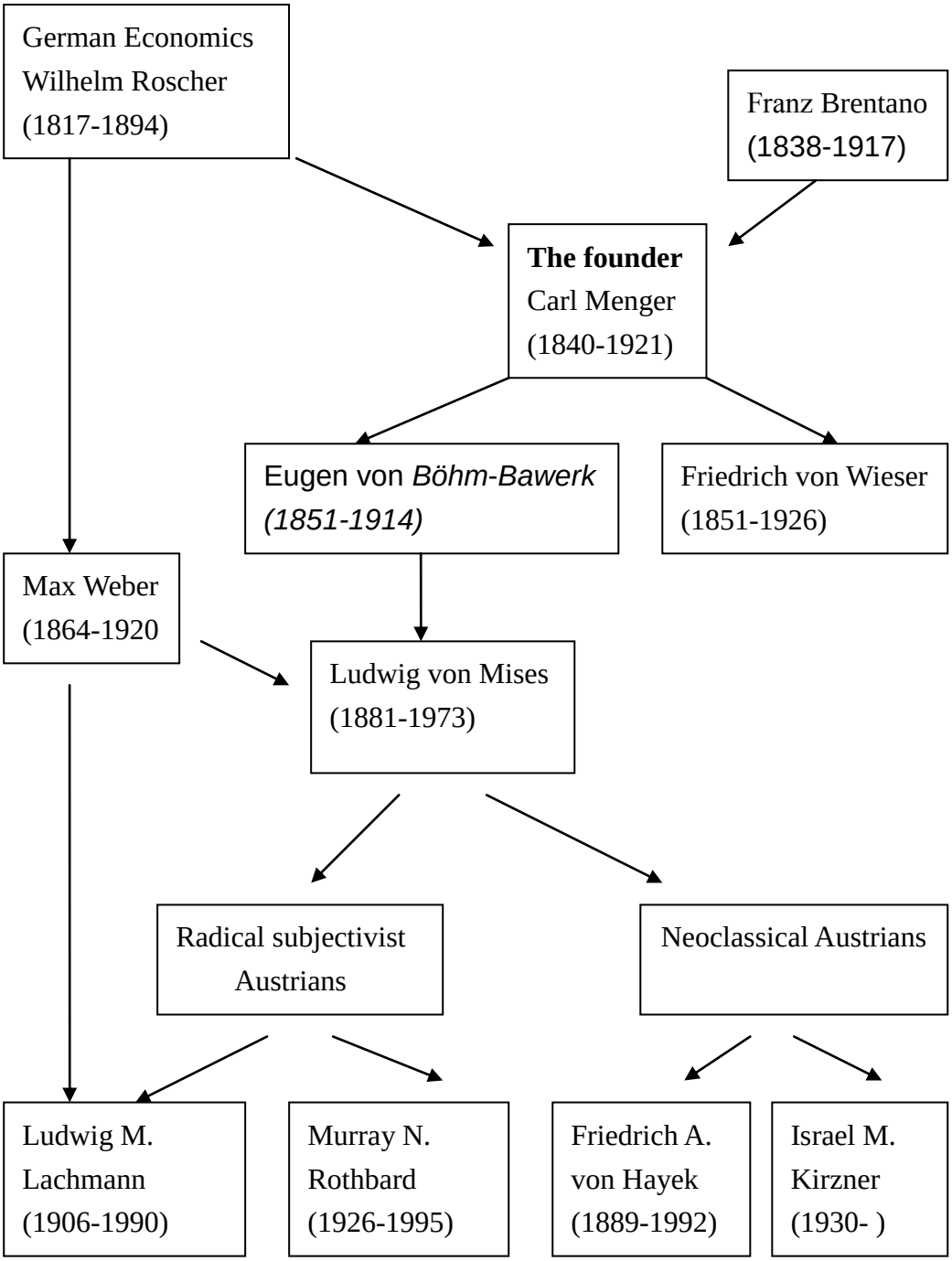

Figure 1: Major Figures in the Austrian School of Economics

Important Note

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Department of Economics and Finance

Hong Kong Shue Yan University