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Introduction

The massive credit crunch and subsequent recession that hit global financial markets in 2008 came as a great surprise to most mainstream policymakers and economists around the world. Former Reagan economic advisor and Stanford PhD Arthur Laffer declared in August of 2006 that the US economy had "never been better" and that those who felt that a crash was imminent were "just totally off base".[1] Economic commentator Chris Farrell predicted a period of nonexistent inflation coupled with low interest rates that would last for the foreseeable future.[2] Even current US Federal Reserve chairman Ben Bernanke spoke of a "great moderation", some enigmatic economic watershed that had rendered the old commonly accepted principles of economics outdated.[3] Now things could be done that could not be done in the past.

Comments and opinions like the examples above were not uncommon and reflected a pervasive air of complacency and self-satisfaction among the economic intellectuals of the western world. The "Dot-Com" crash of 1999-2001 and the panic that ensued in the wake of the terrorist attacks of 9/11 seemed to have been successfully countered by the concerted actions of policymakers around the world. After only two quarters of negative growth in 2002 the global economy and the US economy in particular, resumed vigorous growth that lasted for roughly five years. It was in those five years that the above sentiments were expressed with minimal objections from the economic profession or financial analysts.

Such statements seem to have been premature, particularly since the main drivers of the global economic boom of 2002-2007, namely ultra low interest rates in the industrialized west, the expanding accumulation of debt and unprecedented real estate price increases, seem in hindsight to have been unsustainable from the start and a classic case of a speculative bubble.

But at the time even the most credible of specialists seemed to think that this time around things really were different, that now we could get away with investment strategies, policy prescriptions and international trade dynamics that had in previous eras been considered economic suicide. Had they consulted the history books these people might have thought twice about the soundness of their analysis. The idea of historical watersheds in which economic and social relationships change permanently is a common one in economics.

[1] (Martin, 2008)
[2] (Farrell, 2006)
[3] (Bernanke, 2004)

John Maynard Keynes and Irving Fisher defended the stock market boom of the 1920s on similar grounds and saw no reason (apart from, in the case of Keynes, the irrational pessimism and over-reactions of investors possessed with "animal spirits") why it should ever have to end. A similar sentiment was prevalent during the late 1950s and early 1960s, when prosperity appeared to come easy to the industrialized west, and the idea of an imminent, major economic contraction was very much a minority position. Yet that is exactly what happened during the early 1970s, with the breakdown of the Bretton Woods system, an oil crisis, stagflation and general economic hardship across the world that very few people were able to accurately predict.[4]

The crash of 2007 therefore represents the third time in less than a century in which economists have been more or less completely blindsided by rapid changes in the world's economic fortunes, resulting in major forecasting errors. The accusation that economics has repeatedly failed to live up to its promises to the public of stable economic growth is not without some merit, and public opinion of the profession reflects that. In a 2005 poll commission by the European Commission on attitudes towards science and technology, in which those polled were asked to rank disciplines according to how scientific they felt they were, economics received similar scores as astrology and homeopathy, and ranked far below medicine, physics, biology and mathematics.[5] Such findings are not good news for a profession that has for most of the 20th century attempted to move itself closer, in terms of methodology and the rigorousness of its predictions to the natural sciences, and physics in particular.

The most obvious solution may be that economics simply has not done enough in shifting it's methodology towards scientifically rigorous, empirical methods that will eventually allow it to make more accurate predictions. Models must be tweaked, expanded and tested more rigorously against the data. That may be the solution.

But it may not be.

In this essay a case will be presented for an alternative approach: that in order to provide better economic advice, and in particular be able to more accurately predict business cycles before they occur, economics must, paradoxically, become less of a hard science rather than more. More accurately, it must become scientific in a different way, a way that once was common practice in the profession, but fell out of favor at the turn of the 20th century and was all but forgotten after WWII. An argument will be made that the current methodological doctrine of macroeconomics, due to its inherent properties, discourages theorizing at the level of aggregation that is most important when

[4] (Schiff, 2007) pg. 111
[5] (European Commission, 2005) pg. 35-37

analyzing business cycles and anticipating recessions. This level is one step below in terms of aggregation from the simple division of the quantity of goods and services in the economy into consumer goods and investment goods.

The empirical methodology that now dominates the profession demands numerical assessment and theorizing in terms of variables that can be easily defined and compared to data collected in the world's economies. This pushes economists into certain lines of inquiry in which this approach can be easily implemented, and discourages them from research into areas of the economy that cannot be easily quantified and thus are not mathematically tractable. Of special relevancy to business cycle research is how this has impacted research pertaining to the capital structure, also known as the structure of production, to which close attention will be paid in this essay. Providing a contrast to the empirical, highly aggregative mainstream approach will be the theories of the Austrian school of economics, a heterodox school of thought that never adopted the empirical, mathematical methods common in the mainstream today, and whose proponents have consistently warned against their employment in economics since 1870.

Chapter One – Methodology

1.1 Overview of the empirical method of economic inquiry.

The methodology of mainstream economics today is founded on the epistemological basis of empiricism, whose branches are known under a variety of names.[6] This is a methodological approach that economics shares with the natural sciences of physics, chemistry, engineering and others. All the schools of empiricism are marked by two main characteristics – that of skepticism and a sharp distinction between empirical knowledge and analytical knowledge. The distinction between empirical knowledge and analytical knowledge can be articulated as follows:[7]

1. Empirical knowledge is the only knowledge available to us which is knowledge of anything that actually exists in reality.
2. To qualify as empirical knowledge, it must be verifiable or at least falsifiable by observational experience
3. If knowledge is not verifiable or falsifiable by observational experience, it is not empirical knowledge, and thus not knowledge of anything real.
4. Analytical knowledge, such as mathematics or logic, is not knowledge of anything real because it fails the test of verifiability/falsification. It is simply knowledge about the use of signs and transformational rules for signs and has no real connection to the outside world until it is supplemented by observations, in which case the knowledge ceases to be analytic in nature.
5. Certainty can never be achieved when dealing with empirical knowledge – the veracity of any hypothesis is contingent on future observations of other examples of the phenomena under investigation. This also means that one cannot know in advance what the outcome will be from any instance of observation until one experiences it.
6. If observational evidence such as from experiments confirms the hypothesis by acting as predicted, that does not prove the hypothesis as being universally correct – it only

[6] Positivism, logical positivism, sceptical empiricism, falsificationism etc.

[7] This articulation of the essential elements of empiricism is based on Hans-Herman Hoppe's critique of empirical-positivism (Hoppe, Economic Science and the Austrian Method, 1995). For less critical articulations of empirical-positivism see (Popper, 1959) and (Kaufmann, 1944). For other Austrian critiques of empiricism see (Mises, Human Action, 1996), (Mises, Ultimate Foundation of Economic Science, 1962) and (Rothbard, In Defense of Extreme Apriorism, 2002)

strengthens it. Even if a hypothesis has been confirmed a million times out of a million observations, it can still be falsified by a single observation.

7. If observational evidence contradicts the hypothesis, that does not necessarily mean that the phenomenon under investigation are not causally linked, or the hypothesis is not true – it only means that the hypothesis needs to be modified, or some additional variables may need to be controlled and accounted for.

These seven main points encapsulate the basics of what is in common language referred to as "the scientific method". Its epistemological implications are that we never really know anything for sure, although certain hypothesis are frequently disproved, and others frequently confirmed by observational evidence. Also, the empiricism that modern "positive economics" employs does not draw any real methodological distinction between the fields of the natural sciences and the social sciences, but views this approach as valid for all fields of inquiry.

Analytical fields of knowledge such as logic, mathematics or geometry are in this worldview considered to be a "set of tautologies" that have "no substantive content", and whose usefulness are judged solely on the basis of how well they can assist the researcher in organizing empirical material in a way that yields accurate predictions.[8]

The skepticism of this methodology is derived from the so-called *problem of causality*, most famously articulated by David Hume who noted that human beings cannot detect causal links directly – all we actually observe are series of events and bodily motions, and that one specific event may very often be followed by another specific event. Hume surmised that we form causal links such as "A caused B to happen" on the basis of habit, because it was convenient in daily life to assume that what held true yesterday and the day before would hold true today as well. Therefore causality could never be taken for granted by scientists regardless of how often it was observed.[9]

This distrust of causality, coupled with a commitment to rigorous experimentation as the key to advancement of learning began to cross over into the social sciences in the late 19th century and had gained a near-total supremacy by the 1950s, when Milton Friedman proclaimed in his influential essay *The Methodology of Positive Economics* that:

> *[The] task [of economics] is to provide a system of generalizations that can be used to make correct predictions about the consequences of any change in circumstances. Its performance is to be judged by the precision, scope, and conformity with experience of*

[8] (Friedman, 1953)
[9] (Vickers, 2006)

the predictions it yields. In short, positive economics is, or can be, an "objective" science, in precisely the same sense as any of the physical sciences.[10](emphasis added)

At another point in the essay, Friedman describes analytical knowledge as a „filing system“[11], which is indicative of the empiricist attitude towards analytical knowledge. It is considered to be an edifice into which you put empirical knowledge and as such it may or may not be suitable for the task at hand, but it contains no real insights of it‘s own. A filing system that makes unrealistic assumptions such as market actors with perfect foresight into future market conditions, or that capital is homogenous rather than heterogenou may be considered superior if it helps make predictions fit the data better.

It would not be too much of an overstatement to say that Friedman’s stance on methodology has become the orthodox view in economics, and caused positive economics to be universally considered “good economics”, that is economics in which variables can be defined in such a way that they can be quantified, real-world data can be inserted in their place in mathematical equations, and predictions of changes in other variables can be compared against what takes place in reality. This has led to the development of the sub-field of econometrics, which is dedicated to the application of complex statistical methods to infer and elucidate economic theories through falsification or confirmation.

Friedman does concede that there are “special difficulties”[12] that arise out of the fact that in the social sciences, (human beings) study the interactions of human beings while at the same time interacting with the subject, which can jeopardize objectivity. He also states that the fact that observer and subject belong to the same category can “provide the social scientist with a class of data not available to the physical”.[13] Strangely, he does not elaborate any further on the implications of this, nor explicitly lays out what this class of data is or what additional insights can be gained from having access to it. Instead he simply notes that he feels that neither one of these differences calls for any fundamental distinction between social science and natural science research. These differences seem therefore to be considered minor issues that can be worked around by a diligent researcher. [14]

[10] (Friedman, 1953), pg. 4
[11] (Friedman, 1953) pg. 7
[12] (Friedman, 1953) pg 4
[13] ibid.
[14] (Friedman, 1953)pg. 5

Regardless of whether one agrees or disagrees with Friedman when it comes to the lack of importance of these differences there is an additional and quite fundamental epistemological argument against the empiricist approach.

This argument forms the basis of the Austrian critique of orthodox economic research, and provides the starting point of an alternative approach. Both will now be presented to the reader.

1.2 The Austrian critique of empiricism in the social sciences

As noted above, empiricism in general and Popperian falsificationism in particular makes a sharp distinction between analytic and empirical knowledge, and thus also between analytic and empirical statements. Yet how to classify the central claims of empiricism is not clear from the claim itself. As Hans-Hermann Hoppe puts it in his essay *Praxeology and Economic Science*:

> *This is empiricism's central claim: Empirical knowledge must be verifiable or falsifiable by experience; and analytical knowledge, which is not so verifiable or falsifiable, thus cannot contain any empirical knowledge. If this is true, then it is fair to ask: What is the status of this fundamental statement of empiricism? Evidently it must be either analytical or empirical.*[15]

There is no allowance made for the possibility of a third class of knowledge according to empiricism. Thus Hoppe's question is not unwarranted. If the empirical method applies to all scientific inquiry and is to be considered an all-encompassing epistemological system rather than a specific approach appropriate for specific types of inquiries, then it's central claim can rightly be considered to be either an empirical or analytic statement. It can not be both, and it can not be neither according to its own definitions of what knowledge is. Hoppe points out that regardless of which of these two categories you choose, the central claim either contradicts itself or renders itself meaningless - if it is an analytical statement it is not referring to anything real, and if it is empirical it's truth value could never be determined with any certainty.

Let us examine this argument more closely. If the statement is assumed to be analytic, it would simply be an arbitrary statement that applies only in an arbitrary, hypothetical world or would be, as Hoppe puts it; "nothing but scribbles on paper, hot air, entirely devoid of any meaningful content".[16] This is a colorful, yet not at all inaccurate depiction of the empiricists own view of analytic knowledge. If an empiricist apologist were however to assert that yes, indeed this claim is analytical yet it still refers to something that is real, he would have already violated his central claim in a clear

[15] (Hoppe, Economic Science and the Austrian Method, 1995)pg. 33
[16] Ibid.

case of self-contradiction. Attempting to reformulate empiricism in such a fashion that you could grant some kind of special one-time exception to this statement alone (something along the lines of "all statements are either analytical or empirical, except for this one, who alone of all statements belongs to a third unspecified class whose nature we will not discuss any further.") would simply be a tautology, a creed to be either embraced or rejected on faith.

If, however, we look at the central claim as an empirical one, its status as an epistemological basis for inquiry becomes untenable, because empirical statements must always be open to falsification on the basis of future evidence, and a clear criterion must be available on which to judge whether new observations have indeed falsified or supported the claim. Such a claim could never be considered true for all places and all times - it would forever remain historically contingent. Again the empiricist position is in apparent contradiction with its own claims.

If one takes the Austrian critique as formulated by Mises, Rothbard, Hoppe and others seriously, empiricism seems to have three choices and all of them bad; it can be A) self-contradiction, B) irrelevant to the real world, or C) forever hypothetical and uncertain. All three choices are shaky foundations to build an intellectual edifice on. Clearly some modification of it is required, if an outright rejection of empiricism is to be avoided – not just in the social sciences but in the natural sciences as well.

1.3 Praxeology as a supplement to empiricism

Hoppe critique of empiricism as a methodological monism, a single overarching system that applies to all scientific inquiry, has its roots in the writings of Ludwig von Mises, one of the chief figures of the Austrian school. Mises pointed out that the essence of the modern empirical approach, which he referred to as logical positivism in most of his writings, was a rejection of analytical knowledge that was at the same time knowledge about anything real, of the *synthetic a priori* in the Kantian terminology Mises used extensively. In both his 1949 economic treatise *Human Action* and his exclusively methodological 1962 tome *Ultimate Foundation of Economic Science* Mises leveled a similar critique as would later be expanded on by Hoppe, and offered an alternative foundation for scientific inquiry that would in his view assign empirical research its proper place and provide a sounder epistemological foundation for both the social and natural sciences. This approach he called *Praxeology*, or "the science of action".

Mises rejected the methodological monism that was prevalent in the first half of the twentieth century as a result of the emergence of logical positivism/empiricism in the social sciences. As an alternative he offered a system of *methodological dualism*, one approach being appropriate for the natural sciences and the other for the social sciences, both approaches being validated by a single

epistemological foundation. That foundation is based on the existence of the very thing that empiricism claims that does not exist - the *synthetic a priori*, or the analytical statement that refers to reality. The notion of the synthetic *a priori* as a direct reference to reality is the foundation of Praxeology.

Praxeology is rooted in the epistemological writings of Immanuel Kant, his *Critique of Pure Reason* in particular. Mises borrowed much of Kant's terminology, but it would not be correct to simply label him a Kantian or an idealist. He used Kant's tools not to argue in favor of a metaphysical dualism or some form of idealism, only the notion that the mind is capable of gaining knowledge about reality that can be said to be true with *apodictic certainty*[17] yet do not come to the mind from the outside world.[18] The means of formal logic are not sufficient, although necessary, to establish the true value of synthetic *a priori* statements while observations are unnecessary. What then is the added ingredient to formal logic that prompts the Austrians to claim that such statements are necessarily true?

1.4 The action axiom

Kant's answer was that synthetic *a priori* truths follow from self-evident material axiom, and this is the aspect of Kantian philosophy that Mises seized upon as the ultimate justification for his aprioristic methodology. Such axioms are not self-evident in the sense that they are knowledge that everyone is aware of without thinking about it, but in the sense that once put forth, such propositions cannot be denied without self-contradiction. This is a very important trait in Misesian thought. Attempting to deny these propositions is an implicit admission by the denier that they are in fact true. The truth value of these axioms is found not by experiences in the outside world, but by experiences in the inner world, that is through self-reflection. Mises was particularly interested in one particular material axiom which he termed the "axiom of action".

Plainly stated, this axiom is the proposition that "humans act", or "humans can act". A simple enough assertion, but it has some far-reaching consequences. For one, should a human being attempt to deny it by uttering the counter-statement "no, humans do not act" or "humans cannot act", *that is itself an action*, and because he who attempts to refute it belongs to the category under investigation, namely the category of "humans" he automatically proves the axiom. Our understanding of why this is a contradiction is not derived from any external experience but from our reflective understanding of what it means to act, and what it means to be a human, and what it means to contradict oneself. Yet, it refers to something real, because *action* as a concept only has

[17] From the Greek *apodeiktikós*, "to prove fully".
[18] (Hoppe, Economic Science and the Austrian Method, 1995)

meaning in connection to manipulation of the real world. It is action that bridges the gulf between the world of the mind and the world of material things.

The key element to understanding here is that actions cannot be observed but only imputed from the observation of bodily motions of human beings. We interpret the behavior of other people in the physical world not on the basis of what we see alone, but by contrasting their behavior with what we would do if put in their position. For instance, if one were to observe another human knocking on a door, it would be a common assumption that the person wants to get someone to come to the door, or at the very least that he is attempting to accomplish *something specific* rather than just moving randomly through space, yet we have no direct sensory experience of his intentions, if he has any at all. A Misesian thinker would claim that our imputation that the person is acting in an attempt to achieve something rather than just moving randomly is not derived from the sensory experience itself, but from our reflective understanding of ourselves as human beings and what it means to us to act towards a goal. This relationship between observer and observed is a commonality human beings do not share with any of the phenomena investigated by the natural sciences – we share no common frame of reference with a hydrogen atom or a falling rock or even lifeforms such as bacteria that would allow us to deduce the *why* of it‘s spinning neutrons, rate of fall or reason for multiplying in a vat of nutrients.

Although one can never say for certain, it certainly seems plausible that this reflective understanding of the meaning of other people‘s actions is the „class of data“ referred to in passing by Friedman in his seminal essay as being uniquely available to the social scientist. Even if it is not that class of data, it certainly is a class that cannot be said to exist in any discipline whose subject matter is non-human. Whether you see that class of data as being of peripherial significance, as the mainstream does, or vital to the pursuit of economics as the Austrian School does, is in and of itself a subjective value judgment. However, given the philosophical implications of the Austrian critique of empiricism, and the logical conundrum inherent in denying the action axiom, it should not be dismissed out of hand, especially not by economists, who have gone further in embracing strict empirical methods than other social scientists, potentially to the detriment of their discipline.

The above excursion into Kantian epistemology may seem overly complex in an essay nominally devoted to on economics, but making a case for the validity of *a priori* knowledge of human action is essential to, in turn, establishing the validity of an alternative method to empiricism when it comes to the construction of economic theories. It allows us establish economic relationships without resorting to empirical measurements neccesary to comply with the rules of empirical falsificationism, which in turn allows us to deal with the mathematically intractable

variables in economics. Otherwise these variables cannot be examined in any detail. They are excluded by construction.

1.5 Praxeology and it's significance for economics

If one accept the Action Axiom as a true *a priori* synthetic proposition, that with every action an actor pursues a goal, several subsidiary propositions emerge that are central to any thinking about economic issues.

For instance, whatever the goal in question, the fact that the actor pursued it reveals that he placed a higher subjective value on that goal than any other goal that he could pursue at that time.[19] Therefore, action automatically implies the existence of *subjective valuation*.

In order to achieve this most highly valued goal, an actor must choose to take action or even abstain from action(which in itself is an action) at a given point in time if he feels that doing so will result in the most highly valued goal being achieved at a later point in time, even if that later point in time is only a heartbeat later. All action is therefore *intertemporal*, which implies the categories of causality and time. The intertemporal nature of action also automatically implies the existence of *scarcity of means*, since even if we dismiss the scarcity of natural resources(which requires empirical observation to establish the truth or falsehood of), the choosing of one goal over another implies the giving up of one goal to achieve another – it implies that quite apart from the possibility of the scarcity of land, labor or capital, *time is scarce*. The richest man in the world may be able to satisfy his every desire, but he cannot satisfy them all at the same time. Scarcity thus also becomes a synthetic *a priori* truth that applies, always and everywhere, in every world in which action is possible.

The employment of these scarce means also implies that the means themselves must have value to the actor, and that the value of the means is derived from the goal, since the means are neccesary to achieve the goal. If you value the means more than the goal, then pursuing the goal is illogical. The value of the scarce means is thus imputed „backwards" in time from the final value the actor places on the goal that will be achieved at the end of the employment of the means. Here we can see the beginnings of a praxeological theory that explains the the phenomenons of interest, rent and wages, as inescapable extrapolations from the action axiom.

Because of the nature of choosing the most highly valued goal over the next-to-highest valued goal, action also implies *costs*. The realizations of all the other goals that could have been pursued but were not must be either deferred in time or dispensed with altogether. Also, the fact

[19] (Hoppe, Economic Science and the Austrian Method, 1995)pg. 22-23

that it is pursued means that at the outset of action, the actor must believe that the highest valued goal will yield to him satisfaction in excess of the cost of giving up the next-highest valued goal. Thus the Action Axiom also implies the concept of *opportunity cost* and *profit*.

If the actor find at the achievement of his goal that he miscalculated, and the costs of his giving up other goals and employing the scarce means in a certain fashion outstrip the profits, he has suffered a *loss*. The action axiom therefore also implies the concepts of loss, *risk* and *uncertainty.*

Time, causality, value, means, ends, choice, preference, cost, profit, loss, risk, uncertainty...these are all concepts familiar to all students of economics as essential, core concepts that underpin the profession, and thus the action axiom is not revealing anything new, strictly speaking. What this approach does is put these core concepts on a much more solid epistemological footing – instead of being arbitrary analytical statements in some arbitrarily chosen analytical framework, they are concepts that directly refer to the world of reality, the world we live in. They are no longer abstract definitions awaiting the input of empirical data, but rooted in the synthetic *a prior*i. Challenging their validity means that the critic must eventually trace his way back to the action axiom and face the contradiction inherent in denying it‘s assertion. Or as Hoppe puts it:

> *The attempt to disprove the action-axiom would itself be an action aimed at a goal, requiring means, excluding other courses of action, incurring costs, subjecting the actor to the possibility of achieving or not achieving the desired goal and so leading to a profit or loss...As a matter of fact, a situation in which these categories of action would cease to have a real existence could itself never be observed, for making an observation too, is an action.*[20]

The preceeding chain of reasoning is a good example of the way Austrian economists conduct their analysis, by a procedure of spinning out logically valid arguments from a core foundation of self-evident axioms, the action-axiom in particular. They can be refuted, but not by evidence, since they do not rely on evidence for their formulation, but rather by pointing out flaws in their line of reasoning, that one step does not neccesarily follow from the previous one. This is the same procedure as is used in disciplines such as logic, mathematics and geometry, which to Austrian thinkers are the „true“ sister disciplines to economics rather than the natural sciences. [21]

It is also interesting to note that if one adopts this epistemological stance, it is possible to still be a strict empiricist when it comes to the natural sciences. The basic postulates of empiricism as

[20] (Hoppe, Economic Science and the Austrian Method, 1995) pg. 24
[21] On the relationship between geometry and praxeology see (Mises, Ultimate Foundation of Economic Science, 1962) ch. 1

laid out in section 1.1 can be rescued from their internal contradiction if one modifies them to apply only to those phenomenon that we have no self-reflective understanding of, that is; everything that is not human. Thus Austrians see the methodological dualism implied in aprioristic thinking as not only setting the foundation for truly sound thinking in economics and other social sciences, but reinforcing and strengthening the case for empiricism where empiricism is truly appropriate.[22]

1.6 Praxeology and it's connection to classical political economy.

Praxeology as first articulated by Mises, although arriving at many of the same basic conclusions as mainstream economics, is built on a radically different foundation. It is however instructive that Mises did not feel that he was doing anything truly radical at the time. Rather his view was that he was simply formalizing the view of how to conduct economic inquiry that had been the prevailing methodological approach of the 19th century classical economists, and there is compelling evidence that he was correct in that assumption. Those classicals that wrote on methodology did treat economic inquirt as for the most part being an analytical process, rather than strictly based on observations of empirical reality. Irish classical ecomonst John E. Cairns wrote for instance in 1875:

> *The economist may thus be considered at the outset of his researches as already in the possession of those ultimate principles governing the phenomena which form the subject of his study, the discovery of which in the case of physical investigation constitutes for the inquirer his most arduous task...In Political Economy, accordingly, hypothesis is never used as a help toward the discovery of ultimate causes and laws.*[23]

The chief goal of the economist was therefore not to acquire new information but rather simply to unearth and articulate what was already implicitly in his mind through the application of reason. This was at the time not such a radical view. Nassau Senior held that premises in economics consisted of „a few general observations...which every man, as soon as he hears them, admits as familiar to his thoughts" and that the pursuit of economics depended „more on reasoning than on observation", and that „its' principal difficulty consists not in the ascertainment of it's facts, but in the use of it's terms"[24].

[22] Apart from its implications in economics, Hoppe sees the action axiom as a key element for viewing Kantian epistemology as a rationalist rather than idealist philosophy, and thus being a major contribution to the philosophy of science in general, but in-depth coverage of that aspect falls outside the scope of this essay. For more on this, see (Hoppe, In Defense of Extreme Rationalism, 1988)

[23] (Cairnes, 1965) pg.89-90, 95-96

[24] (Senior, 1965) pg. 2-3, 5

Thus even though they may not have availed themselves of the strict Kantian framework adopted by Mises the classical political economists operated in a strikingly similar fashion. This means that the „Austrian method“ as it has survived to the modern day through the writings of Mises, Rothbard, Hoppe, Garrison and others can be viewed as the continuation of a much older tradition of classic politcal economy rather than a radical 20th century deviation from the norm. To an Austrian, it‘s the post- WWII economic mainstream that is the deviant approach.

1.7 Practial implications of the Austrian framework

As a result of their epistemological stance and the methodology that stems from it, Austrian economists pursue their vocation quite differently from other economists. The most prominent difference (and the trait for which the school is perhaps best known among outsiders) is their general rejection of mathematical modelling and econometrics. In the words of Mises, „experience of economic history is always experience of complex phenomena“[25], that cannot be divorced from its time and place. Therefore the collection of economic statistics, although not in and of itself a worthless endevour, being a contribution to the subdiscipline of economic *history*, cannot in an Austrian framework contribute to the field of economic *theory*.[26]

All the quantitive data available to us belongs to the past and does not in any way inform us of anything that must hold true in the future. The collection of data to determine for example the price elasticities of certain products must by necessity confine itself to certain geographic areas, or at the very least a certain time frame, even if that time frame is as wide in scope as „the past as a whole“, since the future is not available to the data-miner. Regardless of the scope of the data collection such research tells us nothing about whether the price of these products will be more or less elastic in the future. To be able to form an opinion on that, we must rely on a synthetic *a priori* sense of economic logic. If a good is becoming more indispensable for everyday living than it was in the past, then we can predict with confidence that it will become less price elastic than it was in the past, and vice versa. No acquisition of data is neccesary to make this prediction – it flow directly from our aprioristic understanding of economic behaviour, which is merely an extension of our (whether we are aware of it or not) understanding of the action axiom and it‘s subsidiary propositions.

Austrians reject not just econometrics based on data-mining, but also theoretical constructs based on indifference curves, equilibrium states and the application of differential algebraic equations, which means they reject the vast majority of the current corpus of intermediate and

[25] (Mises, Human Action, 1996) pg. 351
[26] (Mises, Comments about the Mathematical Treatment of Economic Problems, 1977)

advanced textbook economics. This rejection of treating the problems of economics with equations was explained succintly by Mises;

> ...the formulation of these [static equilibrium] equations in no way broadens our knowledge. What logical economics says in words, and what the mathematical economists must also say in words before they can set up equations, is presented in mathematical symbols. But these equations differ entirely in their practical applicability as well as in their cognitive reference from the equations of mechanics. In the equations of mechanics we can introduce constants which have been determined with reasonable exactness through empirical experimentation...In the field of human action, however, there are no such constants. The equations of mathematical economics are therefore useless for all practical purposes.[27]

The absence of constants in human behavior that can be empirically observed and numerically codified means that the equations of economics contain only variables and thus have no true predictive power as it is understood in the natural sciences – they can therefore only be re-statements of logical relationships that are first formulated in words before being translated into the language of mathematics. No additional insights are gained by the translation.[28] To an Austrian economist this translation is a superfluous step since to explain the relationship to a layman, one must again translate it into words. As Rothbard pointed out, needless translation violates Occam's Razor and as such should be avoided on principle.[29]

A third point of difference that bears mentioning is that Austrian scholars are reluctant to endow their models with the unearthly qualities that are common to mainstream economic modelling, such as perfect competition, perfect foresight of future prices, or the substitution of unquantifiable *uncertainty* with quantifiable *risk*. A difference is made between simplification for pedagogical purposes, such as theorizing about the „Crusoe economics" of one or a few individuals in isolation on one hand, and theorizing about alternative worlds in which basic elements that make up praxeological reasoning(time, uncertainty, scarcity, heterogeneity of goods and services etc.) are defined as being different from the world we live in. For instance the theoretical assumption that all market participants have equal knowledge of future market prices, which is a common starting place for general equilibrium analyzis, completely eradicates any need for the entrepreneur as a risk taker

[27] (Mises, Comments about the Mathematical Treatment of Economic Problems, 1977) pg. 99
[28] (Mises, Comments about the Mathematical Treatment of Economic Problems, 1977), (Mises, Ultimate Foundation of Economic Science, 1962),
[29] (Rothbard, In Defense of Extreme Apriorism, 2002)

who reaps profits or loss depending on his superior forecasting ability, or sheer luck in anticipating future supply and demand and investing accordingly.[30]

Risk and uncertainty, being basic facts of human existence and direct derivations from the action axiom should therefore never be assumed away at the outset of investigation, but must be integrated into any analytical model that seeks to describe how economic agents actually behave in our own world, as opposed to describing some hypothetical, alternative reality.

Therefore, one should not be fooled by the fact that Austrian and mainstream economists agree on the validity of many basic economic principles, and apply them in their studies in the exact same way as a sign that these divisions are superficial, or that they apply only to minor points of doctrine. The divisions are deep, and in the case of those principles on which the two traditions are in agreement, they agree that the principles are valid on radically different grounds.

A mainstream economist may for instance talk about the Ricardian Law of Comparative Advantage as being valid, and apply it in his research because he has faith in the wealth of historical evidence that supports it, yet he remains open, at least in theory, to the fact that it may not apply in all cases. His reliance on the law is based on historical data, and if he is true to his method, he would admit that should data that appears to contradict the law begin to emerge in great volumes the law would have to be modified or dismissed.

An Austrian economist however, would describe the principle of comparative advantage as being valid for all places and all times in all worlds in which the action axiom holds true, that is in any world in which human action remains a meaningful category. He would have absolute faith in the principle because it is logically valid, and would not need to be shown any particular examples of it's workings to accept it, nor would he accept any particular historical examples as contradicting it. The same difference applies to, for instance, the law of marginal utility, involuntary employment resulting from the application of minimum wage laws, or the quantity theory of money. In the words of Hoppe; "it is inconceivable that things could ever be different: It was so a million years ago and it will be so a million years hence".[31]

This stance may seem like a hard-line, closed-minded one, and Austrian scholars are often described as "market fundamentalists" by those not familiar with their epistemological reasoning, but it bears pointing out that this stance is not a blind article of faith, but rooted in a rigorous application of rationalist philosophy. It's rejection or acceptance on the part of any individual should

[30] (Mises, Human Action, 1996)
[31] (Hoppe, Economic Science and the Austrian Method, 1995) pg. 15

therefore, from the point of view of the proponents of the school, be based not on a pragmatic judgment call of whether the Austrian approach is, for instance, lacking in flexibility or not accommodating enough to dissenting views, but on whether it's philosophical underpinnings can be judged to be sound or not.

Chapter Two

2.1 Application of the methodology

Now that the methodological approach of the Austrian school has been described, it is time to apply this approach to the construction of a macroeconomic model based on the aprioristic approach. This is done so we can compare it with more mainstream treatments of boom/bust cycles and depressions, and thus see what impact the differences in methodologies has on the predictions and ultimately policy recommendations of the two traditions.

The model presented in the following sections relies heavily on Roger W. Garrison's book *Time and Money*, which in turn is based on the works of F.A Hayek and Ludwig von Mises. Another key resource in the writing of this chapter is the book *Modern Macroeconomics: It's Origins, Development and Current State,* by Brian Snowdon and Howard R. Vane. The model is composed of three elements, two which are familiar to every economist and one which is rarely encountered in macroeconomics, the Hayekian triangle. The purpose of each of the three elements is explained below.

The model differs radically from traditional macroeconomic models, both those who derive their legacy from the labor economics of the Keynesian schools of thought, and the money-driven economics of the Monetarist strands of thought. The main difference lies in the central role given to two elements regularly downplayed in macroeconomics – the structure of production and the passage of time. Also, in accordance with Austrian methodology and the causal-realist approach, the model must not violate the action axiom or any of its derived principles, which means it must not downplay the heterogeneity and uncertainty of the world, and not make unrealistic assumptions in the name of mathematical tractability. It should therefore be treated as a pedagogical model, a graphical illustration of logic as a visual aid to understanding rather than a mathematical model that allows for accurate predictions of movements in specific variables given such-and-such changes in other variables. No formula therefore accompanies this model.

The treatment of analytical knowledge as simply an arbitrary system which contains no knowledge of the real world until infused with empirical data allows for a very high levels of homogenization as a matter of course. Consumption and investment goods are often tallied up and represented by one variable, "Q", or all capital under the heading of "K". This is possible because the validity (or lack thereof) of any given model lies in its powers of prediction, not the soundness of its logic. In the Austrian tradition, these aggregations are used sparingly and often treated with mistrust. Indeed, it is very often the movements and interplay between mathematically intractable

factors that reside *within* familiar macroeconomic aggregates that Austrian economists are most interested in.

In a way Austrian macro occupies a rarely-traversed middle ground between micro- and macroeconomics, dealing with large issues such as business cycles, long-term industrial growth and international balance of payments using ideas most economists are used to encounter only in microeconomics, if at all.[32]

2.2 The Hayekian triangle, or the intertemporal structure of production

The first element presented is by far the most distinctly Austrian one, and is often referred to as the "Hayekian triangle" since Nobel laureate Friedrich Anton Hayek was the first Austrian to employ the graphical approach to modeling the structure of production, building on the writings of Carl Menger, Eugene von Böhm-Bahwerk, and Ludwig von Mises.

The Hayekian triangle represents the *intertemporal structure of production.* What this implies is quite simply, that making things, takes time, and not always the same amount of time. Certain objects and structures take a very long time to inch their way from their point of origin as raw materials to the hands of the buyer as consumption goods. As goods make their way from left to right, they increase in value, because they are steadily moving closer to being things we actually value. This has a direct praxeological basis in the notion that the value of the means is imputed backwards from the subjective value of the end being sought.

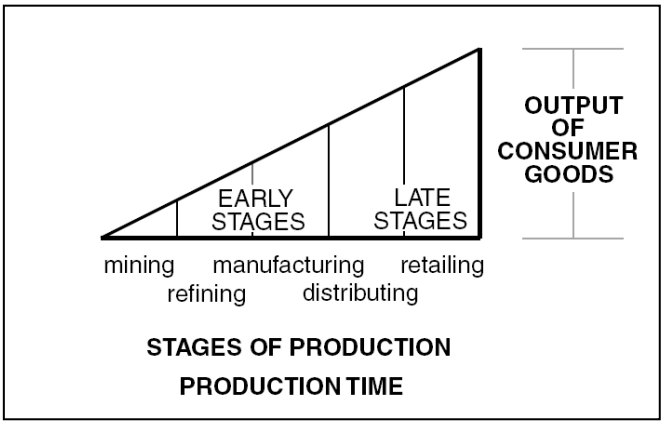

Fig. 1 The intertemporal structure of production (Garrison, Time and Money: The Macroeconomics of Capital Structure, 2001) pg. 47

The triangle as depicted above is an abstraction – the division into five stages is a matter of "pedagogical convenience"[33] it is not so simple as to hide the complexity of the production process from us, but not so overly complex (as the real-world production structure is) that we cannot wrap our heads around the essentials. Indeed the names given to the five stages are also abstractions – they correspond roughly to the general process, but should not be taken literally.

[32] (Garrison, The Austrian School, 2005) pg. 485
[33] (Garrison, Time and Money: The Macroeconomics of Capital Structure, 2001)

The horizontal axis has a double interpretation, "production time" and "stages of production". This means that one can look at this triangle as either the depiction of a single good travelling the path from raw materials into the finished products through injections of labor and complementary capital in the intervening stages, a process that occurs over a given period of time which is represented by the horizontal axis from left to right, or as the *distribution* of all goods in an economy across the various stages at any single point in time.

The main purpose of the Hayekian triangle is to allow our model to contain the vital element of time. A common practice in macroeconomics is to view capital as a homogenous "stock" or "endowment" that can be added to or subtracted from, and through which land and labor can be transformed into consumer goods, but this view does not explicitly treat the differing production time of the multitude of possible consumer goods as an endogenous variable. This leads to a situation where, judging from the model, it either looks like production is instantaneous, or that the production time, and it's lengthening or shortening as such is not relevant to changes in macroeconomic variables.[34]

The "black box" approach to the production process where labor and raw materials go in on one end and consumer goods pop out the other end without any attention being paid to the actual process is what the triangle is offered as an alternative to. The Hayekian triangle can be used to shed light on the problem of over-aggregation problem of macroeconomics as it pertains to the capital structure, and the movements of savings and consumption.

2.3 Unpacking the aggregates

The traditional domain of macroeconomics is aggregates – total investment, consumption, employment etc. in a given economic area, whose outer limits are most commonly defined by national borders or the employment of a common currency. Therefore, macroeconomists routinely sum up all economic decisions of a given kind in a single number. Probably the simplest yet most commonly used equation in macroeconomics is

$$M*V = P*Q$$

Where M is the total money supply, V is the velocity of money (how many times each dollar changes hands in a given time period), P is the price level of goods and Q is the quantity of goods and services in the economy. This equation as written above is a hallmark of Chicago School-style Monetarism, or the quantity theory of money. The implications of the equation are that any changes on one side of the equation must be mirrored by changes on the other side. If V and the Q remain

[34] (Garrison, Time and Money: The Macroeconomics of Capital Structure, 2001)

constant while M increases, P must increase, i.e. monetary inflation results in general price inflation. If V increases while M and P remain constant, Q must increase and so on.

As far as this goes the equation is valid by definition, but as it stands it describes the workings of an economy only if the variables truly are homogenous, that is if one unit of each is interchangeable from another. For M and V this holds true – an economic agent won't much care whether he holds this dollar or another dollar, provided both are legitimate dollars. V measures velocity, or the numbers of times each dollar changes hands, which is also a homogenous variable.

P and Q are a different story. "The" price level, as embodies by P does not concern an individual economic agent – what concerns him are the prices of the specific things he wishes to buy or sell, and he cares not one whit about the prices of things he has no stake in. This ties in directly with the heterogeneity of Q. Behind this simple letter lie all the various multitudes of objects and services a human being can possible buy or sell in any given economy at any given time.

One way of making the equation slightly less homogenous is to make a distinction between consumption goods and investment goods. Thus the equation becomes:

$$M * V = P * (Q_C + Q_I)$$

where Q_C is the quantity of goods consumed, and Q_I is the quantity of goods invested in a given time period. This allows for the tracking of movements *within* the variable Q and allows us to theorize about what may happen during independent, and perhaps opposite movements of Q_C and Q_I.

This distinction was made by one of the father of modern mainstream macroeconomics, John Maynard Keynes, who believed that Q_C was relatively stable over time while Q_I was prone to wild swings due to the irrational waves of pessimism and optimism, or the "animal spirits" of investors, leading them to either over- or under invest regardless of the fundamentals of the economy. This phenomenon required in Keynes's view government to step in and either rein the overzealous investors in, or engage in public works to make up the "output gap" when the investors were in a pessimistic mood.[35] This is the essential theoretical justification for such countercyclical program as the stimulus package recently enacted in the United States under President Obama. In this highly aggregative view, the problem posed by a recession is reduced to a simple problem of arithmetic – when the sums add up, the economy is in balance. This leads almost automatically to the assumption that when they do not add up, and there is some simple mechanism to make them add

[35] (Garrison, The Austrian School, 2005) (Garrison, Time and Money: The Macroeconomics of Capital Structure, 2001)

up such as government deficit spending or an expansive monetary policy, that mechanism should be used.

The orthodox Keynesian view of the relationship between Q_C and Q_I was that if there was change in one of these variables the other would soon follow it in the same direction. If investment decreased, wages would decrease, which would eventually dampen consumption, which again would dampen investment even more, leading to a downward spiral into depression in the absence of some kind of outside intervention to curtail the spiral.[36] Likewise, an autonomous decrease in consumption would lead investors to cut down on inventories and prepare for leaner years, pulling investment down due to the derived demand effect.[37]

However, in order to demonstrate the Austrian view, which contradicts both the Monetarist and Keynesian interpretations of this important equation we must unpack the investment aggregate Q_I even further, and give full play to the fact that all investment, and thus the structure of production, is forward-looking in time to varying extents.

$$MV = P(Q_C + Q_2 + Q_3 + Q_4 + Q_5 + Q_6 + Q_7 + Q_8 + Q_9 + Q_{10})$$

Here Q_I has been separated into nine stages, disaggregating investment according to how far away from producing finished goods fit for consumption the investment is. Please note that the number of stages in the equation is entirely arbitrary and for purposes of instruction of the general principle only. In reality each product on the market has it's very own unique structure of production and number of stages. All we are concerned with here is to illustrate that not all investment is equal in nature. This allows us to draw a distinction between say, an investment in bigger retail space (close to Q_C) as opposed to an R&D laboratory (far away from Q_C). As an economy grows, production processes become more complex and the number of stages increases as economic actors can devote resources to more time-consuming projects, having satisfied their immediate concerns (food, shelter, clothing etc) to such a degree that there are resources left over for the satisfaction of less important desires that require more elaborate production processes.

The sum of Q remains constant across all three variations of this equation – all we have done is separate the elements according to a specific criterion. We could disaggregate further, ending up with a separate numerical value for every industry or even every individual investment good in existence, but doing so would not accomplish anything of relevance for our purpose, which is to demonstrate the interaction between the derived demand effect and the interest rate effect.

[36] (Keynes, 1964)
[37] (Garrison, The Austrian School, 2005)

At this level of aggregation, what we have really done is insert the Hayekian triangle depicted in fig. 1 in numerical terms into the MV = PQ formula. Their level of disaggregation is the same. Q_C is the vertical leg, while the various stages of Q_I represent the horizontal leg. To complete our description of the Hayekian triangle it is important to note that in addition to the derived-demand effect, another effect is also considered to play a key role in affecting the variables – the time-discount effect, also known as the interest rate effect.

When consumption falls and people begin to save more, this causes those engaged in business in the late-stage (such as retail and services) to contract because of lessened demand. But increased savings leads to a reduction in interest rates that increases the profitability of early-stage investments, time-consuming ventures such as oil field exploration or refurbishing fishing fleets for example. Borrowing money for long periods of time becomes less expensive.

Both effects are, of course, considered to exert influence across all stages, but to varying degrees as can be seen in Fig. 2. At the mid-point, the two effects more or less cancel each other out. The key lesson here is that changes *within* the variable Q can be of more importance than changes *in* the variable.

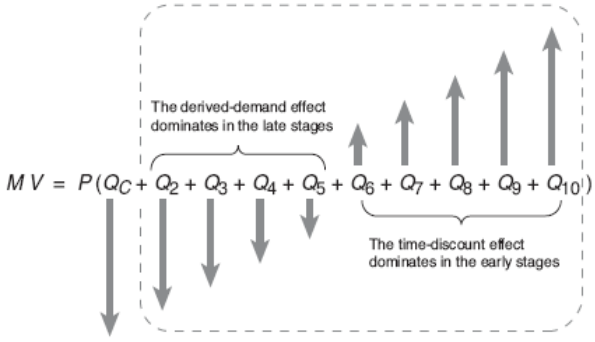

Fig. 2 The opposite movements of early and late-stage investment in response to a reduction in consumption (Garrison, The Austrian School, 2005) pg. 488

Q might change only slightly in terms of overall volume, yet change radically internally, becoming either more future- or present-oriented. This has major implication for the interpretation of many commonly used macroeconomic indicators, such as GDP and GNP numbers. If a GDP figure rises solely because of increased consumption, it may be bad news compared to a similar country whose GDP number stays stagnant, while its internal consumption/investment mix shifts towards investment. This disaggregated view therefore casts into doubt the notion that a rising GDP is a sign of economic growth, and therefore economic health, and a contracting, or stagnant GDP indicates an economy about to spiral into a recession that must be met with some kind of policy response. This may be the case, but it may not be. It is not

2.4 The investment/consumption trade off

The second element of the model is a simple production possibility frontier that allows us to depict the trade-off between preference to consume and invest. The curved line represents all possible sustainable combinations of investment and consumption. At the extreme left end of the curve, the total output of the economy is consumed and nothing is invested, and vice versa. Also, any point on the line is compatible with full employment of resources, including labor.

Should the economy find itself at a point inside the line, it is in recession, resources lying idle that could be utilized. If it is at a point outside the line, the economy is overheated which is to say that it is engaged in an unsustainable combination of consumption and investment which eventually must reverse itself.

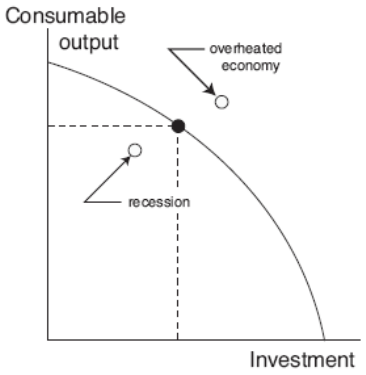

Fig. 3 The production possibility frontier (Garrison, The Austrian School, 2005) pg. 495

If investment exceeds depreciation of existing capital, economic growth will occur, causing a outward expansion of the curve. Similarly, should depreciation exceed investment, or if there is an exogenous shock to the capital stock for instance in the form of warfare or natural disasters, the curve will shift inwards as the number of possible combinations of consumption and investment decrease.

What determines which point on the line any given economy is positioned at are the time preferences of individual economic agents, that is whether they prefer to consume less now and more in the future, or vice versa. This ratio of savings to consumption is thus an aggregate of the decisions of everyone in the economy that has an income of some sort and the consumer sovereignty to be able to dispose of that income as they please.

Including this PPF allows us to link the intertemporal structure of production with the market of loanable funds(see below) through the decisions of individuals, and illustrate how the derived-demand effect impacts the production structure. It also allows us to illustrate graphically the boom/bust cycle.

2.5 The market for loanable funds.

The market for loanable funds is a supply and demand graph that depicts in a broad way how unconsumed resources are reallocated back into the structure of production and completes the model. It shows Savings(S) as equaling Investment (I) on the horizontal axis, and the market rate of

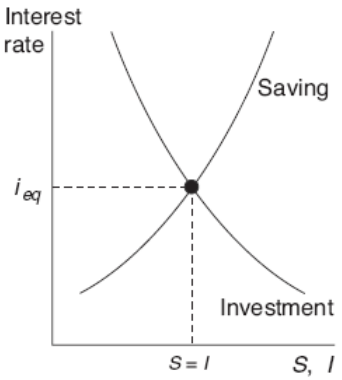

Fig. 4 The market for loanable funds Source: (Garrison, The Austrian School, 2005) pg. 490

interest on the vertical axis. Of course a complex economy will have an entire family of interest rates depending on the level of risk of any given project, the credit ratings of borrowers, and inflation expectations, but this rate is the "base" or "pure" rate on which all the others are based.

Including this graph allows us to represent the coordination mechanism between the decision to save and the time-discount effect's impact on the structure of production, "closing the circle" so to speak, and completing the model. The function of this market, like that of all markets is to serve a coordinating function between buyers and sellers in order to achieve maximum efficiency. As the interest rate of loanable funds plays a major role in investment decisions across the economy, it could very well be said that this market is by far the most important market of all, since loanable funds influence all other market decisions.

Being able to offer more products at a lower price, be they apples, oranges or automobiles, which is what economic growth is all about, depends in large part on being able to invest in more efficient means of production, and this requires access to capital. The loanable funds market must, however not be confused with a money market. It is a market for capital goods that is *expressed* in money. It reflects the interplay of people willing to temporarily relinquish their right-of use claim on capital into the hands of those who require more claims to capital than they own now, in return for a greater claim in the future. Money enters the picture solely as a way to avoid the problem of the double coincidence that a straight barter economy would impose. The existence of some form of currency therefore improves the efficiency of markets by eliminating transaction costs.

„Loanable funds" in Austrian parlance refers to „...the saving by all income earners made available to the business community to finance investment, to facilitate capital accumulation, to maintain and expand the economy's capital structure" [38]. It therefore also refers to savings in the form of retained earnings and the purchasing of equity shares. Essentially, whenever someone gives up consumption in favor of making part of his stake in the capital stock of society available to others, that stake enters the market for loanable funds. When allowed to be just that, the market for loanable funds provides the intertemporal synchronizing function that a complex economy needs, allowing investors and consumers to coordinate their behavior in a complex economy through the interest rate, which is just a price like any other, an expression of supply and demand. There is in the Austrian view no intrinsic reason why this market should periodically cease to function properly or

[38] (Garrison, Time and Money: The Macroeconomics of Capital Structure, 2001) pg. 36

lead to a spike in the number of poor investment decisions, such as happens during a speculative boom.[39]

However, if one keeps in mind that the money and other financial products that are traded in the market for loanable funds(such as bonds and equities) are just a veil, representitive of real factors of production such as land, labor and physical capital, then it follows that increasing the amount of money in circulation upsets the market and leads to different decisions being made.

2.6 The model assembled

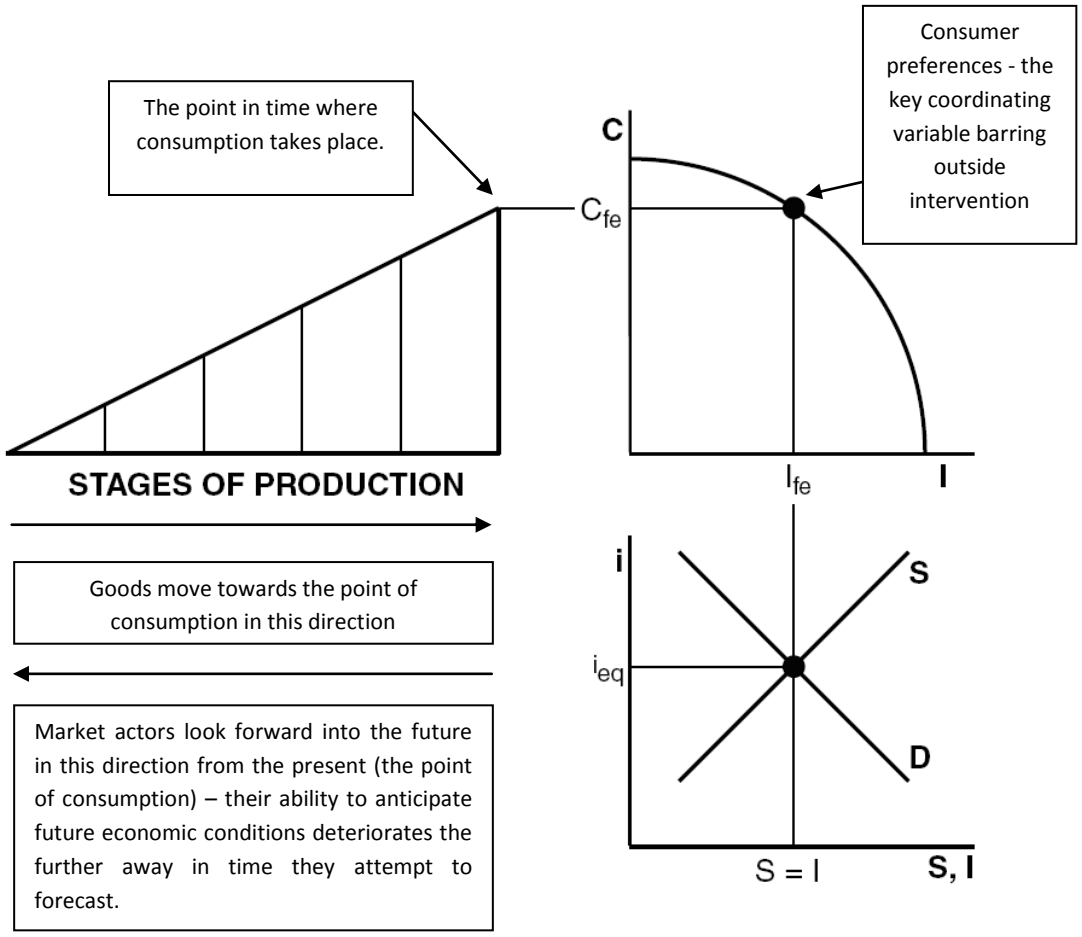

Fig. 5 The completed model

Source: (Garrison, Time and Money: The Macroeconomics of Capital Structure, 2001) with explanations added by the author

Now we can assemble the model and see how its components interact. One of the things that stands out is that vertical leg of the triangle measures the same thing that the vertical leg of the production possibility frontier measures (consumption), and the same goes for the horizontal leg of

[39] (Mises, Human Action, 1996) (Mises, The Trade Cycle and Credit Expansion: The Economic Consequences of Cheap Money, 2006) (Garrison, The Austrian School, 2005)

the PPF and the horizontal leg of the market for loanable funds, they both measure investment. Therefore these three elements are tightly linked analytically.

In the absence of exogenous shocks of any kind, be they natural disasters, technological innovation or government intervention, the key variable that causes the others to shift is the consumption/investment tradeoff depicted by the PPF. If people begin to save more and consume less, the amount of loanable funds increases while late-stage economic activity decreases. The increased loanable funds push down the interest rate, which boosts early-stage economic activity.

2.7 The interest rate as a reflection of consumer preference

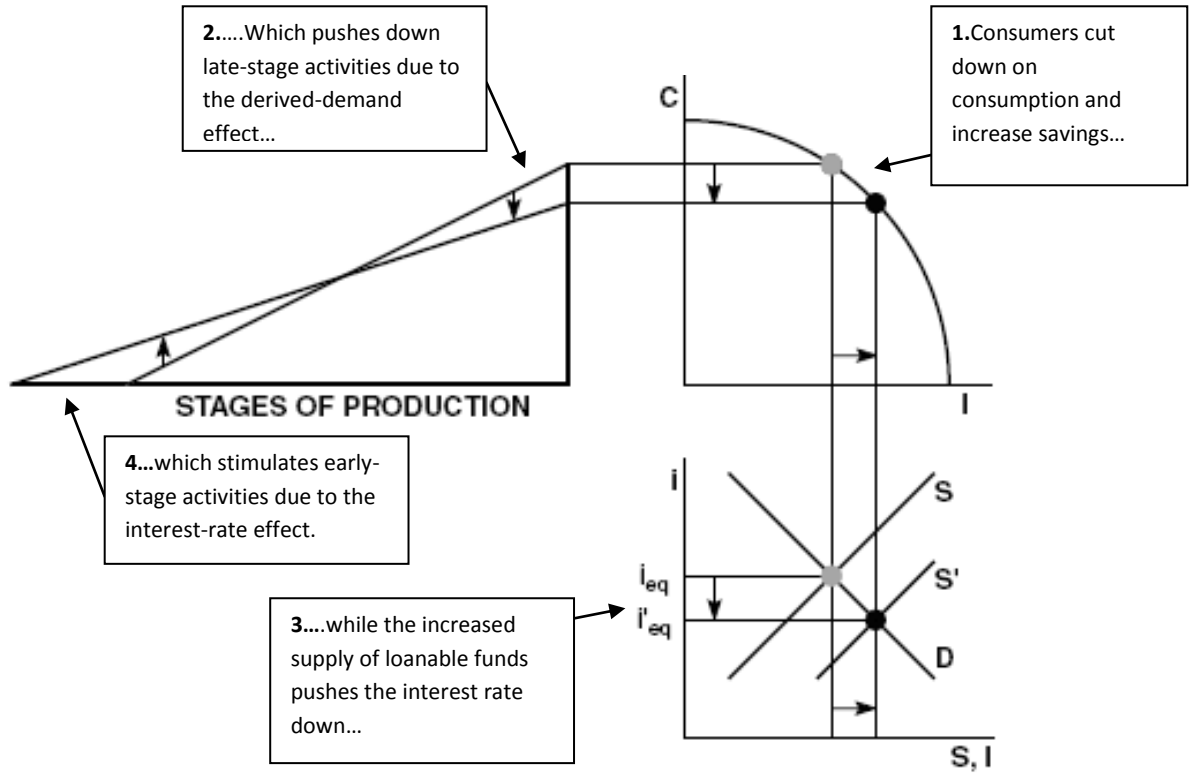

Fig. 6 (Garrison, Time and Money: The Macroeconomics of Capital Structure, 2001) pg. 62 (with added explanations)

The above graph tracks the changes that result from a change in consumer time preferences. The initial impulse for this restructuring of the production structure is a shift away from consumption towards investment, which depresses late-stage activities while simultaneously lowering the rate of interest due to the increased availability of loanable funds. This, in turn pushes up early-stage activities due to the dominant influence of the interest-rate effect.

Inherent in this process is a transition period of varying lengths – these changes do not happen instantaneously or without friction. The reduction in consumption causes cutbacks in industries that operate or are somehow dependent on the later stages of production(close to the

vertical leg of the triangle), and it may also take some time for the early-stage industries to take full advantage of the new, lower interest rates. Factories must be re-tooled or built; laborers must be re-trained and so on.

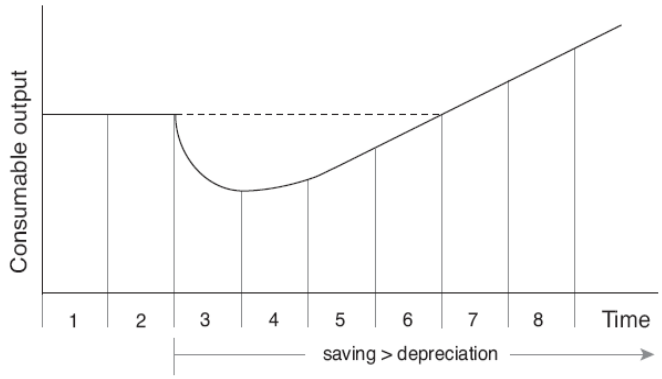

Fig. 7 A temporal pattern showing the change in consumable output of an economy that shifts from investing merely to offset depreciation of capital to exceeding it (Garrison, The Austrian School, 2005) pg. 480

A transition to greater investment thus leads to a temporary recession in the short term, while creating the conditions that allow for greater growth in the long term. This is demonstrated over time in Fig. 7. The flat lines in period 1 and 2 indicate that before the shift in period 3, investments were only equal to depreciation of capital. After making do with less than before in periods 3-6, the economy surpasses its previous sustainable potential, resulting in net long-term gain. How long this transitional period lasts is determined by the flexibility of the economy, such as whether it is easy to lay off workers and what the cost of starting up new business ventures, or how streamlined bankruptcy procedures are.

In very rigid economies, for instance where labor regulations prevent companies from easily moving their operations or the laying off of workers to adapt to changing conditions, the transition period might be of considerable length, as legislation prevents companies from discontinuing less profitable endeavors in favor of more profitable ones. The transaction costs of creating new businesses are also important. The more flexible and less bureaucratic an economy is, the more rapidly the production structure can morph into its new shape and begins to take advantage of the additional funds being released by declining consumption and increased investment, and therefore enjoy increased consumption compared to the time periods preceding this change.

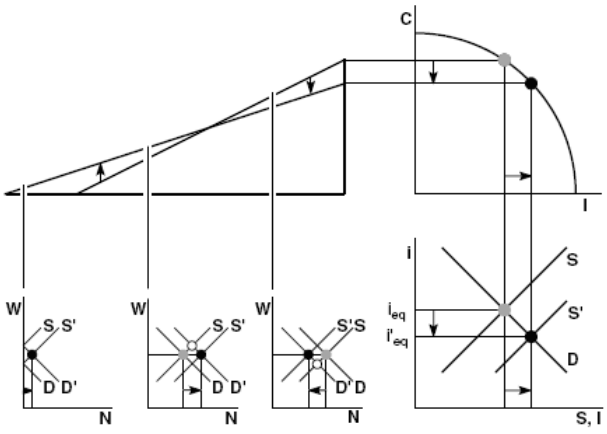

Fig. 8 Stage-specific labor markets (Garrison, Time and Money: The Macroeconomics of Capital Structure, 2001) pg. 65

On the right is an illustration of the interplay between the production structure and stage-specific labor markets,

represented as supply/demand curves where demand for nonspecific labor moves in sync with the steepness of the slope of the Hayekian triangle. One of the hallmarks of Austrian macroeconomics is that, much as *the* price level or *the* quantity of goods and services produces are not important variables, neither is *the* labor market. What people are actually doing is far more important than whether they have a job or not. Some jobs create value, while others do not. If a factory that produces popular products goes under, hiring the workers to, as an example, provide companionship to the elderly at the expense of the government does not restore the *status quo ante* even though the exact same number of people are now employed at the same wages as before. If human capital is locked up in ventures that are being run at a loss, having them lose their jobs is beneficial, as it is a necessary prerequisite of them being employed somewhere else where they are not destroying value, but rather creating it.

This is another manifestation of the lower level of aggregation that Austrian scholars theorize at. Which sectors are losing and gaining jobs is of far more importance than the overall level of employment, which tends to get a lot of public attention. An economy may be experiencing a higher-than-usual level of unemployment in some sectors, but if these losses are in accordance with the movements of the interest rate and there are signs of increased investment activity in the opposite sectors, unemployment *per se* need not be viewed as undesirable, but an unavoidable, transitory byproduct of an economy that is adjusting itself to better serve consumer preferences.[40]

Also of note is that the leftmost labor graph shows how a lower interest rate makes projects possible that at the older, higher rate of interest were not possible. The demand for labor in that sector intersected supply at a negative level of employment, but the newer, lower interest rate allows for some level of employment at an earlier stage of production than was previously possible. Specialized labor, such as highly educated workers whose earning potential would be reduced by moving to an earlier stage of production, can remain in employment in their previous stage only if they accept a wage-rate decrease, and the opposite holds true for specialized labor that was working in the stages that benefit from the interest rate decrease – their wages are bid up by the additional demand in their sector of the economy.

These auxiliary graphs representing non-specific labor can just as well represent nonspecific capital, such as commodities, tools and other equipment that can be used for a variety of purposes rather than being specific to a given stage of production. The core principle is that "In general and

[40] A good local example of this are the large layoffs being enacted in 2008-2009 in Iceland's construction industry, which are a neccesary part of the economy reorienting itself away from the housing bubble and into more sustainable industries. To put it horribly bluntly; a whole lot of people have to stop being carpenters regardless of their education or personal preferences. There is no need for all of them.

for any given stage of production, the specific factors undergo price adjustments, the nonspecific factors quantity adjustment".[41]

On the whole then, this model of an unhampered market economy presents changes in relative prices, wages and interest rates as a tightly-linked system for intertemporal coordination of economies to suit consumer preference that, when allowed to function in the manner described above, does just that. It sees market exchange not as inherently flawed in some fashion or prone to cyclical swings, but as an ordered process that in the long run is stable and whose output should not vary greatly over a short amount of time, since it is not very plausible that consumer preferences should change drastically overnight voluntarily without some substantial exogenous shock.[42] And even if they should change dramatically overnight voluntarily, that in and of itself would not change anything when it comes to government intervention into the economy – allowing the structure of production to change without interference would still provide the shortest route to accommodating the drastic swing in preferences.

This stands in stark contrast with Keynes's denial of the existence of "a nexus which unites decisions to abstain from present consumption with decisions to provide for future consumptions"[43]. This stems from the utilization of the interest-rate effect of early-stage production providing a counterbalance to the derived-demand effect, re-aligning the structure of production towards the implicit greater future demand for goods and services of those who are now abstaining from consumption. That Keynes would doubt the existence of such a nexus should not be surprising. The methodological approach that he and his successors employed (aggregate supply/aggregate demand) leads to a focus on variables at a higher level of aggregation than the nexus can be illustrated at or even talked about. Since the structure of production is mathematically intractable and can only be dealt with at an analytical level, considerations of it have fallen out of favor in modern economics. The practical result of this is that mainstream economists tend to advocate some measure of government and central bank interventions to counterbalance economic fluctuations in the interest of stability, primarily through fiscal and monetary policy, as they cannot easily represent the nexus that unites decisions in their chosen intellectual framework.

[41] (Garrison, Time and Money: The Macroeconomics of Capital Structure, 2001) pg. 65-66

[42] Although this can happen in response to drastic environmental changes. Jesús de Huerta Soto, from a contemporary account of the Italian poet Boccaccio who described in 1360 the sudden change in behavior among the people of Florence when the Great Plague struck the city writes; „the epidemic caused people to anticipate a drastic reduction in life expectancy, and thus entrepreneurs and workers, instead of saving and "lengthening" the stages in their production process by working their lands and tending their livestock, devoted themselves to increasing their present consumption." (Soto, 2009) pg. 346

[43] (Keynes, 1964) pg. 21

2.8 Money as tool for coordination and dis-coordination

At this juncture it is necessary to say a few words about money. The reader may have noticed that nowhere in this model is there a special axis or graph representing the supply of money. There is a reason for this. Money is "on every axis of every diagram"[44] serving as the medium of exchange to overcome the inefficiencies of barter. As such, in the realignments of the economy depicted in figures 6 and 8, the money supply is assumed to be fixed in quantity. Under that assumption, the model functions the same regardless of whether money is assumed to be in the picture or not.

Money in the Austrian view is an important tool for economic coordination and calculation, and plays a key role in allowing a complex economy to grow out of a simple one, but what it is not seen as is a policy tool whose manipulation creates superior outcomes to those that arise should the money supply remain untouched.

The view of monetary manipulation by authorities as a universally negative influence on intertemporal economic coordination has been a hallmark of the Austrian school since the beginning of the 20th century, and is probably the theory that the school is most well known for, as well as the most controversial. Hayek described money as a potential "loose joint" in an otherwise tightly organized system.[45] When the money supply remains constant, the joint is tight and money as such acts simply as a veil, a medium for the exchange of real goods and services. When the money supply is either contracted or expanded, the joint is loosened, and these changes in the quantity thus exert real influence in the economy, and not just on the general real values of debts and savings due to changes in the nominal price level. When the joint is loosened, it distorts the entire structure of production through a change in relative prices of all goods and services, because the new money does not fall into the hands of all holders of commodity credit in the "correct" proportions, leading to a uniform rise in nominal prices while having no other effects. The new money enters the economy through the banking system, and thus borrowers obtain access to it while the old price structure is in place, while others obtain the new money only later, after prices have risen. Prices therefore rise unequally and over a substantial period of time, during which the holders of the new money have the advantage of being able to bid to their enterprises real capital at bargain prices. Eventually, the prices even out at a new, higher equilibrium, but not before the economy has been disfigured.[46]

[44] (Garrison, Time and Money: The Macroeconomics of Capital Structure, 2001) pg. 52
[45] (Garrison, Time and Money: The Macroeconomics of Capital Structure, 2001)
[46] (Mises, The Trade Cycle and Credit Expansion: The Economic Consequences of Cheap Money, 2006), (Hayek, 1990)

The Monetarist counter-revolution to Keynesian economic doctrine focused on the former but entirely ignored the latter, prompting F.A Hayek to note that:

> *Its*[Monetarism's] *chief defect in any situation seems to me to be that by its stress on the effects of changes in the quantity of money on the general level of prices* it *directs all-too exclusive attention to the harmful effects of inflation and deflation on the creditor/debtor relationship, but disregards the even more important and harmful effects of the injections and withdrawals of amounts of money from circulation on the structure of relative prices and the consequent misallocation of resources and particularly the misdirection of investments which it causes*[47].

This "chief defect" of Monetarism, although it is correct in identifying that inflation is, always and everywhere, a monetary phenomenon, stems from the fact that the Monetarist, despite their opposition to Keynesianism, conducted their research at the exact same level of aggregation, using the same methodology and, if anything, took it to an even higher level of aggregation by dealing simply with "Q" instead of "Q_C+Q_I".

Therefore, Friedman and his disciples correctly identified the culprit responsible for booms and busts (money supply manipulations) but arrived at the conclusion that what was needed was stable monetary growth to match economic growth, in the name of a stable "price level". This shows quite clearly how the level of abstraction can directly impact policy advice. When you study the economy exclusively at the level the Monetarists did, you can only see *the* price level. Relative prices are invisible, hidden inside the aggregates. Thus, only certain problems and certain solutions are visible.

If one takes the Austrian view of the structure of production, such stable growth in the money supply is, in the long run, anything but stable. By constantly adding to the money supply, the Monetarist policy advice distorts the production structure, although not in as erratic a way as the activist monetary policies of the Keynesian variety. Over time these distortions build up and precipitate business cycles.

[47] (Hayek, 1990) pg. 80

2.9 How adding to the money supply causes business cycles

We can illustrate how, according to the Austrian view, an increase in the quantity of money in circulation serves as a dis-coordinating influence on the economy:

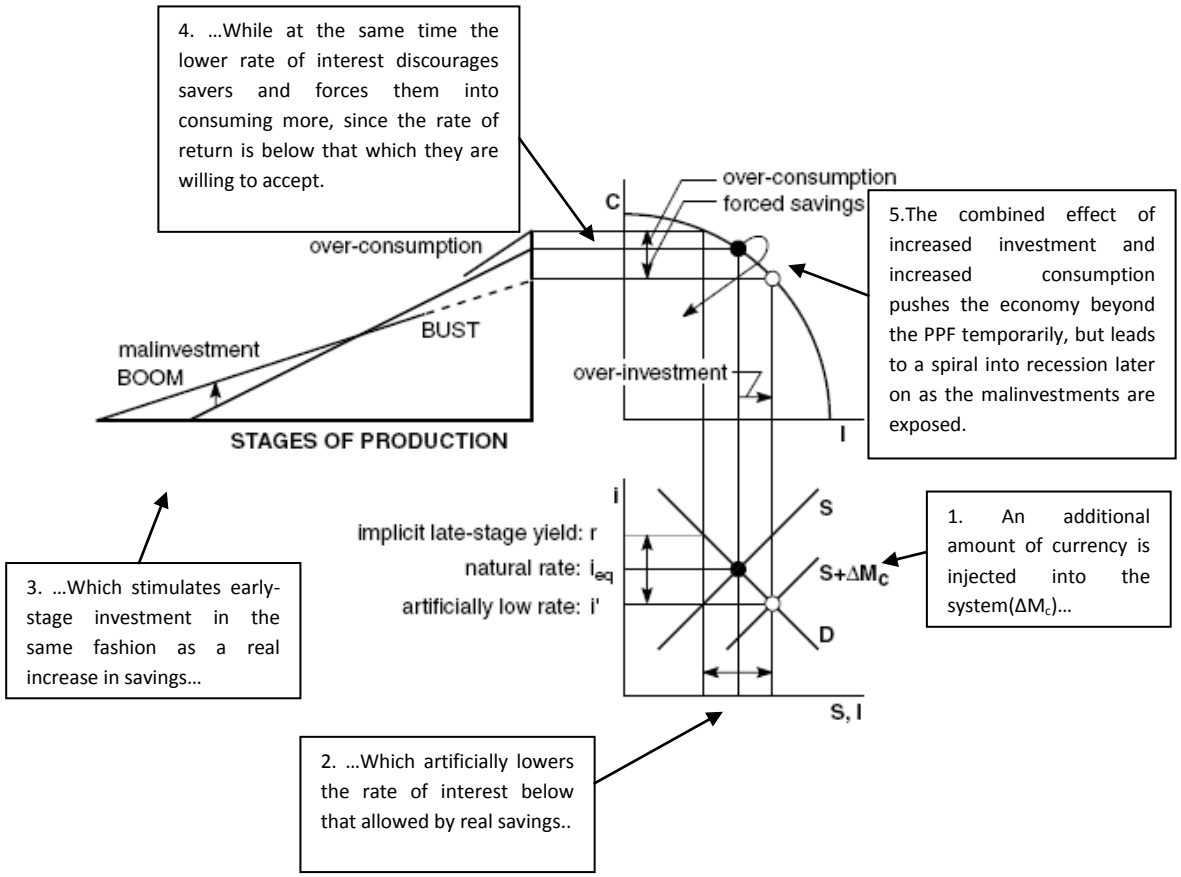

Fig. 9 A boom-bust cycle triggered by an expansion of circulation credit. (Garrison, Time and Money: The Macroeconomics of Capital Structure, 2001) with added notes by the author

The process described above shows how an injection of new money causes dis-coordination across the Hayekian triangle – early and late-stage ventures are bid up through the simultaneous working of the derived-demand and interest-rate effect. The economy booms temporarily as both producers and consumers benefit from the arrangement of having new money created from thin air by governments and central banks take the place of the relinquishment of real savings by consumers, who can now consume it instead and still derive the benefit of an economy that behaves *as if* they had saved. But this boom is unsustainable because of the difference between *commodity credit* and *circulation credit*.

Commodity credit is money that represents a real sacrifice of consumption, and thus a claim on existing real capital that can be lent to others at an interest without distorting the structure of production. Circulation credit represents no such sacrifice – it is merely the creation of credit out of

thin air, typically by a government printing press or the operations of a central bank.[48] Eventually the structure of prices will adjust to reflect the added amount of circulation credit and indeed absorb it. After the boom/bust cycle has passed, prices will reflect the addition of credit in circulation, and if there are no further expansions or contractions of the money supply, the added circulation credit will become a part of the pool of commodity credit at new and higher nominal prices throughout the economy. However, this can only happen after a period of economic dislocation whose length and severity depends mainly on the degree of divergence between the market rate of interest and what the market rate would have been in the absence of additional injections of money.

It is also worthy of note that this new circulation credit need not be created by domestic authorities. The model above depicts a closed economy without international trade or capital flows, but as long as people in one region can avail themselves of credit denominated in the currency of other regions, expansions of credit in one country can translate into a boom/bust cycle in another country. The dramatic rise of currency basket loans in Iceland is a case in point, as investors and consumers alike availed themselves of these loans because of their lower rate of interest compared to the local currency.

2.10 The Icelandic boom and bust

Using the recent experiences of the Icelandic economy as a case in point, it is this state of affairs that allowed people to invest heavily in new skyscrapers and the building up huge new residential neighborhoods, while at the same time as consumption of consumer goods went through the roof. This is a state of affairs that can not take place in the absence of credit expansion. Without credit expansion current consumption must be deferred for future investment to increase.

Without a flood of new, cheap circulation credit, interest rates would have risen higher much earlier as demand for loanable funds outstripped supply, aborting the housing bubble before it could really get underway. With the flood of cheap credit into the banking system, both the plans of consumers to consume more, and investors to invest more, could be partially carried out – but only partially. Eventually the underestimated scarcity of real capital makes itself known, and it becomes apparent that not all of the plans will be. This is what produces *malinvestments,* investments that cannot be completed because there is not enough complementary capital available to either finish them, or if they are finished, there will not be enough demand for its goods or services for the investment to turn a profit, which there seemed to be at the time the investments are made. The boom can be sustained only if credit expansion is supplied in ever larger doses, and should the pace of credit expansion slacken, the malinvestments are exposed, leading to panic, a wave of

[48] (Mises, The Trade Cycle and Credit Expansion: The Economic Consequences of Cheap Money, 2006)

bankruptcies and general economic hardship as consumers and investors alike must radically alter their plans in a short amount of time.[49]

2.11 Malinvestments as the inevitable result of credit expansion

The concept of malinvestments as opposed to simply over- and underinvestment is a byproduct of the lower level of aggregation that the Austrian school deals with macroeconomic issues – abstracting away the complexity of the intertemporal structure of production, such as by dealing in the mathematically tractable Aggregate Demand, Q, or tracking the rising and falling of GDP, the concept simply cannot be properly articulated. But malinvestments are at the heart of the Austrian account of booms and busts. According to von Mises:

> *The erroneous belief that the essential feature of the boom is overinvestment and not malinvestment is due to the habit of judging conditions merely according to what is perceptible and tangible. The observer notices only the malinvestments which are visible and fails to recognize that these establishments are malinvestments only because of the fact that other plants—those required for the production of the complementary factors of production and those required for the production of consumers' goods more urgently demanded by the public—are lacking.*[50]

Mises's articulation of the difference between malinvestment and overinvestment exposes the crux of the problem and gives a praxeologically sound explanation of *why* there is a cluster of ill-conceived investment decisions that leads to the bust. The dis-coordination created by the increase of circulation credit, and the deviation of the entire tree of interest rates from what a strict commodity money supply would have produced, leads to a wave of unsound economic calculation among investors. It is important to note that the behavior of the investors engaged in the malinvestments should not be classified as irrational – it is rational, but reasoned from a flawed set of premises[51], namely the amount of actual, real capital available in the economy and the cost of borrowing that capital.

The bust period in which demand collapses, people are forced to save to pay off debts, and bankruptcies are common is not in and of itself the pressing economic problem in need of a solution.

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[49] (Garrison, Time and Money: The Macroeconomics of Capital Structure, 2001) (Mises, The Trade Cycle and Credit Expansion: The Economic Consequences of Cheap Money, 2006)

[50] (Mises, Human Action, 1996)*[50]* pg. 559

[51] Incidentally, this was John Locke's definition of a madman – someone who reasons correctly from erroneous assumptions, so it is hardly surprising that, from an outsider's point of view and with the benefit of hindsight, the behaviour of Iceland's *nuveau riche* in the years leading up to the bursting of the housing bubble seems like sheer lunacy. Of course moral hazard issues were also present, but without easy money to engage in morally hazardous investment behaviour with, the speculative banking and housing booms could never have gotten off the ground in the first place.

In the Austrian view, it actually *is the solution* to the problem. These malinvestments must be liquidated, laborers and capital directed into new production processes that are in sync with the new economic reality, and consumption abstained from in order to re-build a pool of commodity credit that can be utilized for the resumption of stable economic growth. A collapse in aggregate demand should therefore not be fought, but rather embraced as the first step towards a re-unification of consumer preferences and the behavior of investors. Further disturbing the system through measures such as stimulus packages or attempts to impose price and wage controls will only serve to prolong the adjustment period and postpone the re-acquisition of intertemporal coordination based on sound economic fundamentals.

2.12 Historical episodes

It has been known for a long time that the years leading up to the bursting of speculative bubbles and severe recessions have, by and large, been periods of large-scale credit expansions. This can be traced back to such early historical episodes as the Dutch Tulip Mania in 1635-1637, the collapse of the Mississippi Bubble in the 1720s and the concurrent South Sea Bubble in Britain, as well as more contemporary episodes such as the stock market bubble of the United States in the late 1920s, Japan's combined stock and real estate bubble in the late 1980s, the "dot-com" bubble of the latter half of the 1990s, and especially the massive credit expansion in the United States in the wake of the terrorist attacks of 2001, in which Alan Greenspan lowered interest rates to unprecedented levels and kept them there for a period of two and a half years. Keeping interest rates at or below the rate of inflation as Greenspan did can only be done by adding substantially and continuously to the money supply, which in an Austrian analysis must, by logical necessity, lead to a boom, an asset bubble, and a subsequent bust in which large amounts of malinvestments are exposed. This is the process that according to the Austrian theory of the business cycle is at present playing itself out in the world's financial markets.[52]

In all of these cyclical episodes of boom followed by a bust, events transpired that significantly increased the availability of circulation credit, leading to a period of intense economic activity and general prosperity, lasting from a few years to close to a decade, in which certain asset classes saw a huge spike in nominal valuation and become intensely popular among investors and the general public alike. What these asset classes actually are depends on specific circumstances at any given time. They can be real assets such as tulips, stock in a specific company, stock in a certain industry (such as tech stocks 1990), or as broad an asset class as real estate in general as has been

[52] On pre-20th century speculative bubbles and experiments with the new (at the time) instrument of fiat money, see (French, 1992). On monetary expansion leading up to the Great Depression see (Rothbard, America's Great Depression(5th ed.) , 2000)For Japan's boom and bust, see (Powell, 2002)

the case in recent years. In all cases the prices of these assets are bid up to tremendous levels, going into debt is seen as a risk-free endeavor since what you are going into debt to buy is assumed to keep appreciating, and lending standards decline dramatically. Eventually though the bubbles must run out of steam, since the underlying real economy (land, labor and capital) is insufficient to carry out all these investment plans at once(the malinvestments are exposed), panic sets in as people realize that they overpaid for their assets, and the bust occurs. Banks are forced to re-impose lending standards, raise interest rates, and rebuild their cash reserves in order to survive. The slowdown in economic activity reduces the velocity of money in the economy, which leads to a collapse in the real money supply.

The collapse in the money supply on one hand and aggregate demand on the other that accompanies a bust are seen, respectively by Monetarists and Keynesians, as the reasons for the recession. The Austrian view is that both of these schools are mistaking symptoms for causes. Yes, the real money supply collapses and aggregate demand may be greatly diminished when the bust hits, but in order to understand the true cause of recessions and depressions, one must go one more step back and ask what caused these two things to happen? Both phenomena can be traced to a common cause – the initial increase in circulation credit that triggered the boom in the first place.

Chapter Three

3.1 Implications for international economics

The notion of credit expansion as a force for intertemporal dis-coordination also has important implications for the field of international economics and trade theory. In mainstream textbooks on the subject[53], considerations of the heterogeneity of capital in the vein of the Austrian model are no more prevalent than they are in macroeconomics proper, and theorizing about capital and the structure of production is done primarily in the form of the familiar aggregates of GDP, aggregate demand/supply etc. A good example of how this impacts policy recommendations is this passage:

> *Governments often try to predict the cyclical behaviors of their major trading partners in order to adopt timely domestic macroeconomic policies to offset their impacts. If, for example, the Canadian government believes that the United States will enter a recession within a year, it may prepare to adopt more expansionary fiscal or monetary policies* to maintain GDP[Emphasis added] *despite the loss of export sales.*[54]

The current standard international arrangement of managed, floating exchange rates that grew out of the breakdown of the Bretton Woods system of fixed exchange rates[55] is considered in the mainstream paradigm to be a tool that grants flexibility and allows for stabilization, a way for nations to have the freedom to insulate themselves from foreign downturns and prevent negative effects on their export sectors. In the mainstream understanding, employing loose or tight monetary policy to manipulate the exchange rate, import and export industries can be shielded from international fluctuations in supply and demand, creating stability at home.

For instance, an expansionary monetary policy is supposed to be able to shield exporters from a drop in demand for their products, and thus a corresponding decline in domestic employment and GDP without incurring the balance-of-payment disequilibrium that would result under a regime of fixed exchange rates. Instead the domestic currency depreciates to offset the decline in volume of exports, leading to a smaller (or nonexistent) shift in the value of the exports.[56] This is an example of the "insulation argument" for floating exchange rates.

The rationale behind Canada adopting more expansionary fiscal and monetary policies to maintain GDP in the face of decreased demand for its products abroad is another manifestation of

[53] Such as (Dunn Jr & Mutti, 2004) and (Krugman & Obstfeld, 2009)
[54] (Dunn Jr & Mutti, 2004) pg. 416
[55] (Krugman & Obstfeld, 2009) ch. 18
[56] (Dunn Jr & Mutti, 2004) ch. 19

how methodology can direct the path of economic inquiry and thus affect policy advice. It is based on the notion, which is a rational notion within the paradigm of empiricism, that maintaining GDP is an end in itself, since GDP growth tends to correlate strongly with rising living standards. This is a direct outgrowth of the level of aggregation that mainstream economics is forced by its methodology to operate at. GDP is easy to quantify and thus to work into mathematical models, compare with other tractable variables, and use in predictions. In the Austrian view, the longer-term effects of the expansionary policies taken to offset the changes in foreign economies are not being taken fully into account. The empiricist cannot easily discern them or articulate them within his methodological framework, and thus they "fly under the radar" so to speak.

The Austrian economist, on the other hand, can discern and articulate these longer-term effects. Resorting to credit expansion to offset a change seen as negative for the economy degrades intertemporal coordination in the same way as it would in a closed economy.[57]

There is no inherent difference, from the point of view of the producer, between a drop in demand for his product that emanates from a foreign country or from a customer at home. Both are market signals to him that demand is down and he must adjust his affairs accordingly. Drops in foreign and domestic demand alike are valuable pieces of economic information that allow complex economies to coordinate themselves. In this case, a message is being sent to the producer "contract, we do not need as much of your products as before". In the absence of insulation, this would lead to the producer releasing capital by laying off workers, closing plants etc, that would free those resources up to be bid away to other enterprises, whose owners are confident they can turn a profit under the new structure of relative prices. Undoubtedly there will be some lag time in between while the production structure reorients itself to face the new conditions, leading to a temporary output gap and a period of less than full employment, but that is a part of the process of reorientation rather than a problem that needs to be solved by authorities. Interfering in the process serves primarily to delay the reorientation and thus waste resources by propping up businesses that need to either change their behavior, contract or be outright eliminated from the economy.

The changes in relative prices between goods, factors of production and labor that arise out of shifts in the supply of money (which is the only way an exchange rate can be manipulated in the first place) cannot be isolated to the export industries alone. They must, unavoidably, also impact all prices in the economy and thus distort the entire structure of production. This also means that the counterbalancing measure also reverberates out of the economy being insulated into the production structures of other countries. Monetary policy and exchange rate policy are, after all, just two sides

[57] (Glavan, 2005)

of the same coin. In any case, the insulation extended to the exporting sectors through exchange rate manipulation is only a short-term insulation – the expansion of the money supply needed to depreciate the currency in order to offset falling demand abroad eventually percolates throughout the economy and leads to a new structure of domestic prices. This means that even though the revenues of the exporters have not fallen in nominal terms, they will have fallen in real terms.[58]

The superficially counterbalancing measures therefore can also precipitate a business cycle of their own in the home country later on. It is quite possible to picture the recurring national, regional and now global financial crises that have plagued the planet almost continuously since the demise of the Bretton Woods agreement as interventions to offset other interventions, which then spark another round of crises later on, leading to another round of interventions and so on. Waves of distortions emanate from one country and when they hit others severely enough, they respond by sending out their own waves, further inducing global imbalances.

In an Austrian analysis of international economics, the soundest policy would be to allow the export markets to fully receive the signal that foreigners, for whatever reason, either cannot or will not purchase as much as they did before, and adjust accordingly. This may not be politically popular, especially if the drop in demand is the result of some kind of obvious protectionist measure, such as the imposition of tariffs, or subsidies to competitors in the foreign country that are viewed as an underhanded way to game the system. Regardless, responding to a market distortion with another market distortion does not lead to a situation where they cancel each other out, but merely adds insult to injury, and distorts the communications between consumers and producers even further. This basic principle of the Austrian school thus applies regardless of whether these communications take place across national borders or not.

Even if a nation were to come to the conclusion that it's trade partner was about to embark on a boom/bust cycle of its own by engaging in expansion of the money supply (possibly employing the Austrian analytical model presented in this essay to anticipate this impending disaster!), and would like to insulate itself from any transmission of those distortions, it would not be able to employ exchange rate manipulation, controls on capital flows or other policy measures to do so. The complex and lengthy production structures of modern industrialized nations are interlinked on so many levels, and compete for resources on both an international capital market and an international commodities market. Even if a country were to cut any direct trade ties with the country suspected of being in the process of fostering a boom/bust cycle, it would still be bidding for resources, and offering resources, on those two markets. Through those markets, changes in the relative prices of

[58] (Glavan, 2005)

capital, consumer goods, commodities spill over from one country to another indirectly. According to Bogdan Glavan:

> *Total insulation against a foreign induced business cycle can be achieved only by a complete prohibition of all exchanges[with the outside world], that is in an autarkic economy. Because the freedom of exchange allows individuals to specialize in production and thus contributes to the formation of an elaborate structure of capital, the isolationist region rejects the benefits of the division of labor. Thus, the counterfactual price to be paid by the protectionist would be a complete economic backwardness.*[59]

A national economy is therefore faced with a rather grim, but logical dilemmna. If it wants to avail itself of all the benefits of the international division of labor, it must also accept that dis-coordinating policies pursued by foreign governments will always spill over into the domestic economy to some degree. There is no option that allows for exposure to the positive sides of globalization alone.

3.2 Austrian policy recommendations

The question then becomes what a nation can do to lessen the impact of business cycles emanating from abroad if it cannot employ any of the common interventionist policy tools to do so? The following is a short list of policy recommendations

1. **Hold the money supply constant under all circumstances.** Regardless of any dis-coordination being introduced into the international system by other parties, it is unwise to contribute to it any further, which attempting to somehow match or offset foreign distortions would do. Holding the money supply constant also contributes towards making the market interest rate match consumer preferences as closely as possible, although in an international financial order, foreign money supply manipulations will continue to provide distortions. Ideally, all nations would benefit in the long run from a mutual agreement to neither expand nor contract their money supplies at all.
2. **Make the economy as flexible as possible.** The faster your domestic structure of production can adapt to rapid changes in economic fortunes, good and bad, the faster it can recover once the bust hits. This essentially means making the absolute and relative price adjustments mentioned in section 2.7 as smooth as possible. This is

[59] (Glavan, 2005) pg. 17

done firstly by not extending government subsidies, guarantees or special aid to any industry that has grown during a boom and therefore needs to shrink during the bust. This allows for maximum exploitation of new entrepreneurial opportunities as other industries become relatively more profitable in the wake of the crash. Wages of labor and prices of the factors of production must be allowed to adjust downwards or upwards (as the case may be) in response to the new market conditions. The quicker these adjustments can take place, the quicker the economy will recover.

3. **Discourage debt and consumption, reward savings and investment.** Large amounts of debts make economic downturns much harder to deal with. This applies equally to individuals, companies and governments. Unfortunately, the tax codes of many countries punish thrifty companies who turn a profit and pay dividends, while rewarding those who accumulate debt by not taxing them nearly as much. A nation which engineers it's tax code to fall mainly on those who consume beyond their means, while leaving alone those who live on the dividends of their savings (no capital gains tax for instance) will see an increase in the general level of savings in the economy. The government, of course, should lead by example and run balanced budgets, always. If social services cannot be rendered without racking up debts, then the brutal truth is that they simply cannot be afforded and should be discontinued, at least temporarily. A logical outgrowth of this is that no country should extend to it's citizens long-term social guarantees that it may not be able to afford in the future. Social security programs, if desired, must therefore be fully funded beforehand, and not rely on projections of future revenues that may not materialize.
4. **Have high reserve ratio requirements for banks.** Ideally, an Austrian policy advisor would recommend that all banks operate under a 100% Reserve scheme, i.e they would only lend out time deposits and not demand deposits as this would totally eliminate bank runs and therefore the need for government guarantees (see point 6 below) But the higher the reserve ratio, the more robust the bank is, and in today's modern banking environment, even a 50% reserve ratio would be considered quite high. Such conservative banks may lag behind in performance during booms, but they become magnets for capital seeking a safe haven during busts, which is exactly when a nation needs to attract foreign capital the most.
5. **Invest in substantial gold and silver reserves.** The rationale behind this is similar to the rationale behind high reserve ratios. Gold, the "barbarous relic" does not yield dividends and often performs poorly compared to stocks, bonds and fiat currencies during periods of economic growth, but in times of war, market uncertainties and

especially severe recessions it becomes popular again. A government in search of a "shock absorber" for foreign business cycles would be wise to accumulate substantial minority positions in gold and silver, perhaps in a 20-40% ratio to foreign fiat currency reserves. As a countercyclical financial product (its value falls when other things go up and vice versa), gold is ideally suited to smooth out business cycles. Governments should also make it easy for companies and individuals to hold small personal gold reserves, for instance by waiving transaction fees and providing tax benefits for holders of gold.

6. **Eliminate moral hazard and discourage risky behavior.** Extend no implicit or explicit government guarantees to any bank, financial institution, company or individual. No company is too big to fail, and in fact the bigger they are, the more important it is they be allowed to fail if they are not turning a profit, as they are tying up capital in an unproductive operations that consumers do not want, or cannot afford. Liquidation and market reallocation of their resources is necessary. Also, if every player in the market knows that there will be no rescue operation for anyone their behavior will be very different from that which exists in an environment of guarantees – even unspoken ones. Corporations and financial institutions will be far more reluctant to take risks, and individual customers will demand transparency and quickly yank their money out of ventures considered overly risky. If government provides regulation, guarantees and official stamps of approval, there is very little incentive for individuals to care much about what their banks and corporations are doing with their money – if they fail their bank deposits are guaranteed by the government, for example. This also has the effect of making conservative business practices a marketable commodity, which it is not when governments guarantee all market actors in a sector equally. Under such a regime, the only way to stand out from the competition is to offer a higher rate of return. Lack of guarantees makes the stuffy, conservative bank that adheres to higher-than-required lending standards, or the corporation that stays away from risky ventures and does not expand rapidly an attractive place to invest even during times of good economic performance. Greed must be counterbalanced by fear, and actively fostering market or consumer confidence is not always a good idea. Sometimes it is rational to *not* be confident.

These policy recommendations may seem quite outlandish, if not outright counterproductive, to an economist steeped in conventional macroeconomic analysis. In fact, these recommendations are almost the complete opposite of the conventional view of how to

counter recessions, which call for deficit spending, financial stimulus packages, exchange rate manipulation to offset foreign changes in demand, encouraging consumption and extending government guarantees to restore confidence in the system. This difference reflects the Austrian preoccupation with the boom period as the seed of the bust and thus the root cause of the problem, while mainstream analysis tends to see the eve of the bust when aggregate demand collapses as the starting point of the problem to be solved. What went on before is not linked directly with the bust itself.

These radically different policy proposals ultimately stem from the different levels of aggregation that Austrians study the economy at, which in turn stems directly from their different methodologies. Therefore, at the end of the day, reconciliation, consensus and mutual understanding between these two broad schools of thought can only take place if there is first a debate about *what economics is*, and what the methodological, and ultimately the epistemological basis of the discipline is going to be in the future.

Conclusions

The philosopher of science Daniel Dennett once said “just as you cannot do much digging with your bare hands, you cannot do much thinking with your bare brain”. The systems of thought and rules of research we adopt as seekers of knowledge shape not only our personal biases and preferences, but also the degree of ease with which we can approach different problems. Much like you cannot do much carpentry armed only with a blowtorch and a laptop computer, you cannot easily deal with large degrees of complexity, uncertainty and heterogeneity armed only with the empirical method of research. Different tools suit different tasks. This author would argue that the current empirical paradigm of economic inquiry is inherently incapable of predicting recessions, not because empiricism is inherently a poor methodology, but is simply inappropriate to the task at hand.

The Austrian critique of empiricism, the currently dominant methodology of economics, cuts deep to the very epistemological foundation of the empirical method in general. It presents an extensive and well-researched case for why different methodologies are necessary in the natural sciences on the one hand, and social sciences on the other, in the interest of preserving the underlying logical consistency of scientific inquiry and providing philosophical justification for empirical method as a valid methodology in the fields of the natural sciences where it properly belongs.

The conclusions the school draws from its analytical, aprioristic methodology are radically different in all respects from those drawn by mainstream macroeconomics, particularly in terms of issues surrounding monetary and fiscal policy, and what is to be done in the event of a sudden collapse in aggregate demand, or as it is better known, a recession. The Austrian idea of the recession as the economy’s natural method of correcting imbalances and purging malinvestments engendered by prior intervention may seem outlandish to economists steeped in the neoclassical synthesis and the various offshoots of Keynesianism, in which policy interventions must be undertaken to nip downturns in the bud. Rather than dismissing the Austrian theories on the ground of methodological outlandishness, these arguments should be examined closely, as they rest on extensive theoretical work into relatively neglected aspects of economics. The Austrian analysis of capital as a complex intertemporal structure rather than a homogenous stock or fund is a compelling one, and is in accordance with our everyday experiences of how capital is formed, priced and employed in a market economy. The complexity of the structure is of such a great degree that it defies numerical

codification, which, in conjunction with the discouraging effect of doing research that cannot be represented in the "proper" format of positive economics has led to stagnation in the field of capital theory in general since the 1930s, in favor of more easily aggregative elements such as labor and money-based economics. When capital is modeled at all, it is over-simplified to the point of scarcely resembling its real-world nature.

Given that the international production structure is growing ever larger, with the dramatic rise of intra-industry trade in the last half-century and increasing mobility of both capital and labor, one would think that now more than ever economics should be focusing on extensive research into the structure and behavior of capital. Economic interdependencies and imbalances are at the heart of the rapid and severe transmission of the current economic crisis across the globe, and these need to be addressed. If the tools of the empirical method cannot cope with extensive research into the complexities of capital theory, economics must seek alternative approaches, or risk further neglecting a vital element of economic behavior that may hold the key to ending severe business cycles once and for all.

If true, the teachings of the Austrian school, and the Misesian/Hayekian theory of the business cycle presented in Chapter Two in particular also present a frightening possibility that should concern every economist – the possibility that popular, mainstream policy recommendations have for the last fifty years or so not only been ineffective, but actually precipitated business cycles, and once these cycles have hit, made them far more intense than they needed to be. Rather than fostering stability and growth, economists may very well have been unwittingly fostering instability and obstructed the efficient allocation of capital to best suit consumer preferences.

Whether or not the Austrian methodology, and the resulting analysis and policy recommendations is superior to the current orthodoxy, it is not an unreasonable conclusion that persisting in acknowledging only one methodological approach as being the legitimate one to conduct economic inquiry is an unwise course. Putting all of our eggs in the single basket of the empirical research method prevents us from being able to compare and contrast how different methods of economic inquiry may differ in their ability to predict business cycles, and thus conduct a form of "meta-empirical research", that is judging the comparative validity of analytical versus empirical research on the basis of which one is better at providing accurate predictions about future economic developments.

Therefore the author concludes that economics departments and journals should widen the scope of what they teach and publish, in order to foster a more heterogeneous

academic environment, and more fundamentally different points of views, rather than a handful of schools who differ strongly on superficial points of doctrine, but all share the same basic methodology and thus may all be making the same basic mistakes, and missing the same points.

The analytic, *a priori* methodology of the Austrian school presents a compelling epistemological case for the soundness of their approach to economic theorizing as directly referring to the world we live in, and thus being relevant to modern economic research. At the very least, it would be interesting to see it supplement the mainstream schools of the neoclassical synthesis in economics departments around the world. Rather than being ignored as a heterodox school on the fringe of the profession, the Austrian approach should be integrated into a wider research program that allows for vigorous debate on fundamental issues in economics.

Austrian policy recommendations and especially their negative views of money supply manipulations should also be given greater weight in the general academic and public debate. Either they should be taken seriously or actively refuted, rather than being left out of the debate entirely. Under the current state of affairs in the economic mainstream, their research is mostly excluded from discussion simply because it does not conform to what is considered sound methodology, and their ideas are not represented to any significant degree in textbooks at either undergraduate or graduate level, nor are their articles considered fit for publication in the most widely-read journals. Given the magnitude of both the current financial crisis, and the resulting existential crisis economics as an academic discipline finds itself in, it is the conclusion of this author that this must change.

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