

Optimistic Science

The effectiveness of economic methodology in achieving objectivity

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Abstract

This thesis examines the extent to which optimism has a bearing on objectivity in scientific inquiry. It is not, however, a psychological level examination into objectivity. Rather, the discussion focuses on collective attitudes, whether in the form of science or a more general public opinion. In essence, sources of optimism at the fundamental level of scientific inquiry are articulated with a careful attempt to differentiate between attitudes about the subject (methodology) and the object of study. The antithetical thread of optimism versus pessimism is teased out with the use of a joint case study of liberalism and Stalinism. The idea of antithesis, however, is contrasted by the fact that, although mirror image ideologies, these collective attitudes share a common faith in progress (albeit through different social mechanisms). This faith in progress provides the basis for the crux of the thesis as it moves to discuss scientific methodology. There is general agreement on what good science should look like and the possibility of progressive science can be articulated. However, it is also possible to highlight the conditions for degenerative science and to further link this to a degenerative social totality in which democracy and social progress are undermined. Economics is used as a case study and it is argued that dogmatic notions on progress have proved to be a major stumbling block to objectivity in the discipline. Furthermore, the implications on the real world are serious.

Key words: Epistemology, ideology, methodology, public opinion, begging the question, overdetermination.

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1.

Introduction

‘Optimistic science’ is an ambiguous term. In fact, the word ‘science’ alone is enough to stir up debate as to its meaning and purpose. This thesis seeks to address some of the ambiguities introduced by such a pairing of terms. The Oxford English Dictionary (2010) defines optimism as “[h]opefulness and confidence about the future or the successful outcome of something; a tendency to take a favourable or hopeful view”. Optimism is also pronounced in attitudes about the past, near and distant. Past events are often seen as mistakes that are easily rectified and relatively superficial. A New York University (2007) paper in Science Daily mentions the psychological tendency of humans to have optimistic biases. No individual enters into a marriage assuming that they will get divorced. There is a general tendency to assume that personal life expectancy is longer than the average, and so on. Scientists have linked these biases to certain parts of the brain. MRI scans have shown increased brain activity in the rostral anterior cingulate and amygdala during positive visualisations of future events (New York University, 2007). This is the same part of the brain that is thought to malfunction during depression, suggesting that the default mode of the brain is geared toward optimism (New York University, 2007).

However, the psychological bias for optimism in individuals is not the topic of this thesis. It is briefly mentioned because psychological influences are linked to structures of *collective optimism*. Science is an example of a collective optimism. It represents a method and process that is based on a collective confidence in *progress*. In other words, science as an activity exists because the scientific community is confident that their scientific subject can progress in terms of knowledge generation and/or through making improvements to the object of study. Economics, for example, is seen as a subject that can make more sense of the economy. Ultimately, public opinion represents the entire bundle of collective attitudes. Science is simply a ‘special case’ element of public opinion. Therefore, this thesis will make its way towards a discussion on public opinion and the ideological influences upon it.

Louis Althusser's (1967) paper, "Contradiction and Overdetermination", has proved to be the driver to further probe into the topic of optimistic science. Althusser (1967) stresses the 'autonomy' and 'efficacy' of the *superstructure*. The 'superstructure' is a term that describes two important structures in society: the legal-political structure and ideology (in science, religion, ethics, politics, etc.), (Althusser, 1971). Autonomy, in terms of ideology, refers to the independence of ideas from objective reality. Althusser contends that ideas are apart from objective reality. This is at odds with the empiricist conception of rationality. An optimistic conception in which, rational people, through the employment of reason, will perceive reality as it really is. Althusser's thinking moves away from this unidirectional approach to subject/object relations. In the next chapter, the relationship between agricultural genetics as a subject and actual objective crop development is examined as an example. Althusser takes his line of argument from the influences of Hegel. Hegel reasoned that an idea is set in an historical context (Rose, 2007). Within this context there are many influences that lead people to think in certain ways. This opens up the possibility for error. People may not see the world objectively but instead, develop ideas as dictated by historical context. Althusser's crux point, however, is as follows: even if an individual erroneously thinks something about the world, this error has its own existence independent of the actual reality of the world that it points to. The error is linked to its perception of reality but, at the same time, separate, and is an objective reality in itself. The error exists.¹

The objective reality of ideas relates to Althusser's (1967) second proposition - the efficacy of ideas. Thoughts, whether correct or not, have an effect on objective reality. These thoughts are part of ideological structures. As discussed, Marx (1859) used the term 'superstructure' to refer to ideological structures. This is an important consideration in this thesis because science is part of the superstructure. Science has some autonomy from the objective reality it is attempting to explain or change. This autonomy can manifest itself in various ways. It can be creative, imaginative, progressive, degenerative, destructive, etc. Likewise, its efficacy can take similar manifestations.

¹ Thus, although beyond the scope of this thesis, the individual level psychological tendency of individuals to have biases and to err help to explain the autonomy of the ideologies that develop; ideologies that reflect a separation of ideas from objective reality. Individual psychology is certainly linked to collective thought structures. Economic science, as an example, is linked to the psychological tendencies of economists.

Science can have progressive or degenerative effects on society. In this thesis, the subject of economics is used as a case study of an optimistic science. It represents a good example of an influential ideological formation (one that has autonomy and efficacy in relation to objective reality). Economics, when expressed as autonomous collective thought, can manifest itself in progressive or destructive forms. The efficacy of economics as a collective optimism is to be discussed throughout the thesis.

Science, as an influential ideological formation, is considered in chapter 2 with the aid of real world examples. This, it is hoped, will provide a tangible reference point to the theoretical core of thesis that follows in chapter 3. The dominant theme that is introduced in chapter 2 is a distinction between seats of optimism. The two examples discussed are from polarised, mirror image ideologies – liberalism and Stalinism. However, while differences are striking, both these thought structures share optimistic visions concerning progress.

‘Liberalism’ is used as an umbrella term in the chapter. Oscillations between conservative neoliberalism and centrist liberalism are not a crucial concern in the thesis. Additionally, ultra libertarianism is not being discussed. It is assumed that liberalism refers to a society in which laws and government have benignly evolved. Liberalism will refer to a general pessimism in any deliberate political action to change society; to an optimism in the market and its auto correcting mechanisms; and to an embracement of liberal democracy and laissez-faire policy.

Nobel Laureate, Friedrich Hayek, is perhaps the most consistent liberal theorist in terms of his critique of radical economics. His critique centres on knowledge (Hayek 1945, 1974). Hayek is pessimistic about social science because the demands on information are seen to be too high. This attitude is, however, countered by an optimism for evolutionary progress in a climate of liberalism. Society’s best chance for progress, in Hayek’s (1945) view, is to refrain from deliberate interference. It must be noted that there is a clear distinction between physical sciences and social sciences in Hayek’s critique. Social scientists, according to Hayek (1945: 530), cannot “deal with the social process at all” because the object of study (society) is too complicated. The best that economists can hope for, for example, is “mere pattern prediction” (Hayek, 1974). The pessimism over social science, that its knowledge can only be partial and limited, is overcome by an

overarching optimism in evolutionary progress. Through continuous individual interactions in society, systems and institutions will develop so that, as a whole, society becomes something greater than the sum of its (limited) parts. It progresses despite the limitations of individuals.² Hayek sees mistakes developing (overinvestment crises, Ponzi schemes, toxic assets, etc) but that the natural selection process of institutional evolution will reduce these problems to short-run fluctuations. This optimism extends to massive crises such as The Great Depression and the 2008 credit crisis.

Louis Althusser (1967:24) questions such notions of natural progress in his concept of “overdetermination”. In essence, the term refers to multiple causality. Progress, if it occurs, is not simply a matter of getting past a simple contradiction. Althusser’s prime illustration of the concept is the Russian revolution. The revolution was not merely the result of the class contradictions of Tsarist society. The same contradictions existed all over Europe at the time. Russia was different because a host of contradictions developed in such a way that revolution erupted.³

In order to fully understand what Althusser means by ‘overdetermination’ reference needs to again be made to the superstructural forces on the object (society). The objective conditions of society, the economy and the relations of production (or the base), exist in open social totality, free to interact with the superstructural forces of science, economics, religion, dominant ideologies, etc. All of these constructs are influenced by the base and influence it at the same time (Althusser, 1967). The dense interactions of a multitude of contradictions means that progress in society is not guaranteed. Althusser (1967: 28) suggests two possible outcomes of overdetermination – it may act as a “block”

² For example, Hayek explains how prices act as symbols to guide individuals into using resources efficiently: “Assume that somewhere in the world a new opportunity for the use of some raw material, say tin, has arisen, or that one of the sources of the supply of tin has been eliminated. It does not matter for our purposes – and it is very significant that it does not matter – which of these causes has made tin more scarce. All that users of tin need to know is that some of the tin they used to consume is now more profitably employed elsewhere, and that in consequence they must economize tin” (Hayek, 1945: 526).

³ Althusser (1967: 21) cites that Russia was simultaneously an advanced industrial power and a backward medieval rural society. This factor resulted in fragmentation of industrial and ‘feudal’ elites. It also aggravated class antagonisms at the same time. Furthermore, Russian international policy was adding to the tensions amongst elites and bolstered a diaspora of exiled intellectuals that developed into socialist revolutionaries. All of these factors had an effect on developing a revolutionary tipping point, and as these conditions progressed there were simultaneous feedback effects (encouraged revolutionaries, heightened antagonisms amongst elites, etc). The final outcome was the October revolution.

to progress or generate “revolutionary rupture”, as in the case of the Russian revolution. The former concern, however, is overwhelming.

Ideological State Apparatuses (ISAs), for example, are structures that Althusser (1971) describes as having the ability to reproduce the relations of production in society. ISAs are quite distinct from the overtly repressive apparatuses that employ violence. ISAs, Althusser (1971) states, “function by ideology”. These ideological formations exist at every level of society – the church, the school, the media, the family, culture, trade unions, and so on. For a ruling class to maintain their grip on power, they need to control the State Ideological Apparatuses. When bourgeois society lost control of power during the Bolshevik revolution it was because they lost control over and within State Ideological Apparatuses. Ideology serves to reproduce society as individuals move through different ISAs. Althusser (1971) describes in great detail how a child becomes intimately entwined within the Family and Educational State Apparatuses at a very young age. Individuals learn “rules of good behaviour... rules of morality, civic and professional conscience” (Althusser, 1971). A ‘role in society’ is shaped until the time that a young adult emerges into the world of production. In this way, the stability or block to revolutionary rupture is maintained through ‘rules’ as to how society should be. Thus, the superstructural forces (such as education and the family) tend to be dominated by power. Althusser is very sceptical that progress is certain. Powerful classes in society have the ability to generate stasis because they can define what is ‘legitimate’ and what is ‘normal’ within the superstructure and this is then enforced upon the object. Zizek (2010: 88) epitomises Althusser’s critique as he states, “[P]eaceful social life is itself an expression of the (temporary) victory of one class—the ruling one.”

Therefore, Althusser, unlike Hayek, does not see progress as inevitable. In fact, he methodically maps out reasons for pessimism in natural progress. Stalinism, as will be discussed in chapter 2, is closely tied into this pessimism. Stalinism developed a crude sense of optimism, in essence, based on the vacuum created by the pessimism in liberal democracy (as articulated by Althusser). What happens if nature and society does not simply ‘naturally select’ the path towards progress? These concerns are the guiding principle for the Stalinist programme aimed at changing society and nature. Lysenkoism is synonymous with the Stalinist programme and will be used as a case study. It was a

scientific programme that was contingent upon the perceived failures in western liberal democracy and bourgeois science in particular. Thus, Stalinism, and its various forms in Russian society, represented the extreme reaction towards liberalism. It ironically resulted in a caricature of the fallibility of man (exactly the fears of liberalism) expressed in the single figure of Stalin. Dictatorship was born out of a faith in humanity – a faith that was twisted into becoming megalomaniacal.

It is possible to see the reasoning behind the ideologies of liberalism and Stalinism. It is also possible to understand the fears imbedded within them. Liberalism is frightened by the fallibility of man, whilst Stalinism extended from a fear that progress might not evolve. Both are correct in some sense. Man has proved his fallibility as embodied by fallible dictators and the societies they imposed themselves upon. Yet evolutionary institutional arrangements have suffered similar failures in the form of economic crisis, moral hazard, etc. In both instances, these fears were over-ridden by an optimistic belief that progress could be achieved. It seems that irrational optimism dominates irrational fear.

Chapter 3 then moves away from concrete examples and introduces the process of scientific inquiry at a very theoretical level. The scientific environment is described in terms of an ideal without any outside interference. As this process is illuminated, the strengths of the scientific method are made apparent. These include aspects such as discipline and focus. However, even without outside influences, the scientific method can run into its own problems from over-discipline and myopia or poor method.

Generally speaking however, the scientific method seems able to cope with scientific problems pure and simple, but after removing the assumption of *ceteris paribus* and introducing public issues, reasons for pessimism emerge. How will the disciplined scientist be able to take a moment to gauge public issues if all focus is within the laboratory? This is linked to the concern about mistakes. The scientific method may become too abstract if it does not aim to deal with public or universal issues. At this point, the thesis makes an important shift and considers the greater continuum of public opinion. The scientific realm needs to become public at some point if it is to maintain its progressiveness. The thesis comes full circle. Caricatures are set aside. The discussion no longer involves the ‘poster children’ of baseless optimism, Hayek and Stalin. Within the

broader, more eclectic and pragmatic strains of reasoning, whether Smithian or Marxist in origin, there is general agreement on what good science should look like. Interestingly, in these instances there seems to be an emergence of pessimism – Marxists (like Althusser) worrying about dogmatism and ideological domination and liberals (such as Walter Lippmann) concerned about the actions of elites undermining the quality of public opinion. Liberals and radicals, at this point in the thesis, no longer demonstrate the mirror images seen in chapter 2 but reflect almost identical pessimism - a common doubt in the public.

However, the public are not tied into schools of thought or the inertia of orthodox limits. The public are averse to accepting uncertainty and therefore quick to find justification for pragmatism. This characteristic represents a seed of optimism for progress because the step away from stagnation in this environment is not a burdensome commitment. Additionally, the complexity of social totality may sometimes be overdetermined towards breaks from stagnation. However, a scientific method to take advantage of this characteristic is lacking. The conservative concept of Whiggish progress (Wade, 2009) cannot be prescribed in this thesis. It assumes that the latest knowledge is the best knowledge – a timeless construct hinged upon immutable principles. In neoclassical economics, rationality is one of these immutable principles. The question of how find a basis (a non-relativistic yet progressive basis) for optimism in public opinion is a big question. The topic is significantly introduced, but is largely beyond the scope of the thesis.

For the purposes of this thesis, objectivity in economic theory is the primary focus. The relationship between economic theory and the economy is related to notions of progress. The case will be made that mainstream economic theory's progress is stunted by its very own perception of progress. As an optimistic science, neoclassical economics fails to examine its own shortfalls. Economic theory is not certain to improve. As for the trajectory of the economy itself, the complexity of that question will be made apparent.

Thus, the structure of the thesis is similar to the scientific process that is described in Figure 3.1 (p. 32). Core assumptions are articulated from the very beginning in the form of optimistic biases. The scope of the problem (or investigation) is introduced in Chapter 2. Scientific discipline is explained in Chapter 3 - first in a very sterile,

laboratory setting and then later against a more rich societal backdrop. This opens the door for a reassessment of starting principles and any subjective elements that may be unnecessarily sustaining them. Finally, Chapter 4 provides a conclusion of the discussion.

2.

Pre-analytical Distortion

Introduction

“There’s nothing wrong with America that can’t be cured by what’s right with America.”

(Bill Clinton in Lazare, 1998: 3)

“The history of Lysenko is finished. The history of the causes of Lysenkoism continues.”

(Althusser, 2003: 16)

Bill Clinton’s use of the above dictum epitomises the liberal perspective on progress. It is an attitude that regards liberal democracy as fundamentally healthy. There is no need for any radical changes and certainly no need for any outside interference. Therefore, in the liberal self-diagnosis, the only challenge that the system faces is that of occasional renewal. This chapter examines liberalism closely, with careful consideration of Althusser’s view that deep systemic crises are often glossed over as temporary mistakes. It is precisely this consideration that leads the discussion towards the mirror image of liberalism. Stalinism, and more specifically, Lysenkoism under Stalinism, encapsulates a direct reaction against liberalism, yet it ironically falls at a similar hurdle. Both these examples have been chosen in order to illustrate the stumbling blocks of pre-analytical distortion in attaining greater objectivity.

Lysenkoism provides an interesting metaphorical and literal example of the complex relationship between perceptions and reality (or subject and object). It was, as will be discussed, a brand of genetic science guided by the assumption that environmental factors are the dominant determinant of an organism’s characteristics. Lysenkoism rejected Mendel’s theory of the gene being the basic unit of heredity. Lysenkoism was irrational. No one would doubt its irrationality. However, Althusser (2003) contends that although Lysenkoism is over, its brand of irrationality persists because something is

wrong with the way past and present mistakes are analysed. It is a critique of the tendency to assume that past mistakes are either, easily repaired and set right again, or simply not that serious.

The process of developing accurate analyses and objective perspectives must have a beginning. Edmund Wilson (2004) writes that it is the role of the historian to allow the reader to walk the streets of fascinating and turbulent periods in history. Students of history are to be immersed in the subject almost to the point of becoming part of it. A thousand facts are easily sacrificed for knowing what it felt like to be present at a certain moment in history (Wilson, 2004). In order to achieve this pseudo-presence, the historian must be imaginative without being dishonest. The writings of historians fall short of the full picture of reality they are attempting to present. Likewise, an economist wishing to understand the economy is always going to be, at the very least, a few steps behind reality. The economist cannot hope to ascertain a perfect understanding of how each actor meanders through economic life and makes decisions that have an impact on the economy. Of course, however, an attempt must be made.

There is a pre-analytic element in science that is not necessarily unscientific. Scientists face the necessity of imagination. The use of imagination involves starting with assumptions in much the same way as the historian applies his or her trade. In science, this starting principle may be referred to as 'the core' of any research agenda (Lakatos, 1978). Not knowing where to begin, the scientist must invent a starting principle. These starting points of human investigation, the germ plasms for approaching choices, contain biases one way or another towards optimism or pessimism. The core represents a base from which investigation ensues. Science, therefore, is related to its core. This relationship is paramount to understanding scientific investigation. An 'optimistic science' is bred out of a core with an intrinsic optimism.

1st Example of Pre-analytic Opinions becoming Distortive: Liberal Democracy in America

The liberal dictum concerning America contains that pre-analytic element mentioned earlier. The question of what is right with America is an untouched core premise. In America, this core premise has often (though by no means always) been dominated by a liberal ethos in various forms. This concept of an ‘untouched core premise’ stems from a methodological attitude, the roots and progression of which will now be discussed.

An economic regime is a macro-economic paradigm with a distinct core premise. The term ‘liberalism’, as briefly defined in chapter 1, refers to an optimism in the market and its auto correcting mechanisms. In the 1940s, Karl Polanyi made a rough distinction within liberalism. He used the terms “embedded” and “disembedded” liberalism to differentiate between the paradigms of Keynesianism and neoliberalism (Abdelal and Ruggie, 2009). The post-war regime of Keynesianism can be associated with embedded liberalism. It was an economic order that was largely based on market allocations but within limits set by the political process (Wade, 2008: 5). The political process served as a link between society and the markets within them. Thus, Keynes and the world policy makers that met at Bretton Woods in 1944 sought to imbed markets within their societal context through demand-side policies.

After the collapse of Bretton Woods in 1971, neoliberalism emerged and the ideal of individual liberty was propelled forward by reducing state led market interventions and promoting laissez-faire policies. It was a process that led to disembedded liberalism, though not the disappearance of the state or the optimism in a system of regulation, albeit skewed towards self-regulatory policies. This period differed from classical liberalism. In particular, Watkins (2010) cites its “Americanness” in that it was a programme that largely left the Europeans behind and was driven by US politics and institutions. Neoliberalism, in policy terms, was a shift to supply-side economics with a strong enforcement of “rules of competition” (Wade, 2008: 6) that would ensure efficient markets. These rules were there to ensure that there were no obstacles to the development of markets: markets that were assumed to form naturally. The “efficient market hypothesis”, for example, assumes that prices will always contain within them all

relevant information (Wade, 2008). This implies that markets will operate efficiently with assets priced correctly and that bubbles would be avoided.⁴ Liberalism is optimistic that errors will be corrected in the market place as auto-adjustments restore order.

After the spectacular crashes seen since 2007, the general theme of responses by America and the EU has been to maintain an assumption that the world economy was fundamentally sound before the crisis emerged (Gowan, 2009a; Watkins, 2010). Attention is shifted to ‘accident theory’ variations asserting that, quite simply, some mistakes were made - mistakes in regulation, in rating of financial products, etc. Allan Greenspan, for example, is quoted by Panitch and Konings (2009: 70) as saying “[r]egulation of derivatives transactions that are privately negotiated by professionals is unnecessary”. This quote dates back to the 1998 Long-Term Capital Management crisis⁵. Deep concerns about the instability of derivative transactions thus pre-dated the 2008 crisis by at least a decade. However, the accident theory response glosses over these facts. A concession is made in that Greenspan did overlook an aspect of financial markets but the underlying assumption is that markets work well. The economy was sound before the 2008 downturn and there was simply an isolated problem in the financial sector. The solution is to keep the economy going, regulate banks, curb debts levels – after which, everything will be back on track. Debates arise around the proportion of measures taken: how much regulation? How quickly to arrest debt burdens? And so on. The dominant theme though, is that of renewal and revitalisation.

In an essay on global capitalism, Abdelal and Ruggie (2009: 161) epitomise this attitude of underlying optimism when, at the end of the paper, they quote Ernest Hemmingway: “[t]he world is a fine place and worth the fighting for.” In their view, the essential difference between imbedded and disembedded liberalism is *legitimacy*. In Hemmingway’s quote, the ‘world’ that Abdelal and Ruggie are referring to is very much

⁴ Taibbi (2009:59) colourfully describes sub-prime loans as “writing mortgages on the backs of napkins to cocktail waitresses and ex-cons carrying five bucks and a Snickers bar.” The efficient market hypothesis suggests that financial products derived from such loans would be priced to reflect this information (i.e., the informal nature of loan extension).

⁵ Long-Term Capital Management L.P. was a hedge fund that collapsed in 1998. It traded in highly leveraged derivatives and its collapse resulted in a bailout by the Federal Reserve of \$3.625 billion in a pre-emptive effort to allay fears of a toppling effect throughout the financial system (Lowenstein, 2000). Incidentally, the firm’s employees consisted of two Nobel Laureates in Economic Sciences, Myron Scholes and Robert C. Merton (Lowenstein, 2000).

incorporative of the liberal market system. Abdelal and Ruggie see markets as worth fighting for in a process that involves legitimisation through securing the support of society (via New Deal flavoured policies to reinvigorate popular support). Thus, despite a shift to 'regulatory/imbedded liberalism', Abdelal and Ruggie are unmistakably and unquestionably defending a liberal world. They do not seem to see much objectively wrong with the world. In a sense, people might lose faith in it from time to time - a crisis of legitimacy - but in general, liberalism is seen as a good system. In this way, liberalism acts as an autonomous ideology, an Old Man adrift at Sea, yet affecting objective reality. Liberalism rigidly reproduces and revitalises itself with little pause for considering persistent economic turbulence.

Legitimacy is not the same concept as objectivity. In the vacuous isolation of the science laboratory, legitimacy may come from objectivity. However, in the real world, the economy is connected to society. An optimism in, or legitimisation of, the economy may stem from something outside the economic science text books. Politics is an extremely important external factor in the legitimacy of an economic system. In fact, politics may be important for economic success in that it can provide stability, precisely through legitimacy. Legitimacy can afford policy makers the time to implement plans. It also improves the ability of policy makers to guide the economy due to the trust or faith that individuals are willing to impart. This is perhaps part of the reasoning behind Abdelal and Ruggie's support of imbedded liberalism.

Clinton demonstrates an act of legitimisation politics in his referral to a steadfast faith (pre-analytic opinion) in America's liberal democracy. The dictum mentioned at the beginning of the chapter has the same meaning as Hemmingway's quote. America is a fine place, in its essence, and worth fighting for. Such politics will have a bearing on the economy through the stability it can create. For instance, it buys the patience of citizens. It is important to note that even if such political narratives are absurd, their effect on the economy may be positive if the terrain for progress is improved.

However, political stability has its costs. An immediate problem with the above example of political legitimisation tactics is that improvements to American democracy are deemed to rely solely on inward looking approaches or, 'what's right with America'. This means that the yardstick for measuring democracy is simply a comparison to

previous years. There is no need to look to cross-country, comparison-based interpretations of democracy and therefore, American liberal democracy will never be contradicted by another country (Lazare, 1998). The same problem occurs in liberalism as an economic agenda. The core ethos in this brand of economics garners stability of investigation via disciplined focus. This may entail assuming perfect competition or that individuals are always rational, but the point is that the research continues free of distractions. This runs into two problems. Firstly, liberalism may convince itself that its assumptions are legitimate as opposed to *temporarily legitimate*. Secondly, other theories may be pushed aside and ignored due to both disciplined focus and a belief in self-legitimacy and therefore, the illegitimacy of competing theories. For example, consider the question of how a financial crisis will be viewed if this degeneration is the case. Under a climate of stable legitimacy, such crises will either be brushed over as legitimate “shakeout”⁶ or a reflection of some mistakes being made. Theories that are not of the liberalism variety are likely to be ignored. In fact, it is perhaps worth mentioning at this juncture, another defining character of liberalism – its enemies. Watkins (2010) expresses the importance of this characteristic in that policy has been shaped in America bearing in mind the Soviet Scourge, militant unionism, etc. The enemies of liberalism are part of the concern over a crisis in legitimacy. Alternatives stand to undermine the characteristic of inevitability in liberalism.

There appears to be good reason to break the veil of legitimacy created by the assertion that liberal democracy in America is the pinnacle of civilised society. Two areas of concern will be briefly mentioned. Firstly, the income equality terrain in America is poor indeed. The highest quintile of American wage earners in 1947 secured 43 percent of all American income (Michaels, 2008). In the same year, the lowest quintile took home 5 percent of America’s income. In 2008, however, America’s richest quintile of wage earners took home just over 50 percent of American income whilst the lowest quintile earned 3.4 percent. Michaels (2008) makes a point that diversity in the US seems to have been improved. The successes of the Civil Rights movements and the rise of feminism appear to attest to this. The 2008 democratic race between an African American

⁶ ‘Shakeout’ is the term used to describe the winnowing away of unproductive firms or sectors in the economy during economic down turn (Arrighi, 2003).

and a female appear to be symbols of the flourishing of diversity. However, in the face of huge income inequalities, this implies that American society tolerates inequality so long as “its beneficiaries are as racially and sexually diverse as its victims” (Michaels, 2008: 34). Diversity is often used as a political tool to legitimise economic inequality.

A second example of why the US socio-economic structure might be questioned, and perhaps the most damning indictment on American democracy, is its incarceration levels and rates. The Pew Center on the States (2009) reports that there are roughly 2.3 million American citizens behind bars. This translates to more than one in every hundred American adults in prison in January 2008. Astoundingly, when looking at the breakdown by race, the same report reveals that one in nine black men between the ages of 20 and 34 are in prison. America incarcerates more of its citizens than any other country. Even China, which is a far more populous country, has less people incarcerated than America in absolute terms. These levels of incarceration in America are increasing and so too are the costs of the correctional system. This means that opportunity costs are also increasing. Between 1987 and 2007, spending on higher education increased by 21%. This was dwarfed by the growth in correctional facilities expenditure which grew by more than 127% in the same period (Pew Center on the States, 2009)⁷. A society that imprisons its citizens at such high levels has fewer resources available for services needed by citizens that are not in prison. Furthermore, it compounds the problem of crime because less resources are available to improve the functioning of individuals with little support or opportunity. Such support would also add to the process of decriminalizing individuals. The questions it raises for racial equality, post-Civil-Rights movement, are alarming.

The above two brief examples suggest that the idea of *illegitimacy* should be considered. It raises serious and fundamental questions about liberal democracy. Yet, such criticism is highly likely to be met with disbelief and denial or the label of anti-Americanism (if not American) or unpatriotic (if American). Additionally, any ideas that see poverty, crime, or unemployment as anything other than a personal failing are often written off as socialist. Socialism is further aligned to authoritarianism and absolute lack of freedom – exactly what liberal democracy congratulates itself for avoiding.

⁷ Expenditure figures were not adjusted for inflation in both instances.

There is a divergence between views on democracy and its reality. Failing to acknowledge a problem eliminates the possibility of a cure. If a problem is acknowledged but there is a failure to grasp its depth or severity then there is doubt that sufficient corrective action will be taken. The debate on American democracy has the possibility of failing through a combination of the following:

1. a failure to recognise that democratic outcomes are not being achieved (failure to see how 1 in 100 incarcerations indicates deep social problems that undermine democracy);
2. and a failure to look to other examples in the world from which to learn because of an assumption that American democracy is the pinnacle political arrangement.

America's democratic legitimacy questions can be used to illustrate the same concerns in the realm of economic liberalism. As mentioned previously, liberalism may convince itself that its assumptions are legitimate. Just as inequality or incarceration can be glossed over as not of fundamental concern to society, so too can discrepancies in the economy may be seen as temporary errors. Liberal/neoclassical economics and liberalism in the US share an unwillingness to see how dogmatic they are.

The issue of over-discipline in liberal economics must also be raised at this point. Wade, (2009: 112) cites that over-discipline in economics can mean that economists become "more motivated to prove themselves members of an elite group of masters of an arcane craft" than to actually deal with the objective reality of the economy. Wade (2009) makes an interesting point about objectivity. He says that during the interwar period, objectivity was judged as dependent on the researcher. An honest researcher with integrity could be objective. A researcher lacking these qualities could not. After the war however, there was a shift in the definition of scientific objectivity towards tools. Neoclassical economics was seen to have the best tools. Here was a science that was mathematical and verifiable. Liberal neoclassical economics was a science that spoke a simple language that was "ostensibly neutral" (Wade, 2009: 111). This is essentially a shift in seats of optimism from a human driven subject to a toolkit driven subject. More strikingly, it represented a diminishing optimism in the object (individuals). That is,

within liberalism, institutions eventually become (through evolution) better than people. The toolkit nature of neoclassical economics was important to post-war America because it was unlike the emotive sciences of the USSR. Ways of expressing things needed to be narrowed down and neoclassical economics was ideal to this end.

The lure of academic elitism must be acknowledged as a stumbling block for economists. As neoclassical economics grew to be the dominant school of thought in American universities, so too did the rewards for mastering its techniques. Fine (2002: 2064) supports this argument:

“mainstream economics continually and dogmatically reasserts its scientific status and superiority relative to other forms of economic discourse, thereby creating boundaries for definition of the profession, entry conditions, and associated benefits in employment, prestige, financial support and intellectual independence.”

Elitism in academia stifles the voice of alternative theories. Wade (2009) provides an example of the politics that led to the dominance of neoclassical economics in the post-war period. The politics during the cold war was driven largely by what was happening in the USSR. The strategy involved identifying soviet ideas and then hunting down replications within American society with the aim of eliminating it. Anything or anyone proposing government intervention for instance, could be regarded as a communist sympathiser (Wade (2009). This rather extreme and ill-conceived case of labelling Keynesians as Marxists illustrates the political interference that was occurring in the field of economics during the Cold War.

In America, the dominance of economic liberalism cannot be separated from the liberal socio-economic terrain. Clinton's optimism and his use of the aforementioned dictum represent an optimism in a subjective ideal, a liberal ethos and the liberal system of structuring thought that defends certain principles at all costs while failing to take history into account. There is a need to differentiate between democratic error, or economic error, from a systemic crisis in the way problems are perceived. Following a methodology that there is nothing so wrong that cannot be fixed by what is right with a system, will lead to a lack of self-criticism. It means that certain crucial questions will not

be raised or addressed. The errors that do occur, financial crisis, healthcare crisis, etc., are deemed to be the cost of freedom. It is assumed that self-correcting mechanisms will ensure continual progress in a laissez-faire society. The dictum assumes the very question that should be addressed, that is, what is the state of American democracy? This precludes the need for difficult political actions.

The tone of optimism in liberal democracy is essentially self-congratulation. It is a self-congratulation for not being authoritarian, for that is a problem of other societies – “it is what is so wrong with them and not us.” The congratulation for not being authoritarian is a defining feature in liberal thought. Liberalism has come to dominate methodological procedure in economics. As a subject, it has immense confidence in itself. It may not be perfect, but in any case, an attempt at perfection would lead towards authoritarianism. There may be some confidence in the object of study, rational individuals, but the key strand of optimism rests in a very particular notion of progress.

2nd Example of Pre-analytic Opinions becoming Distortive: Genetic Theory - The Case of Trofim Lysenko

“Marxism is the genetic code, the germ plasm of the 20th century revolutions and of the societies they created... Like any genetic influence, it interacts with its environment and is only part of what shapes outcomes; but is a vital part, and without understanding it we cannot understand many of the great events of the century.” (Gouldner, 1980: 8)

This second example demonstrates a special case scenario of Marxism as a pre-analytic element of science. Over a number of decades and beginning in the 1930s, the task of separating the metaphorical from the literal in Gouldner’s quote above would have been a haze of confusion in the USSR. Julian Huxley (1949: ix) says that “science is often in conflict with society” because it can threaten social stability and the dominant aims of a society. Dominique Lecourt’s (2003) book, *Proletarian Science*, speaks to this point. Lecourt (2003) points out that the debate around Lysenko (and genetics) transcended the realm of biology alone. Lysenkoism was broader than biology and inseparable from Stalinism. It was a reaction against sciences that were framed against the backdrop of bourgeois society. Lysenkoism was an attempt at a proletarian science. Bourgeois science, was seen as science that had been overpowered by bourgeois society. One symptom of this was a justification for the separation of science from society as a whole. Scientists, in bourgeois society, must be left to their own devices. Lysenkoism produced its own antithetical version of methodology. This proletarian variant represented a shift in optimism but crudely so.

Stalinism, as a collective attitude, largely distrusted the bourgeois faith in institutional progress. This distrust extended to the scientific institution. Stalinism shifted attention away from method and subject, towards to the object, and emphasised man’s ability to make society more rational. Marx and Engels clarify this optimism in their *Theses of Feuerbach*:

“The question whether objective truth can be attributed to human thinking is not a question of theory but is a practical question. Man must prove the truth...” (Marx and Engels, 1886: 13)

In other words, science must achieve something and therefore, the separation between science and social action that is seen in bourgeois society is faulty. Lysenkoism emerged from Stalinist Russia by stressing a dichotomy within science between proletarian and bourgeois methodology. Bourgeois science may have been objective in its quest to winning power but once power is attained, methodology becomes defensive and ideological, aiming only to hide objective reality rather than to illuminate it (Lecourt, 2003). Proletarian science on the other hand, could be objective according to Lysenko, because it sought to perceive reality beyond the illusions produced by capitalist society. Bourgeois science could speak of freedom while being oppressive (free labour yet exploited workers). Proletarian science would be revolutionary and seek to change existing relations. History could be forged by the will of man because this ‘will’ could be exercised through a science that was fully controllable by him.

In pure scientific terms, as will be developed further in chapter 3, a certain level of ‘authoritarianism’ is not necessarily a bad thing. Science needs to be disciplined. Thus, before continuing the discussion, it is important to make the point that authoritarian aspects of Stalinism and Lysenkoism should not immediately be written off as unscientific. Indeed, Stalinism saw ruling agents in science as necessary. The following section describes Lysenkoism as an attack against liberal (bourgeois) thought – viewing science in these environments as wrapped up in capitalist ideology. There was concern that genetic theory may be a justification for inequality. Genetic differences might imply that “man is what the gene makes him” as opposed to being moulded by any sort of political education or class consciousness (Huxley, 1949: 185). Lysenkoism espoused the idea that heredity could be predominantly determined in the material world via the actions of men as opposed to genes. This was very much against modern genetics’ quest to determine the “central scientific concept” for heredity – to become known as the gene (Huxley, 1949: 22). The answers for heredity were to be found in the gene. It was a concept that was both necessary and fallible at the same time. It needed to be fallible to

allow further refinement. Huxley (1949: 22) mentions Dalton's discovery of the atom or "the unit-particle of matter". This concept was the generalisation that laid the foundations for disciplined research to progress and enabled scientific refinement, for example, the refinement that later led to the discovery of subatomic particles such as quarks. Atomic research eventually transcended its central concept of the atom, although not necessarily contradicting it. Just as the atom was the basis of for further refinement in chemistry so too was the gene in terms of Mendelism and classical genetic science which led to further refinements such as the isolation of DNA. This all points to an underlying central theme of optimism in the subject – in this case, genetics. It is the faith in the ability of the scientific process to arrive at progressively refined truths. Mendelism espoused the idea that it was genetic science (the subject) that will provide the truths of heredity.

Mendelism, from the Stalinist perspective, was wrapped up in the idealist philosophy of the bourgeois world. Russia was therefore the scene of a materialist reaction against this. Althusser neatly outlines an introduction to this debate in the metaphor below:

“[T]he idealist philosopher is a man who, when he catches a train, knows from the outset the station he will be leaving from and the one he will be going to... The materialist philosopher, in contrast, is a man who always catches ‘a moving train’, like the heroes of American Westerns. A train passes by in front of him: he can let it pass and nothing will happen between him and the train; but he can also catch it while it is moving. This philosopher knows neither Origin nor first Principle nor destination.” (Althusser in Suchting, 2004: 11-12)

Thus, when Dalton studied the 'moving train' of chemistry, he knew that matter could be traced back to the unit particle of the atom. Likewise, Mendel discovered that in terms of explaining heredity, he could refer back to the gene as well as extrapolate from the gene to determine potential characteristics of organisms. However, for Lysenko, such emanation could not be the case. Lysenko's materialist stance reflected the Stalinist faith that man can forge his own history. His work stemmed from the horticulturist and plant breeder, Michurin in the 1920s (Huxley, 1949). Michurin's work did not necessarily lead

to Michurinism (the genetic science proposed by Lysenko), but it did provide a basic premise. The premise is this: environmental factors are the dominant determinant of heredity. This premise was consistent with the materialist philosophy emphasised by the ruling communist party and was therefore politically convenient. Lysenko was the most prominent scientist to take advantage of this.

Lysenko was a botanist not a geneticist. However, he gradually crept into the political arena from 1929 as he began to demonstrate practical techniques aimed at improving crop production. Political attention soon turned Lysenko towards theoretical attacks on neo-Mendelism. In 1932/1933, neo-Mendelian science began to be repressed (Huxley, 1949: 26). According to Huxley, it was at this time that geneticists began to lose their jobs, some banished to Siberia, to labour camps and others just disappeared. The repression more and more evidently appeared to be ideologically charged. The charge against neo-Mendelism was that it was idealist.⁸

In 1935, Lysenko published a book and launched a journal proclaiming the dominance of environmental factors in heredity. These efforts were rewarded politically. Lysenko won numerous awards and soon found himself President of the Lenin Academy of Agricultural Sciences in 1938. Lysenko continually pushed towards eradicating neo-Mendelism in school curriculum and to generally crush any activities deemed consistent with idealist genetics. Huxley (1949: 34) writes that by 1948 “the genetics controversy was over. Mendelism was proscribed, and Michurinism was installed in the position, unknown in the west, as an official science.”

It must be said that Lysenko’s rise to prominence was not entirely political. There was some agricultural improvement. Huxley suggests that Russian agriculture was rather backward and so any increase in modernisation would have produced successes. This is certainly valid. However, the practical aspects of Lysenko’s early techniques (before being completely bogged down by a theoretical attack on Mendelism) deserve mention. The virtue of pragmatism is easily overlooked, yet as one of three examples given by Lecourt (2003: 65), he explains that Lysenko introduced the practice of planting potatoes in the middle of summer. Modern knowledge has determined that the typical

⁸ Contrasting this to modern America, the scene is very different. Darwinism as a scientific programme exists in a climate of tolerance. Ironically, however, it is this tolerance that also allows authoritarian ideologies, such as creationism, onto the scene and into schools.

degeneration of potatoes in summer is due to a virus. Lysenko, by continually exposing potatoes to this virus, had improved their resistance to it. Lysenkoism, as a science, was not aware of these facts. It professed to have teased potatoes into summer tolerance through simple exposure to such an environment. However, Lysenko's technique improved the lives of the Russian peasantry. In this instance, Lysenkoism had lived up to the title of a proletarian science. It had been practical and in so doing, it had served the proletariat.

Thus, glimpses of proletarian science, in some small measure, serve to rationalise how such a dismal dogma had begun in the first place. But Lysenkoism soon represented a growing divergence between theory and reality. Rather than science closing this gap, Michurinism produced a huge chasm founded on a dogmatic pre-analytic ideology of materialism. A letter written to Stalin by the Praesidium of the USSR Academy of Sciences (Lysenko) stated that, "Michurin's materialist direction in biology is the only acceptable form of science, because it is based on dialectical materialism and on the revolutionary principle of changing Nature for the benefit of the people" (Huxley, 1949: 39).

Genetic theories were used as metaphors for class war and the ideological battle between socialism and capitalism. Mendelism is aligned to a capitalist analogy. Scientific laws and the capitalist world must be accepted because this has been laid out before us by economic forces, not unlike some unalterable genetic code. Michurinism was seen as the fight against the inevitable code of capitalist development and thus, if genetics had initially been a metaphor, it was now something much more literal. Lysenko's genetic theory proposed that changes to the external environment can alter any apparent code in nature.

During the Lysenko era, scientific method became secondary to ideology. Science was no longer about finding new truths. Science became a demonstration of "a particular ideology and designed only to secure practical results in the interests of a particular national and political system" (Huxley, 1949: 40). The purpose of science, in this context, is not to discover an evolving natural order; it is about constructing this order. The idea of bad science was also very different. Bad science is usually associated with poor methodology but in this period bad science meant being unpatriotic, idealist or bourgeois.

Appeal to authority was no longer methodologically bad. The appeal of Michurinism to the higher Soviet authority of Stalin or of The Party is exactly what made it good science. The scientific orthodoxy that developed was a direct result of the philosophical orthodoxy. This is ironically idealist. The dominant philosophy affected the scientific orthodoxy and thus, agricultural practice. Lysenko created the scientific orthodoxy by creating two distinct camps – one good science, one bad science: one science that was consistent with orthodox philosophy and one that was inconsistent. This polarisation was strictly pessimistic with regard to any convergence of theories. One theory was right and the other was wrong. If Michurinism gave anything away to Mendelism it would mean that some truths would be abandoned. Thus, Lysenko was extremely combative. This was quite unlike the pre-eminently liberal position expressed by Joseph Schumpeter who believed that, “[the] collective intercourse of scientists gradually cumulates the durable truths distilled from successive waves of ideologically contaminated enquiries” (paraphrased by Tobin, 1981: 29). Lysenko made certain that the only intercourse with foreign genetic theories would be in the form of combat.

Huxley calls Lysenko, scientifically illiterate. Everything points to a view that Lysenko really did believe in his faulty version of genetic science. His failing was one of ignorance and lack of scientific rigour. These deficiencies, although not entirely independent of Soviet society as a whole, certainly did contain an element of autonomous personal failures. Lysenko must have also been influenced by the social aspect of keeping in line with the dominant ideas of the state. The rewards of belonging to a patriotic community were evident. But pressures against autonomous critical thought are by no means unique to authoritarian societies. Some may argue that the error and bad science of Lysenko could only have happened under conditions provided for under Stalin but the danger of this is a superficial analysis of the error.

Let us examine one of Lysenko’s biggest methodological mistakes – an analysis that begs the question. With the starting point of materialism, Lysenko already assumes the very thing that genetics is attempting to understand - the interplay between genetic code and environmental factors. This analysis is assumed away by Lysenko and a vicious cycle of begged questions and dogmatic philosophy ensues. Althusser explains:

“...the official version of dialectical materialism guaranteed Lysenko’s theories, while these theories in turn served to ‘verify’ this official version and to strengthen its pretension to the role of ‘science of sciences’.” (Althusser, 2003: 13)

As Althusser says, there was a degenerating cycle whereby dialectical materialism was supported by faulty, convenient science, which then further reinforced dialectical materialism. The weak link in this chain was dogmatism, not dialectical materialism. The big issue is this: Lysenko’s genetics was quite obviously an error, in retrospect this is not debateable, but what is to be done about the error? Althusser says that the process of dealing with error is always political. One could say that errors are events that have been identified too late. One could say that they creep up or suddenly materialise because if they could be foreseen they would not happen. Science does need to identify error but even if this is successfully achieved, errors may continue to exist if the political structure so allows. The Lysenko problem came from a brand of Marxism that was “reactionary and unproductive” (Althusser, 2003: 14). Althusser (2003: 14-15) says of dialectics, just as Marx himself believed, that it “could become one thing or the other, could either become ‘critical and revolutionary’ or play the role of ‘glorifying the existing state of affairs’”.

It is unhelpful to write off the error as Stalinist alone. It is a response that, by assuming simple error alone, begs questions in the same way as Lysenko’s theory. It was not enough to simply reinstate modern geneticists at a later date in Russia. This only superficially resolves the error at best and does not deal with the concern of overdetermined inertia. Indeed, the American example is a good parallel because it highlights the problem of writing off Lysenko as uniquely Stalinist. Liberal thought congratulates itself by showing how bad authoritarians are, and authoritarians think they are not authoritarians but socialist, and congratulate themselves by considering the limitations of bourgeois science. However, neither authoritarianism nor liberalism eliminates very bad science, not only from emerging but from persisting. The tension between a science that is critical and one that is strictly governed by founding principles is a very real tension that exists in modern science today. Political interference aside, science faces the challenge of this dichotomy. It must keep its own books in order if there

is to be any chance of progressive policy in the political arena and to avoid the persistence of degenerative periods in history.

Conclusion

This chapter has demonstrated that optimism may be characterised as based in the subject or in the object. Optimistic views about subject see competing strains of theories as converging in a rational manner towards truth whilst more pessimistic visions foresee ideological cul-de-sacs. For example, scientific optimism could envision Marxist, Keynesian and Smithian economic strains of theory converging in an orderly fashion towards a more accurate objective view of the economy. Schumpeter saw seemingly opposed theories with strong ideological backgrounds as progressing towards, and converging upon, a greater truth.⁹ In a similar vein, Hayek (1945) theorised the idea of “extended order” and the benign evolution of institutions that enabled rationalised decision making despite seemingly large informational burdens. Heilbroner (1990: 1110) refers to this idea as “the winnowing force of history” that gradually filters out the bad ideas, leaving something closer to the truth. Hayek was optimistic that truth would manifest itself in institutional evolution. In the South African context, Merle Lipton (2007) sees post-apartheid political economy analysis converging with less and less real disagreement. Whilst certain South African groups may be clinging to their identities for political reasons, by and large, any analytical divisions are considered to be artificial.

Liberalism professes to share this ideal in progress – theories converging in a rational manner. However, this chapter has argued that the air of inevitable progress in liberal democracy is linked to intolerance for competing theories. As previously mentioned, liberalism tends to act as if it is an unalterable genetic code. Lysenkoism was very obvious in its intolerance for bourgeois science. This was its starting principle. It is argued, however, that the loss in objectivity in Lysenkoism stemmed not from its starting principle, nor the quest to develop a proletarian science, but from a materialist method that was not true to the principles of dialectical materialism. Marx and Engels emphasised materialism because it was necessary to do so at the time, not because they really

⁹ Schumpeter is in fact so optimistic about the rationality of the progress of society that he foresaw capitalism as developing into socialism merely as the “perpetuation of capitalism on a more rationalized plane” (Heilbroner, 1990: 1105). Marxism, for example, was not viewed as the “tyranny of concepts” (Thomas, 2008: 10) but as merely another ‘ideologically contaminated enquiry’ that would prove its use in the end alongside other theories.

believed it was the only social force in existence. In some ways it was due to the competitive nature of theories. Engels said that there was not always time to go into other matters because it would have given opponents a certain amount of space. Marx and Engels knew that it was not completely accurate alone, but they had little choice in light of their desire for their theory to be a political force. It is only late in Engels' life that he reflects on this and admits to it (Wilson, 2004: 180-181). Lysenkoism represented a failure to progress the theories of Marx and Engels by refusing to let go of the 'political necessity' argument for inaccurate assumptions.

In essence, knowledge faces two major hurdles. The first, Louis Althusser (1971) refers to as a political difficulty. The two examples discussed above have hopefully shed some light on this problematic aspect of science. Thinkers have visions. Their optimism is placed at different bases. This can make scientists rigid and this is a political difficulty. The second major hurdle that knowledge faces is the theoretical difficulty. This refers to the difficulties that science itself must face up to. Achieving a more objective view of reality is difficult even without pre-analytic bias and ideological traps. To this end, tools and methods are applied in order to aid and discipline the researcher. This is the discussion to which the thesis now turns to in greater detail.

3.

Knowledge and Debate

Introduction

The previous chapter concludes with a sobering realisation that progress is difficult. Science is a method that aims to deal with the difficulties of achieving progress. An optimistic scientific attitude envisions science solving problems and crises. Before we can begin to diagnose broader national or global problems, such as economic crisis, we need to know whether or not science can be objective. Once we are confident in the scientific process, when solutions are not achieved, then it may be because the broader public has failed to grasp the gravity of the situation or because there is no political will. For the moment though, the question is whether or not optimism in science itself is justified.

In tackling this question, the following chapter takes a number of steps to analyse the scientific process. Firstly, a model of the ideal objective method is articulated. This model is largely based on the writings of Imre Lakatos. Lakatos (1978) attempted to create a synthesis of early models of the scientific process proposed by Popper and Kuhn. Popper's method suggested that the scientist may put forward an untested statement (conjecture) on the condition that ruthless refutation (falsification) would be applied if called upon (Lakatos, 1978). Kuhn, on the other hand, denounces Popper's ideas as "naïve falsification" (Lakatos, 1978: 150). Science and progress, according to Kuhn, only begin once a scientist commits to a research project. Commitment¹⁰ is a crucial point for Kuhn. His idea of the scientific revolution represents an instance of rupture from commitment once progress is stunted.

Therefore, Lakatos builds on the ideas of these two men and it is this synthesis that is developed in the first part of the chapter. A key proposition is that science must create for itself, the space to progress. This relates back to Kuhn's aforementioned

¹⁰ Hallowell (1965: 287), for instance, paraphrases Michael Polanyi as saying: "[S]cientific enterprise involves a venture in faith, it is informed and attracted by a vision of reality which both implies and demands a kind of personal commitment."

concept of ‘commitment’ or Popper’s ‘conjecture’. Essentially, science has to start somewhere and needs to give itself a little space in order to get moving. As this idea is expanded upon in the chapter, it becomes evident that such space can also become degenerative. This scenario is explored. Good methodology should be designed to take degenerative tendencies into account from the very onset of research.

As the chapter develops, influences outside the scientific community are introduced. The contaminating effect of ideology on science is examined. Ideology is complex in that it is not purely an external threat to science. It can manifest itself from within the scientific community and filter in from without. Next, the effect of public opinion on science is considered. Yet again, the effect of public opinion on science is not unidirectional. The example of economic theory is used to explain feedback complexities. In other words, economics as a subject affects public opinion. Economic theory can work its way through the media, through government, etc., in a way that has very direct effects on society. The public are susceptible to the influences of expert opinion. Irrational fear or irrational optimism may be instilled into a public that is easily manipulated. Manipulation of this kind highlights reason for pessimism. If the public is easily coerced into thinking in a certain manner then this informs the question of progress. In contrast to this pessimism, the radical nature of public opinion also presents a bit of a wildcard. Public opinion is unstable. It is difficult to pin down its future mood. Thus, the chapter builds towards the consideration of a basis for optimism in public opinion. However, it must be noted in advance that the chapter aims to frame an informed question as opposed to developing a serious analysis of this vast topic.

Scientific Knowledge

Good science is not necessarily a seamless flow of enterprising analysis. There are tensions. How these tensions unfold towards truth or untruth is an important focus of this chapter. A few key ideas will be alluded to throughout. Firstly, scientific knowledge exists within a community of practitioners. Therefore, the social, subjective elements of research are not ignored. Subjective practitioners are part of the scientific process even if they are managed by method. Gould (1996: 55) admits that the scientific process may not result in an “inexorable march to truth... Scientists, as ordinary human beings, unconsciously reflect in their theories the social and political constraints of their time.” Gould highlights the inescapable fact that theories come from limited beings. As mentioned previously in chapter 1, economists are often limited by seeking to benefit from conforming to more widely accepted theories.

Secondly, scientific knowledge is the result of a process of managing raw thought within a specific framework or method. The ways in which these thoughts are structured is important because the same set of facts analysed within two different frameworks, two systems of relations, will result in very different outlooks. This stresses the fact that science must be transparent and all assumptions and data must be subject to scrutiny. Practitioners from diverse schools of thought generally agree on this point (Friedman, 1953; Lakatos, 1978; Fine, 2002; Engels in Wilson, 2004).

A scientific system is more than pure thought. The strict difference between pure thought (cognition) and science is that science is structured within a methodological framework. Scientific knowledge is therefore a system of factual relations and not just a collection of facts. This examination into methodology is known as epistemology and can be thought of as the theory of “theories”. It asks many questions such as, “what exactly is knowledge, and how is it formed?”

Figure 3.1 (p. 32) illustrates certain parts of the scientific process. Within this boundary, a specific form of knowledge (theory) is the result of the way cognition is structured and built upon an existing body of ‘knowledge’. Epistemology studies the gap between cognition and the generation of knowledge, or the final ambition – a view of objective reality.

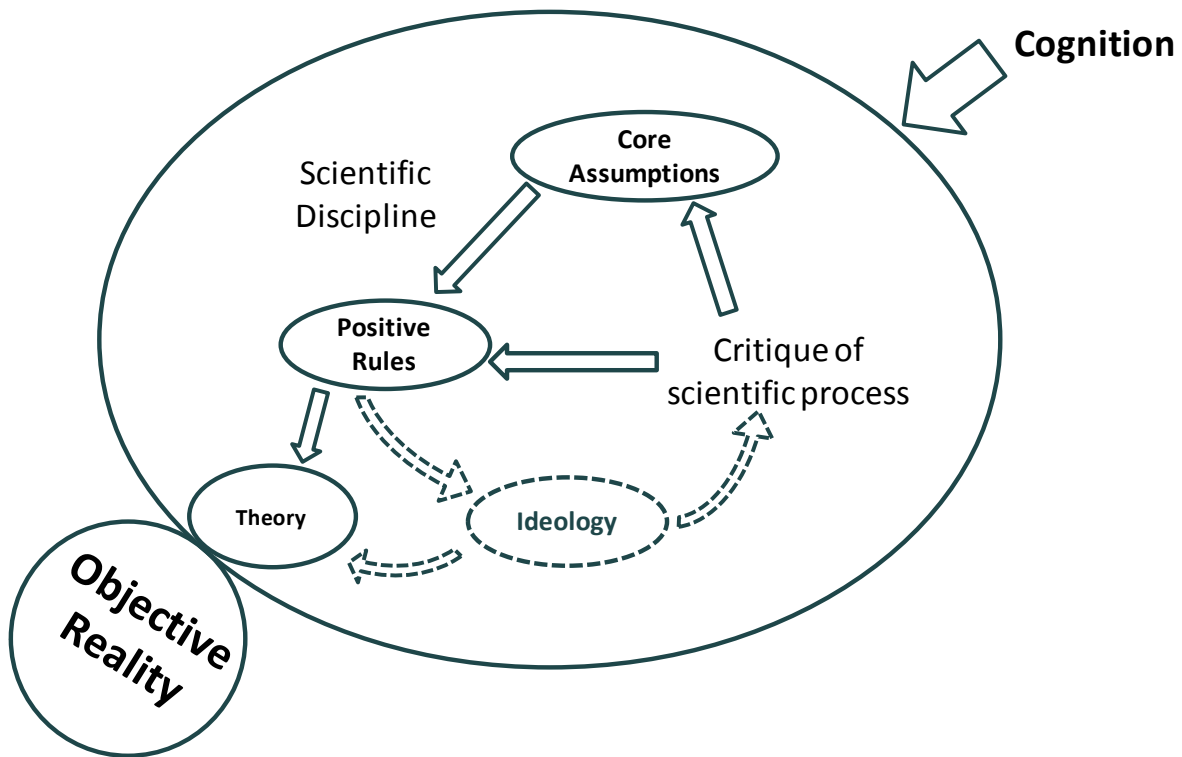


Figure 3.1: The Epistemological Gap: This is the gap between raw thought (cognition) and objective reality. Cognition is input into the set of scientific enquiry. Within this set, core assumptions define the discipline’s positive activities. These activities form theories. In order to improve theories, core assumptions and positive activities are revisited (critique of the scientific process). The final aim is for theory and objective reality to begin to intersect. The broken lines represent the possibility ideological interference (to be looked at in greater detail later).

The input of cognition (Figure 3.1) constitutes the thought of scientists, data, social ties, etc., but is completely subjective and represents raw material. Subjective, in this context, refers to perceptions and processes that are unstructured and not necessarily transparent. It refers to thought from an undefined source – undefined as yet by the framework to which it could be possibly organised. Understanding objective reality is the desired output of the scientific framework. It is a truth free from bias, prejudice and cognitive limitations. The scientific process manages raw thought in the hope of developing an objective theory. It aims to be as disciplined as possible, minimising subjectivity, in order to increase the knowledge of objective reality. Understanding the economy is the goal of the discipline of economics. Perhaps it is the case that a purely objective view of the economy is not entirely possible, but structuring economic thought in a way so as to minimise subjectivity is certainly within the realms of possibility. The economist must

also remember that his/her view of the economy is being affected at all times by personal experiences due to the fact that the economist exists within the object of study. Thus, the economist must always be critical of what he/she is doing. There is the need for the creativity and the imagination necessary to think beyond the daily influences of life that are constantly being experienced. The economist must always be looking for new analyses that are free from imposed subjectivities. Thus, the relation between reality and how people think is problematic. Scientific structure attempts to bridge the gap of this imperfect relationship.

What are the reasons for the gap between the desired final output of a view of objective reality and the cognitive inputs of the practitioner? At any one point during scientific enterprise there exist epistemological gaps or spaces that separate the act of finding the truth (method) from the truth itself (object). This region is made up of the following:

1. The Space of Becoming

Part of this necessary space includes assumptions and therefore phenomena that are being temporarily ignored. Within this space, existing facts or theses are being built upon in a progressive manner in order to improve theory. It also pertains to certain limitations, amongst which include, the fallibility of practitioners who may be limited in their ability to comprehend phenomena either through lack of developed senses, cognitive abilities or practical obstacles. Scientific structure attempts to alleviate some of these limitations.

2. The Space of Stagnation or Degeneration (Ideology)

This point cannot, in fact, be separated from the first point above because ideology has an effect on assumptions and on practitioner's cognitive abilities. In essence, ideologies are objectively real – they do exist – but it is their appearance as truth that is illusory. Such contradictions often remain hidden and can have an affect on science in a non-transparent way, thus undermining the process.

Each of the spaces above represent epistemological gaps. The former has the potential for bad science whereas the latter is most certainly bad science. In the ‘space of becoming’, even though bad mistakes are possible, (through terribly inappropriate assumptions for

example), a well disciplined, transparent method should be able to spot and rectify these mistakes so that a research programme can be rescued from stagnation or degeneration. However, the space of stagnation or degeneration introduces the possibility that science enters a systemic breakdown. This prospect is a far greater *bad*, in terms of scientific progress, than mistakes. In order to shed light on this concern it is first necessary to understand how the scientific system itself operates.

Lakatos and Scientific Discipline

Lakatos (1978) maps out the scientific process as composed of positive and negative rules (depicted in Figure 3.1, p. 32). His ideas are rooted in an optimism about science that implies that there is a path to objective knowledge. In this unfolding process, Lakatos mentions a first set of rules termed negative heuristics. They are negative rules in the sense that they are a part of theory that will *not* be investigated and revisited. The negative heuristics of a Scientific Research Programme (SRP) are borne out of a process of developing assumptions that form a hard core that will be temporarily ignored. Economic theory demonstrates one of the most striking examples of this idea of a hard core. In a branch of economics referred to as the neo-classical school, there is an overarching assumption of rationality¹¹ and individualism. Furthermore, these assumptions are seen to be “pre-ideological” (Zizek, 2010: 91) and methodologically prior to larger concepts such as citizenship or society. The specific domain of private interest is assumed to be non-ideological. Rationality, under the neo-classical SRP investigation, is an element of human nature considered as a certainty. Rationality is said to be a quality that produces predictable results under conditions of completeness and consistency¹². Rationality is the core assumption in the example of neo-classical economics – it is an element not examined further and provides the point of continuity that Lakatos regarded as crucial for any SRP. The negative heuristic in neoclassical economic theory therefore dictates that theories and models are *built* upon the study of rational individuals (an element not to be questioned) who maximise their utility in complete markets.¹³ The negative heuristic serves as a foundation and is therefore extremely influential in the final product knowledge that is produced.

¹¹ See Stiglitz (2009) for example.

¹² Completeness relates to conditions such as a well functioning market and full information concerning choices available to the individual whilst consistency means that the individual does not contradict his or her preferences. This further implies transitivity. That is, if the individual prefers choice A to B ($A > B$) and prefers choice B to C ($B > C$), it can be inferred that a rational individual would then prefer A to C ($A > C$) (Fryer, 2010).

¹³ Note the emphasis on individuals in neo-classical economics. Through its explicit assumption of individual rationality, neoclassical economics implicitly makes assumptions about collective rationality, that is, well functioning markets. The starting point is from the individual and thus, any observation on the

Lakatos says that the assessment of theories should also involve positive rules or positive heuristics. The positive heuristics pose a question: In the scientist's disciplined path forward from a core set of assumptions, does the theory improve upon previous versions of that theory? In other words, there is no implicit assumption that the latest knowledge is the best knowledge. Wade (2009) refers to this assumption as Whiggish progress. Lakatos' positive rules ensure that the scientist assesses a specific SRP based upon how successfully a disciplined method has built upon the existing theory. This contribution highlights the importance of progressive research rather than simply assuming Whiggish progress in the subject. Science must not only explain n facts but $(n+1)$ facts, and not be swayed into examining m even if m (not n) seems objectively obvious (Lakatos, 1978). Scientists must avoid the lure of eclecticism and follow the programme that was initially mapped out. Progressiveness, as the word implies, requires that research is explaining more and more ($n+1$ facts). There must be an ever growing pool of n facts, the explanations of which are constantly being improved with each additional $+1$ component. Progressive research is a constant state of expansion from a core premise in which the quality of n is improving. Theory is enlarged through building upon a foundation of existing constructs – making some adjustments where necessary but also developing more detailed explanations.

A progressive theory, most importantly for Lakatos, provides better explanations than competing theories and explains $+1$ without abandoning any of n . This element was particularly important to Lakatos because his methodology is primarily concerned with comparing SRPs. Competing SRPs will be judged by how well a continuous expansion in explained facts are produced. Thus, if one SRP is progressive and the competing SRP is stagnant, the Lakatosian framework seems to clearly dictate that the stagnant research be abandoned. That is, sometimes there is no alternative but for science to be revolutionised. A scientific revolution may take the form of abandonment or a synthesis of theories. Two SRPs may perhaps be merged into a new distinct SRP that represents a much wider scope of understanding. The point is that progressiveness in science is a good benchmark to set.

aggregate level must stem from the individual because individual rationality is the core of the neo-classical SRP.

But in order to continually reach improved explanations it is sometimes necessary to consider alternative investigation. Debate is necessary.

Indeed, the continuous growth of explanations is not always progressive and sometimes debate is not what it should be. Positive rules are not apart from but connected to negative heuristics of that specific SRP and this is what keeps the focus on explaining $n+1$. An explanation of m is almost certain to be a dislocation from the core. In Lakatosian terms, modifications to project n represent an improvement if they are not *ad hoc* resulting in completely new testable implications (m) (Hausman, 1994: 22). What is meant by ad hoc? Consider the premise that all national currencies' highest denomination notes can purchase a soft drink. However, after talking to a Zimbabwean colleague our economist in question produces an updated premise: all currencies' highest denomination notes can purchase a soft drink, if not the Zimbabwean dollar. This would not constitute progressive research because it explains away problematic evidence (loses some of n) and does not *build on* existing theory. Ad hoc additions mean losing the holistic aspects of theories. As unavoidable as it was, the currency example above certainly gives away part of n by introducing the Zimbabwean case to the thesis. The holistic nature of the theory (applying to all countries) is undermined by adding the exception of Zimbabwe. In some cases, this lack of focus and consistency degenerates into a false virtue whereby theories seem to be extremely robust in the face of difficult new evidence. This is not disciplined and is how ideological crises develop.

Returning to the example of the neo-classical research programme, let us examine some of the positive modifications to that theory. The law of diminishing marginal rates of utility for example, represents a perfectly acceptable means of progression and expansion on the assumption of rationality. This law explained how the rational individual, as mentioned above in the negative heuristic, was subjected to declining levels of utility (satisfaction) as consumption of a specific good increased. Following Lakatos' method of discipline, the economist takes the cue to make positive steps in assessing this research and finds that diminishing marginal rates of substitution (not diminishing marginal utility) provide a better theoretical progression towards the idea of *relative value*. And in fact, the law of diminishing marginal utility was replaced by the law of diminishing marginal rates of substitution – shifting the focus towards the concept of

valuation of sets of *choices* as they are continually made (Hausman, 1994).¹⁴ It is worth mentioning at this point, an additional characteristic of neoclassical economics' progressiveness – its timeless progressiveness. This characteristic is created by a stable negative heuristic (see footnote 13). This relates back to the concept of Whiggish progress mentioned earlier. The abandonment of the concept of diminishing marginal utility will not result in that concept being confined to the neoclassical history books. Rather, the concept is likely to be forgotten. Neoclassical economics has such tremendous optimism in its evolutionary progress, and the belief that the latest knowledge is the best knowledge, that the history of the subject is irrelevant. Wade (2009: 109) refers to the “rarity with which economic papers more than 10 years old are cited” in neoclassical research.

Continuing the theoretical discussion on progressive research, it must not beg questions – “to beg questions is to assume the very point at issue in attempting to argue for it” (Rhodes University Philosophy Handbook, 2009: 37). That is, a theory must not assume n in order to explain $n+1$ when n represents the crucial element in the goal of research. For example, Robert Brenner (1977) criticises Wallerstein's argument concerning the advent of free wage labour (the end of serfdom) in Poland during the 14th and 15th centuries. Wallerstein argues that free wage labour was the result of a reduced land/labour ratio which meant that labour had become relatively scarce. This scarcity, Wallerstein argued, resulted in greater bargaining power for labour. The problem with Wallerstein's argument is that it begs the question. It assumes the very issue at the heart of the enquiry, i.e., free labour (n). It is assumed that labourers are able to bargain after the land/labour ratio declines. But the reduced land/labour ratio does not change the fact that Wallerstein's argument rests on the assumption that free wage labour existed (i.e., the ability to bargain) in order to explain the advent of free wage labour.

Begging questions treats the positive goals of research *as if* they were part of the negative heuristic (guaranteed core assumptions) and thus, crucial questions are overlooked and treated simultaneously, as part of the core *and* as the result of research. In this

¹⁴ Hausman argues that the shift to diminishing marginal rates of substitution constitutes a violation of Lakatosian negative heuristics – and thus the end of the research programme in question. However, it seems more plausible that there was no actual attack on the core. Rational individualism is still intact.

refers to the “moving soul of scientific progression”. He means that science must not be thought of as finite and that the process must face criticism. Thinking of science as finite means that only ‘pure facts’ are developed. Pure facts “arise when a phenomenon of the real world is placed (in thought or in reality) into an environment where it can be inspected without outside interference” (Lukacs, 1919). The ‘environment’ that Lukacs mentions is created by the negative heuristic. The negative heuristic reduces complexity and makes it easier to realise pure facts. This is acceptable methodology. However, problems arise when theory holds on so tightly to these pure facts and starts to analyse them further, looking for laws of tendency, searching for extrapolations, etc. Abstractions must always point to an object that is real. Failing in this, a divergence between theory and objective reality will gradually grow. The degenerative space in science is always a looming concern. Pure facts (once acquired) need to be reassessed against an ever larger historical backdrop and not just the incubator from which they were extracted. This constant movement forwards keeps degenerative spaces at bay. The moment pure facts are treated as holistic, timeless facts, ideological incursion ensues. Pure facts, meant to be sterile caricatures, will achieve their own autonomous existence and theories will be shaped around this new objective existence. For lack of a better explanation, this objective existence takes the form of orthodoxy. This was clearly seen in the Lysenko example where a Russian orthodox theory of genetics was formed via the justification of dialectical materialism. In liberalism, the orthodoxy is less obvious but it has been argued to be within a concept of evolutionary progress. Ideology, and an obdurate orthodoxy, creates its very own intelligibility. However, this intelligibility is a hardened one that strips theories of their connectedness to reality - a process that produces merely abstract ideas.

Abstract ideas represent a concern for science. To paraphrase Althusser’s (1971) point - an abstraction is very different from an abstract idea. Abstractions still support a concrete reality. Abstract ideas, however, are separate from reality. How this disconnectedness unfolds has already been explained with reference to the negative heuristic of scientific research programmes. The problem of the abstract idea designates an important source of pessimism in science itself. The ideology that is nurtured by abstract reasoning completely undermines the logic of ‘the space of becoming’ in

science. This space, or “moving soul”, is the *politics* in science. It threatens to make changes should explanations fail to improve, keeping science progressive, fending off authoritarianism.

This section on scientific knowledge has developed the idea that the space of becoming in science can be a reality. Science can progress. However, this only comes with the sharp caveat that degenerative spaces do exist. Such spaces *will* be encountered if the scientist, and the scientific community, does not make a conscious effort to avoid degenerative over-discipline, shallow compliance to accepted views, and general poor method, especially on the aspect of the negative heuristic. These concerns are internal. It is now time to consider the impact of outside influences.

Science as a Subset of Public Opinion

It may seem a bit of a leap from science to public opinion but it is necessary to consider the possibility of contamination from outside the scientific environment. Public opinion and its effects on objectivity and progress are now explored. The inevitable movement from contemplative science into the practical public realm introduces complications. On the one hand, as the discussion thus far has focussed, there is a very successful scientific community that has produced fruitful results. Science has resulted in a dramatic improvement in society's command over nature: medicine, physics, technology, etc. Science is notable in its successes and this supports its legitimacy. These sciences, however, have been in specific frameworks. They have followed very strict heuristics. Therefore, although the scientific community, through its scientific method and results, seems a logical place for the public to place their trust, it must always be remembered that pure scientific knowledge, if not a public activity, remains somewhat removed from reality and perhaps even completely unrealistic in terms of more universal concerns (democracy, the environment, etc.) (Jonsson, 2010). Ultimately, any disconnection from reality will eventually serve as a limit to progress.

Gouldner (1980: 17) explains that the role of the scientist is "to mediate between persons and their own experience". Gouldner realises that people generally know the immediate consequences of their actions. However, he is suggesting that science can add a much greater contextual understanding. Furthermore, as people become more informed about their own experiences, the more space there is for additional improvement. Science will have new problems to solve. Gouldner, therefore, sees public opinion being more intelligent if guided by science. In other words, the world can be understood better, it can be organised better and generally speaking, scientific theories are an improvement upon the everyday, raw perceptions of the public. This outlines a deep sense of optimism in science (the subject) as a subset of public opinion.

As, mentioned in chapter 1, Hayek (1974) does not share Gouldner's optimism in social science. In the purely physical sciences, Hayek is content to accept that a sufficiently accurate laboratory environment can be created and still produce accurate knowledge. However, Hayek does not share this optimism when examining society.

Lippmann (1922) is also pessimistic about social science but for a different reason. Essentially, Lippmann asks: what grounds are there to suggest that a scientist would seriously take up this challenge to act as an honest mediator to the public? The disciplined nature of science may foster a reluctance to grapple with public issues. Indeed, how often does the economist actually venture onto a firm's shop floor? More often than not, the economist will rely on an assumption instead. Added to this, if the abstract assumption and subsequent theory or model is rewarded by the scientific community, what impetus is there to adjust this method? In purely scientific terms, the goal of progress is being achieved. Additionally, entering the public domain is risky business. To paraphrase Lippmann (1922): if in the physical sciences there is a mistake or accident in the laboratory, the consequences are far less dire than for the social scientist.

There seems to be evidence of this in economic theory. Neoclassical economics tends to treat the subject as if it were a physical science. Individuals are described as objects with certain properties. *Homo economicus* is a very similar methodological construct to the chemist's notion of an atom with clearly definable properties. Following this approach serves to dilute the perceived public effect of theory. Economists are confined to investigating questions relating to the abstract concept of homo economicus (Sen, 1977). This 'safe' theoretical bubble is only a perception. The discussion on the objective nature of ideology has highlighted this point. Fryer (2009: 13) states that, "without pragmatism, explanations that are highly implausible (but not 'disproven') have the same status as explanations that are highly probable (but not 'proven')". A disproven theory, however, can still have an effect on public opinion. For example, if a theory of evolutionary economic progress is constructed, nothing prevents this abstract idea from adapting the public's interaction with the economy. Expecting inevitable economic progress, the public may be less critical of very obvious economic crises.

Shifting to the public's point of view, there is a similar process of discipline in its methods. Nationalism, for example, is an organising principle at the level of public opinion. It is a principle that can unite a population, encouraging cooperation, social harmony, and so on. The concept of nationalism itself is purely imaginative, relating to arbitrary geographical demarcations, but the point is that it can provide a climate for progress. The assumption behind such narratives is that people are limited and need

focus. However, over-discipline in the public realm is just as burdened with the prospect of degenerative spaces as the scientific realm. The over exuberance of nationalism is a small step away from xenophobia. In this scenario, the galvanising ambition behind nationalism is completely undermined by civil strife. Nationalism enters the degenerative space of bigotry and intolerance.

Over-discipline in the public's activities faces another concern. In an attempt to follow some form of positive heuristic, the public exercises pragmatism. Individuals put their heads down and get on with the tasks of life. This shade of discipline leads to ill attentiveness and a lack of criticism. Under these conditions, the public can be manipulated. We only need to look back to chapter 2 to see that if the public are easily manipulated then science can be distorted too.

“The conflict between what in its present mood the public expects science to achieve in satisfaction of popular hopes and what is really in its power is a serious matter because, even if the true scientists should all recognize the limitations of what they can do in the field of human affairs, so long as the public expects more there will always be some who will pretend, and perhaps honestly believe, that they can do more to meet popular demands than is really in their power.” (Hayek, 1974)

Thus, Hayek explains the feedback between the public and science. He sees social science as dangerous because some scientists will seek benefit from promising to meet the public's expectations and we think of the figure of Lysenko. However, Hayek's remedy is exactly part of this problematic scenario. Untamed liberalism is supported by a public that accepts a laissez-faire based faith in progress at all costs. As Lippmann (1922) explains, this skews perceptions of reality. We unflinchingly see development as progress. We see big cities growing with magnificent sky scrapers. We marvel at the capacity to extract oil from miles beneath the sea. Yet how often do we relate such progress to poverty, slums and oil leaks? How often does science progress blindly without taking stock of its own position because it is assumed that science, in its very nature, is progressive and always able to solve problems, even those it creates? It is an optimism in progress that distorts the reality of scientific achievements. There is no difference between this hidden crisis and a public that is manipulated by dictators (like

Stalin) into placing confidence in the Party - coerced into accepting that to successfully steer society towards progress, authoritarianism is necessary.

As things stand, these viewpoints push the question of progress wide open. Does public opinion need to take its cue from science or is it important to have independent formation of public opinion on the individual level? Can science change society and nature or is nature (and human nature) always confronting the scientist with immutable limits?

Walter Lippmann (1922) focuses extensively on mapping out the environment in which public opinion operates. In Lippmann's opinion, a huge problem for the public is a lack of an environment in which a positive heuristic can be exercised without impediment. Lippmann's contributes to the debate about a basis for optimism in progress:

“Thus the environment with which our public opinions deal is refracted in many ways, by censorship and privacy at the source, by physical and social barriers at the other end, by scanty attention, by the poverty of language, by distraction, by unconscious constellations of feeling, by wear and tear, violence, monotony. These limitations upon our access to that environment combine with the obscurity and complexity of the facts themselves to thwart clearness and justice of perception, to substitute misleading fictions for workable ideas, and to deprive us of adequate checks upon those who consciously strive to mislead.” (Lippmann, 1922: 42)

Thus, Lippmann stresses an overwhelming number of obstacles facing public opinion. It might be said that public opinion faces its own special brand of the ‘space of becoming’, albeit a rather unsightly one. These obstacles have been organised in table 3.1 below:

Table 3.1: The limiting factors of Public Opinion

Failures by individual citizens through:	
	<p>Complacency and poor attention - a lack of rigorous scrutiny of presented facts against a method of investigation.</p> <p>Unwillingness to face reality</p> <p>Cognitive limits</p>
Attempts to mislead by more powerful elites through:	
	<p>Censorship and secrecy</p> <p>Distraction and public spectacle</p> <p>Violence</p> <p>Monotony</p> <p>Vagueness or complexity of communication</p> <p>Propaganda</p>
Other factors:	
	<p>Physical and social boundaries - individuals are not omnipotent.</p> <p>Brevity of reported issues</p> <p>Limited time</p>

After studying table 3.1, a picture begins to immerge of public opinion running up against a dense mixture of insulating conditions. Public opinion begins to look a lot less like the well managed approach to scientific knowledge seen in figure 3.1 (p. 32) and more like the problematic scientific environment seen in figure 3.2 (p. 39).

The central issue for Lippmann is the limit imposed on society by the *complacency and poor attention* of the public (as listed in table 3.1). For instance, Lippmann emphasises that, “we are concerned in public affairs, but immersed in our private ones” (Lippmann, 1922). This point has been made already. Nationalism is essentially complacency. Flag bearing acts may be intermittently undertaken, but national pride is simply used as an informational shortcut in dealing with larger public affairs amongst the demands of day-to-day personal activities. For example, the complex public problems of crime and unemployment can be narrowed down to foreign elements in the country. The conclusion is quick and leaves more time for private concerns.

In essence, a picture of a passive, ideologically contaminated public opinion is emerging. The picture degenerates further when considering the possibility that public opinion may be tainted due to proactive efforts elsewhere. Opinion can be created and/or manipulated through the efforts of those who have the power to do so. This is achieved via repressive ideological tools. Consider Herman and Chomsky's (1988) propaganda model for example. In this model, sport is a big consideration. It is perhaps a stretch to assume that citizens *want* to know what public issues are when they in fact might be more concerned with the result of Sunday's game. However, what citizens "want" is not necessarily independently up to them. The "want" to watch sport is a result of the reality these individuals *believe* they face.

Some elite citizens in society have the capacity to give a perspective to others: in other words, some citizens have power in society (Gowan, 2009b). Expert opinion is an important source of power. Scientific knowledge can be considered to be a subset of expert opinion. To be more specific, there is a relation between the two constructs. However, even the person engaged in the most routine manual work is not completely and terminally responsible for purely muscular activity – there is always a level of intellectual effort in everyone. As Gramsci (in Hoare and Smith, 1998: 9) says, "[a]ll men are intellectuals, one could therefore say: but not all men have in society the function of intellectuals." Thus Gramsci reflects on the reality that perceptions on what constitutes intellectual or expert opinion are determined by role in society. The main reason, therefore, for the label of manual labourer is due to the predominant social function the labourer performs. The label has little to do with his intellectual capacity. The ideology of social function has shaped the 'expert opinion' construct. The result has been the concept of "true intellectualism" (Monasta, 1993: 602). This concept places intellectualism in the hands of those formally engaged in the pursuits of science, philosophy, etc., and results in the ability to shape perspective because certain citizens are deemed to be 'directive' whilst others are 'subaltern' (Monasta, 1993: 602). This point was raised with regard to Ideological State Apparatuses (ISAs). Althusser (1971) explains that people become 'subaltern' via such apparatuses as a 'role in society' is shaped. Zizek (2010) suggests that the most influential ISAs of modern society relate to a combination of the educational and legal structures. People are educated in order to fulfil certain societal

roles and become citizens within the dictates of the legal system. These ideological systems serve to define what is possible for the public. Žižek (2010: 93) refers to the possibilities of space travel for anyone, genetic enhancements due to the mapping of the human genome, and even immortality is possible as people can transform their identities into software on social networking internet sites. However, the Educational and Legal ISAs also define the impossible:

*“you cannot engage in large collective acts, which necessarily end in totalitarian terror; you cannot cling to the old welfare state, it makes you non-competitive and leads to economic crisis; you cannot isolate yourself from the global market, without falling prey to the spectre of North Korean *juche*.” (Žižek, 2010: 93)*

In the public sphere, opinion is dominated by powerful opinions and autonomous ideological structures that develop in relation to the economic and legal makeup of society. Science is not immune to this interference either. The demands of the research community may be shaped by the more powerful elements in society. In the Russian example, the genetic scientific community was shaped by the Bolshevik Party. In America, a similar interference was pressed by the Ford Foundation¹⁵ (Wade, 2009). These mirror images shared a common protection of the accepted orthodoxy. This degenerative situation has further ramifications throughout society. Powerful elites have the ability to garner legitimacy via the support of the scientific realm. In order to manipulate the public, a simple referral to specialised intellectual thought is often more than enough to stem the tide of backlash and maintain a ‘directive’ edge in society.

When Thabo Mbeki pushed forward his views on HIV and AIDS, the referral to professional intellectual opinion was implied. “He is president and therefore he must be surrounded by experts that have advised him on such policy”. It turned out that he had come across AIDS denialism theories online (Gumede, 2008). Mbeki’s power meant that his perspective eventually had real consequences on the health of South African citizens

¹⁵ “[T]he Ford Foundation’s Study Committee on Policy and Program in 1949 said that economists must re-examine ‘basic theories’ and ‘subject them to the acid test of verification’; in effect saying that they must reject pluralism in favor of neoclassicism.” (Wade, 2009: 110)

with regards to the HIV/AIDS pandemic. Mbeki was able to direct others that had immediate influence in the health care arena.

United States foreign policy is another pertinent example. John Pilger (2010) refers to terms such as, “information dominance”, “information warriors”, “perspective management” and “narratives”. Such techniques, Pilger argues, are used by America to overestimate ‘narratives’ such as “the Soviet menace” during the cold war , or the narrative that the war in Iraq has been won, and in Afghanistan the war is a "good war" (Pilger, 2010). It is curious that elites will overtly use terms such as ‘perception management’. Gen. Petraeus (commander of US Forces Afghanistan) openly refers to ‘wars of perception’ when he speaks of the Middle East (Pilger, 2010). Interestingly, businessmen and politicians in South Africa also openly refer to ‘perception management’.

The ideological contamination of science and public opinion by elites is thus well documented. Irrational events such as AIDS denialism, Lysenkoism, climate change in the face of knowing better, etc., attest to the manipulation of the public by elites – but only in part. The distorting effects of power can also come from science itself. It is crucial to accept that hegemonic discourses do not only come from politicians. Scientific theories can become hegemonic. Paraphrasing Althusser (1971); in the scientific arena, theories are instruments of knowledge, but in the public domain, theories can be weapons, explosives or tranquilizers. In economics today, liberalism assumes hegemonic power. The tranquilizing effect of liberalism in public matters has been striking. For example, the massive bail outs of financial institutions, meant to be the hallmark of evolutionary liberal progress, have come at the cost of the general public. Coupled with subsequent stimulus packages, it is striking how muted the responses have been to the inadequacies of the liberal notion of progress. The odd protest has materialised but by and large it is fair to say that the financial crisis has been met with stoic tolerance. The ‘specialised’ nature of the public’s methodology, i.e., attending to the everyday demands of life, might have some responsibility for such a response. However, economic science bears a huge part of the responsibility as well. The liberal ethos and faith in the markets, that the economy was fundamentally sound before the crisis, pervades public opinion via the media and the proverbial ‘expert’. The strength of hegemonic liberal currents in the

university has filtered through to public opinion, tranquilising it. The error of the financial crisis, in this light, may be said to be systemic. The word ‘systemic’ refers to the layered depth of the problem. The perception of a naturally occurring liberal progress is entrenched at the state and legal level, in the scientific research process, and in public opinion. Dogmatic liberalism has meant that the economy has achieved an ideological existence, separate from objective reality (Zizek, 2010). This ideological existence defines progress in terms of what is possible and impossible in terms of economic policy.

Through broadening the discussion on the scientific process, and dropping *ceteris paribus* assumptions, a pessimistic picture of progress has emerged. The public, it seems, often fail to grasp the direction offered by science. Citizens face an onslaught of perspective management. Information dominance is exerted upon them by elites and scientific theory. This attitude of pessimism is seen across a broad spectrum of schools of thought. Lippmann’s (1922) diagnosis of a manipulated, distracted public is not unique. Lenin (1902) viewed the public as an entity that could, *and should*, be led and coerced. The vanguard theory is couched in a pessimistic attitude towards the public. Althusser’s (1967) concept of overdetermination (mentioned in chapter 1) describes the public as imbedded within layers of ideology, bogged down by imaginary views of reality. Schumpeter (1970: 61) expresses his concern about citizens being members of “an unworkable committee.”

However, Pilger and others see signs of optimistic outcomes due to the fact that hegemonic systems are not watertight. Information dominance in the US, for example, has been undermined time and again by leaks of information that the general public can get its hands on. Small cracks start to develop in these degenerative systems or spaces. Indeed, the defence by hegemony can be swift – dismissing such cracks as conspiracy theory; the ‘conspiracy theorists’ written off as one sided critics with no method and no disciplined positive heuristic. Yet, it cannot be ignored that public opinion has the potential to generate quite radical outcomes because it is not governed by strict methodology as in the scientific world. Public opinion is often governed by emotive and quite impulsive methods. This is what can lead to radical turnaround of degenerative momentum because there is no strong negative heuristic to stop ‘cracks’ being seized

upon by the public. In fact, “ill attention” and “complacency” has the potential to act as a radicalising negative heuristic.

There is certainly an element within public opinion that warrants further investigation. In terms of representing a basis for optimism in progress, there is a powerful element in public opinion that can serve to rupture degenerative stasis in society. Althusser (1971: 153) says that ideology is an imaginary relationship of individuals to their real existence. When individuals are gripped by ideology there is the likely outcome of stasis. The interesting Althusserian point is that the imaginary nature of ideology is *also* a property that can manifest itself in a radical and revolutionary form. That is, something that can overcome a situation of degenerative non-progress. Imagination, in this light, may be referred to as ‘vision’ (Heilbroner, 1990). Visions confront the political difficulties in science, and dominant ideologies, head on. The public, less encumbered by discipline, less focussed on theoretical difficulties, has the potential to think outside of the realities of accepted ideologies - or in colloquial terms, has the potential to think ‘outside of the box’.

Thus, under the right conditions (and this is a big question), these radical ideologies can develop into ruptural moments in history. This potentiality occurs for two reasons: the autonomous nature of ideology; and the material existence of ideology. That ideology can be autonomous means that it can escape dogmatism. The material existence of ideology means that consciousness and freely formed ideas lead to *material opinions*.

The discussions on Liberalism and Stalinism demonstrated the dead ends of ideology in which the superstructure is overpowered by authoritarianism or baseless liberalism. The result was society that does not improve – not in serious progressive ways. However, thought becomes part of objective reality even if it is constituted by the divergence between ideas on which people base their choices and the objective reality of these choices (Fryer, 2009). This point, the efficacy of autonomous thought, is potentially a source of optimism. On occasion, the effective action of people is progressive – not stagnating. On occasion, powerful degenerative forces are dismantled during sudden periods of unified interactions throughout society.

The pessimism of Lippmann and an overwhelmed public is not prescribed because there does appear to be a potential for the public to become a vessel for being

critical in a progressive manner. The public are an unstable entity. In certain situations, leaks of information, a shaken elite, brave public leadership, etc., can lead to a 'weak link' developing in a degenerative space, thus, opening the door again for progress (Althusser, 1967). The autonomous nature of ideology is certainly an element to be considered in terms of how weak links are established (or for example, how regime changes are effected). This topic is vast. Finding a basis for optimism in the public requires developing a thorough understanding of how this genuinely critical and radical element (public opinion) can become the progressive force in society.

4.

Conclusion

The major objective of this thesis was to augment a theoretical discussion on epistemology with real world examples. Chapter 2 presented two separate examples of ideological formations. Liberalism and Stalinism were shown to be dogmatic. Their aims were to protect core ideas. To put it another way, core ideas, in dogmatic structures, are not organising devices but an end. In methodological terms, the flaws of liberalism and the flaws of Stalinism are exposed, standing side-to-side. Thus, although the examples discussed represented different real world manifestations of ideological contamination, the epistemological thread is that collective attitudes are related to a core principle. Chapter 3 built on this introductory contextual explanation and scrutinised the scientific process in light of pre-analytical devices. The attitude of optimism provides a useful metaphor for explaining bias in collective thought. The reason for the accessibility of this concept is its link to psychological tendencies.

However, the simple metaphor of being optimistic has been transcended by an analysis of the nature of ideology. Hayek (1974) saw optimism in social science as dangerous. He said this with a deep concern that such optimism would create a false impression and expectation in the public's mind. This is akin to a parenthood style that raises children with one specific possible scenario in mind, say, being approached by a stranger. The result is that a child is unlikely to listen to any reason from any adult. Perhaps one day it may serve as an asset to the child, but in all likelihood the grand result will simply be an uncomfortable social difficulty. It has been argued that this conception sees the subject, whether an optimistic science or not, in far too one dimensional a view. The subject is not completely separate from the object. In fact, science makes objective reality, increasingly a product of the subject. Hayek fails to take this into account.

With subject/object interaction in mind, the discussion moved to discuss science in the broader context. Economics has taken its methodological cue from the physical sciences. A very rational and orderly approach was articulated. There are positive rules and negative rules that manage the raw materials of science. However, the disasters of

chapter 2 provided a clue to the looming trouble within science itself. Science is a balancing act between criticism and discipline. The term ‘space of becoming’ was used to describe the opportunity for scientists to be disciplined without the distraction of criticism. Taken too far, however, the hazards of over-discipline lead to ideological problems. The important point about ideology though, is that it more than a mere daydream. To use the optimism metaphor: a scientific research programme may be optimistic that it can achieve a certain goal. If the research loses its way and becomes ideologically contaminated, then the characteristic of optimism may become definitive. It is no longer a science that is optimistic but an optimistic science. When ideology is viewed in this light, as a material existence, the force of science gone awry becomes apparent. The subject, in this way, encroaches on objective reality. This is why public opinion needed to be discussed. At first, it was deemed necessary in order to shed light on external contaminants upon science. Yet it soon emerged that science and public opinion represent the very crux of subject/object relations. The interactions are complex. Althusser would say ‘overdetermined’ and it is clear that the topic warrants deep attention.

Of course, it is not only ideological inaccuracy that encroaches on the objective world. Healthy and progressive sciences make the object more intelligible. In doing so, the progressiveness of science manifests itself in the form of intelligent interactions within the object. These interactions (amongst the public, between the public and scientists, etc.) are important in themselves. Interactions such as crime, war and environmental degradation antithetically explain this point. Progress in terms of a more intelligible *and* intelligent object is an ideal but if science does not aim to move in this direction and furthermore, is content with this slight, then a political battle must be fought. This requires visionary intellectual effort to see beyond what may appear to be theoretical excellence. One may ask what would sustain this momentum – it is always an optimism that a better arrangement can be achieved.

References

- ABDELAL, R. and RUGGIE, J.G., 2009. The Principles of Embedded Liberalism: Social Legitimacy and Global Capitalism. [in MOSS, D. and CISTERNINO, J. (eds.), 2009. *New Perspectives on Regulation*. Cambridge: The Tobin Project].
- ALTHUSSER, L., 1967. Contradiction and Overdetermination. *New Left Review*, I(41), pp. 15-35.
- ALTHUSSER, L., 1971. *Lenin and Philosophy and Other Essays*. London: Monthly Review Press.
- ALTHUSSER, L., 2003. Unfinished History. [in LECOURT, D. 2003. *Proletarian Science. The case of Lysenko*. London: Atlantic Highlands: Humanities Press].
- ARRIGHI, G., 2003. The Social and Political Economy of Global Turbulence. *New Left Review*, 20, pp.5-71.
- BAWN, K., 1999. Constructing “Us”: Ideology, Coalition Politics, and False Consciousness. *American Journal of Political Science*, 43(2), pp 303-334.
- BRENNER, R., 1977. The Origins of Capitalist Development: a Critique of Neo-Smithian Marxism. *New Left Review*, I(104), pp. 25-93.
- CHOMSKY, N. and HERMAN, E. S., 1988. *Manufacturing consent: the political economy of the mass media*. New York: Pantheon Books.
- FINE, B., 2002. Economics Imperialism and the New Development Economics as Kuhnian Paradigm Shift? *World Development*, 30(12), pp. 2057–2070.
- FRIEDMAN, M., 1953. *Essays in Positive Economics*. London: University of Chicago Press Ltd.
- FRYER, D., 2009. *The political economy of youth deprivation and the dysfunctional welfare regime in South Africa*. Grahamstown: Rhodes University (unpublished paper).
- FRYER, D., 2010. *Microeconomics and structure: a methodological perspective*. Grahamstown: Rhodes University.
- GOULD, S.J., 1996. *The Mismeasure of Man: Revised and Expanded*. New York: Norton
- GOULDNER, A.W., 1980. *The Two Marxisms. Contradictions and Anomalies in the Development of Theory*. New York: Oxford University Press.
- GOWAN, P., 2009a. Crisis in the Heartland. Consequences of the New Wall Street System. *New Left Review*, 55, pp. 5-29.
- GOWAN, P., 2009b. The ways of the world. Interview by Mike Newman and Marco Bojcun. *New Left Review*, 59, pp. 51-70.
- GUMEDE, W.M., 2008. *Thabo Mbeki and the Battle for the Soul of the ANC*. London: Zed Books Ltd.
- HALLOWELL, J.H., 1965. Plato and his critics. *The Journal of Politics*, 27, pp. 273-289.
- HAUSMAN, D.M. (ed.), 1994. *The Philosophy of Economics. An Anthology*. Cambridge: Cambridge University Press.
- HAYEK, F., 1945. The Use of Knowledge in Society. *The American Economic Review*, XXXV (4), pp. 519-30.

- HAYEK, F., 1974. The Pretence of Knowledge. *Nobelprize.Org* [online], 2011. Available at: http://nobelprize.org/nobel_prizes/economics/laureates/1974/hayek-lecture.html [Accessed February, 2011].
- HEILBRONER, R., 1990. Analysis and Vision in the History of Mordern Economic Thought. *Journal of Economic Literature*, XXVIII, pp. 1097-1114.
- HOARE, Q. and SMITH, G. N. (eds.), 1998. *Selections from the Prison Notebooks of Antonio Gramsci*. London: Lawrence and Wishart.
- HUXLEY, J., 1949. *Soviet genetics and World science: Lysenko and the meaning of heredity*. London: Chatto and Windus.
- JONSSON, S., 2010. The Ideology of Universalism. *New Left Review*, 63, pp. 115-126.
- LAKATOS, I., 1978. *The Methodology of Scientific Research Programmes. Philosophical Papers. Volume 1*. Cambridge: Cambridge University Press.
- LAZARE, D., 1998. America the Undemocratic. *New Left Review*, 1/232, pp.3-40.
- LECOURT, D. 2003. *Proletarian Science. The case of Lysenko*. London: Atlantic Highlands: Humanities Press.
- LENNIN, V.I., 1902. What is to be Done? *Marxists Internet Archive*. [online], 2008. Available at: <http://www.marxists.org/archive/lenin/works/1901/witbd/> [Accessed November, 2010].
- LIPPMANN, W., 1922. *Public Opinion*. 2004 ed. Mineola, New York: Dover Publications, Inc.
- LIPTON, M., 2007. *Liberals, Marxists and Nationalists: Competing Interpretations of South African History*. London: Palgrave Macmillan.
- LOWENSTEIN, R., 2000. *When genius failed: the rise and fall of Long-term Capital Management*. New York: Random House Inc.
- LUKACS, G., 1919. What is Orthodox Marxism? *Marxists Internet Archive*. [online]. Available at: <http://www.marxists.org/archive/lukaacs/works/history/orthodox.htm> [Accessed November, 2010].
- MARX, K., 1859. A Contribution to the Critique of the Political Economy. *Marxists Internet Archive*. [online]. Available at: <http://www.marxists.org/archive/marx/works/1859/critique-pol-economy/preface-abs.htm> [Accessed November, 2010].
- MARX, K. and ENGELS, F., 1886. *Ludwig Feuerbach and the End of Classical German Philosophy*. 1969 ed. Moscow: Progress Publishers.
- MICHAELS, W.B., 2008. Against Diversity. *New Left Review*, 52, pp. 33-36.
- MONASTA, A., 1993. Antonio Gramsci (1891-1937). *Prospects: the quarterly review of comparative education*. XXIII (¾), pp. 597-612.
- MOSS, D. and CISTERNINO, J. (eds.), 2009. *New Perspectives on Regulation*. Cambridge: The Tobin Project.
- NEW YORK UNIVERSITY, 2007. How The Brain Generates The Human Tendency For Optimism. *ScienceDaily*. [online], October 2007. Available at: <http://www.sciencedaily.com-/releases/2007/10/071024130436.htm> [Accessed December 14, 2010].
- OXFORD ENGLISH DICTIONARY ONLINE, 2010. *Oxford University Press*. [online]. Available at: <http://www.oed.com/view/Entry/132073?redirectedFrom=optimism> [Accessed December 2010].

- PANITCH, L. and KONINGS, M., 2009. Myths of Neoliberal Deregulation. *New Left Review*, 57, pp. 67-83.
- PEW CENTER ON THE STATES, 2009. *One in 31: The Long Reach of American Corrections*. Washington, DC: The Pew Charitable Trusts.
- PILGER, J., 2010. The charge of the media brigade. *New Statesman*, [online] 8 July. Available at: <http://www.newstatesman.com/international-politics/2010/07/afghanistan-iran-pilger-war> [Accessed 21 July 2010].
- ROSE, D., 2007. *Hegel's Philosophy of Right. A Reader's Guide*. London: Continuum International Publishing Group.
- SCHUMPETER, J.A., 1970. *Capitalism, Socialism and Democracy*. London: Unwin University Books.
- SEN, A.K., 1977. Rational Fools: A Critique of the Behavioural Foundations of Economic Theory. *Philosophy and Public Affairs*, 6 (4), pp. 317-344.
- SMITH, C. 1994. Marx at the Millennium. *Marxists Internet Archive*. [online], 1998. Available at: <http://www.marxists.org/reference/archive/smith-cyril/works/millenni/index.htm> [Accessed November 2010].
- STIGLITZ, J., 2009. *Regulation and Failure*. Cambridge, MA: The Tobin Project. [in MOSS, D. and CISTERNINO, J. (eds.), 2009. *New Perspectives on Regulation*. Cambridge: The Tobin Project].
- SUCHTING, W., 2004. Althusser's Late Thinking About Materialism. *Historical Materialism*, 12 (1), pp. 3-70.
- TAIBBI, M., 2009. The Great American Bubble Machine. *Rolling Stone*, 9 (23), pp. 52-61 and 98-101.
- TOBIN, J., 1981. The Monetarist Counter-Revolution Today – An Appraisal. *The Economic Journal*, 91, pp. 29-42.
- THOMAS, P., 2008. *Marxism and Scientific Socialism. From Engels to Althusser*. London: Routledge.
- WADE, R., 2008. Financial Regime Change? *New Left Review*, 53, pp. 5-21.
- WADE, R., 2009. Beware what you wish for: Lessons for international political economy from the transformation of economics. *Review of International Political Economy*, 16(1), pp. 106–121.
- WATKINS, S., 2010. Shifting Sands. *New Left Review*, 61, pp. 5-27.
- WILSON, E., 2004. *To the Finland Station. A study in the writing and acting of history*. London: Phoenix.
- ZIZEK, S., 2010. A Permanent Economic Emergency. *New Left Review*, 64, pp 85-95.