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Endogenous crisis and the economic paradigm

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Abstract
This paper proposes that the global financial and economic crisis has a single cause underlying all other causes. The single cause is attributed to the economic paradigm which drives individual behaviour, business, government and education. We define the economic paradigm and explain its power to drive endogenous economic processes, ultimately leading to the course of events which is recognised as the crisis. The paradigm assumes that economic instabilities are exogenous events thus allowing governments to ignore processes with systemic risks which emerged from excessive debt and asset bubbles. We suggest that the solution to this and future crises requires a new economic paradigm, where understanding endogenous crisis is one of its central objectives. Economic theory without crises is like medical theory without diseases.

Introduction

The recent global financial and economic crisis (originating in developed capitalist economies) has called forth many causal explanations, including excessive credit growth, unsustainable asset bubbles, inadequate regulation, defective economic policies, executive greed, flawed credit risk models, rating agency frauds and so on. All these are considered as secondary causes, because the primary cause is that they were allowed, or even encouraged, to happen and to develop unchecked.

Many have sounded the alarm on the financial and economic imbalances which were growing throughout most of the decade and some have predicted recessions and crashes. So it appears untrue to say that "no one saw this coming" unless we carefully define what are meant by "no one" and "this". The statement may be true if by "no one" is meant "no one in charge and has the power to act", and by "this" is meant "the extensive and protracted crisis" which has occurred.

Hence the crisis was not due to a lack of recognition of growing economic imbalances and their potential to cause economic disruption. The crisis is not primarily about the deficiency of economic ideas, in all their variety, breadth and depth. Rather it is about how economics ideas are selected and implemented in policies which affect our lives. The crisis was due to a selection of ideas which over–estimated the resilience of the system and under-estimated its consequences by those who hold those ideas and have the power to intervene, but did not.

Government inaction is explained in this paper by the economic paradigm and its powerful effect on bureaucracy and the rest of society. As Keynes (1936, p.383) said: "The ideas of economists and political philosophers, both when they are right and when they are wrong, are more powerful than is commonly understood. Indeed the world is ruled by little else". Below, we show that the economic paradigm formalizes and institutionalizes certain ideas into a powerful political framework, which has ruled the world for the past few decades.

Given the economic paradigm, this paper summarizes the endogenous processes of growth and acceleration of imbalances inside the economic system which ultimately led to the crisis. The endogenous crisis permitted by the economic paradigm provides a coherent explanation for why all the different aspects of the crisis have been allowed to occur. With a simple and

accurate diagnosis, we can suggest a simple reform which is a necessary part of the overall remedy.

Power of the paradigm

The word "paradigm" is commonly misused; it should mean much more than an idea, a theory or a model. We reserve the word "paradigm" to refer to an intellectual framework which most professionals in a given area of knowledge can take for granted in their discussions among themselves. Within a broad framework, a paradigm may contain many different theories or models to address different areas of particular interest.

A paradigm consists of a set of key questions to be addressed, a set of core assumptions and a set of standard methodologies, which are typically applied to an area of knowledge. A paradigm is rarely explicitly defined, but it is used implicitly for the convenient advancement of a subject. For example, significant contributions can be described in research papers of a reasonable length without having to repeat fundamental motivations and assumptions of the paradigm. This is particularly true for paradigm in the natural sciences, such as the physics paradigm.

Clearly, there can be only one paradigm in any subject, just as there can be only one king in a kingdom. The advantage of a single paradigm is that its development is self-reinforcing, similar to the "network effect", where growth attracts more growth. This leads to more efficient advancement, an intellectual domination of the paradigm in any area of knowledge.

An adverse aspect of a paradigm is that new ideas outside the paradigm will be difficult to understand by most and, the greater the originality of the ideas, the greater will be resistance to acceptance. The monopoly-like power of a paradigm exists in many areas of research, where standard rejection (Shepherd, 1995) of original ideas serves to frustrate many who want to publish genuinely new ideas in "respectable" established journals.

Indeed, if a radically new idea is widely accepted eventually, it will be seen later as a new paradigm - not a modification, but a revolutionary succession (Kuhn, 1962), as in the proclamation, "The King is dead, long live the King!"

Orthodox economics as defined by the economic paradigm includes only a subset of all economic ideas, and excludes all other ideas collectively known as heterodox economics. The crisis has exposed the failings of the economic orthodoxy. But the solution cannot simply be about having better economic ideas offered at random, since some superior ideas already exist in heterodoxy, but are ignored. If heterodox economics is to have any influence in the course of world events, a subset of it has to become the orthodoxy. This paper identifies a key idea or element which is missing from the economic paradigm.

The economic paradigm

The economic paradigm which has been ruling the world for the past few decades is the neoclassical paradigm, also known by many other names, such as "free-market" economics, laissez-faire capitalism, economic rationalism, neoliberalism, etc. Before the 1970s, the economic paradigm was the Keynesian paradigm which was gradually displaced in the

1970s, when government macroeconomic policies were widely seen (Lucas and Sargent, 1978) to have failed to address the problems of high inflation and high unemployment.

By 1981, the anti-Keynesian paradigm was well established, when Reagan said in his inaugural presidential address: "In the present crisis, the government is not the solution to our problem. The government is the problem". We will describe some limitations of government below and we will summarize here the key neoclassical ideas which drive government policy.

In the neoclassical paradigm, the general economic problem of resource allocation is to be solved by markets rather than by governments. This approach was seen to be validated convincingly by the 1990 collapse of the Soviet Union, which was held as the prime example of government resource allocation through central planning.

The key questions and objectives of the economic paradigm were to provide further theoretical and empirical guidance to help the market mechanism to improve economic efficiency. The general thrust of the paradigm development was to show that perfect markets need to be frictionless. Tax distorts capital structures of firms (Modigliani and Miller, 1958, 1963). Transaction cost (Coase, 1960) prevents efficient exchange of property rights and the efficient use of resources. Tariffs, subsidies and quotas lead to dead-weight social loss.

The core assumption of the neoclassical paradigm is that individuals make rational decisions in markets which, if allowed to operate freely without friction, are the most efficient mechanisms for resource allocation. In the most elaborate general theory (Arrow and Debreu, 1954), all markets could simultaneously reach a general equilibrium, where the utility (or welfare) of all individuals is optimized. The way to improve the optimal solutions is to expand the breadth and depth of markets to span completely all possible goods and services.

The ideal world envisaged by the paradigm is one with a complete set of frictionless markets spanning all economic needs of individuals. The economy is predicted to be most efficient where the welfare of all individuals is maximized through the markets. The paradigm does not include notions of equality or fairness, but merely asserts that everyone will be better off in an absolute sense than otherwise without markets. Income or wealth inequality is expected to cause a trickling down of wealth from those with more to those with less, leading to a situation of “rising tide lifting all boats”.

Another core assumption of the paradigm is that the economy is sufficiently well described as being in a state of general equilibrium. Economic development of past decades is seen as a sequence of slowly evolving equilibria, where markets are more complete, with less friction. The standard methodologies of the economic paradigm are equilibrium analysis for theory, and mostly linear statistical analysis for empirical studies. The main tool for policy advice is comparative equilibrium analysis, where government policy shifts are assumed to lead to smooth equilibrium transitions from one to another .

Rational individuals, using available information to pursue self-interest, were seen to be the foundation of entrepreneurial capitalism, resulting in efficient markets (Fama, 1970, 1991), a hypothesis (EMH) which dominates modern finance theory. The strong belief in general economic equilibrium with efficient markets led to a tolerance of a host of social, financial and economic excesses. Moreover, a belief that the economic equilibrium is inherently stable led to the assumption that shocks, bubbles and other instabilities must originate only externally to

the economic system and that they cause only minor fluctuations which either fade away by themselves or have to be managed afterward .

Another core assumption is that financial market fluctuations can be managed by appropriate monetary policy which, in any case, does not have long-term impact on the real economy, in a theory of "neutrality of money" (Lucas, 1995), where rational individuals can anticipate the impact of changes in monetary policy and take steps to neutralize its effects. Indeed, this gave rise to the belief that the Great Depression could have been averted with sufficient monetary stimulus (Benanke, 2002b), without harming long-term economic prospects.

In summary, the economic paradigm assumes the system to be a smooth-running machine which self-adjusts and operates in a stable equilibrium. It raises self-interest to a level of virtue which turned out to be harmful. By focussing mainly on equilibrium, the paradigm places importance on short-term flow concerns such as equilibrium economic growth, at the expense of long-term stock concerns such as debt levels and other accumulating economic imbalances. Moreover, the study of causality, where economic processes cause the economy to move from one state to another, becomes a secondary concern in comparative static analyses. By assuming that economic shocks, which could destabilize the system, are exogenous, unpredictable, but manageable with monetary policy, the economic paradigm precludes any serious study of instability and crisis.

Only key assumptions have been mentioned here, as it is not the intention of this paper to provide a full theoretical critique of neoclassical theory, which has been extensively dealt with in the literature (see e.g. Keen, 2011). With many apparent limitations and shortcomings, how did the economic paradigm survive challenges and criticisms from its economic peers?

Criticism and refutation

The neoclassical school is merely one of many schools, including post-Keynesians, Austrians and modern monetary theorists. Relative merits of different schools have rarely been discussed comparatively. The reason why they co-exist is due to a lack of definitive methodology to falsify and terminate theories, as is the case for the natural sciences. For example, in physics, many flawed theories have been rejected, leaving a clear general consensus on the best approach based largely on scientific merit.

Neoclassical economics has the appearance of being scientific because its theory has an axiomatic mathematical foundation (Arrow and Debreu, 1954), and statistical methods are used to analyse empirical data. However, the theory, like others, is mostly not confirmed by the data, because economic journals publish many papers where theory ignores the data and the data are analysed without theory. Hayek (1974) called this apparent science a "pretence of knowledge" or scientism.

Many others (Blaug, 1998; Bergmann, 2009; Solow, 2011) have also criticised neoclassical theory on its unrealistic assumptions. Milton Friedman (1954) considered "such criticism is largely irrelevant", as "the notion of a completely realistic theory is in part a straw man." He asserted that "theory is to be judged by its predictive power for the class of phenomena which it is intended to explain". For him, what really mattered is whether a theory works better than its alternatives in explaining economic phenomena and in guiding public policy.

In the last three decades of the neoclassical paradigm, many government enterprises around the world were privatised, labour unions were weakened, subsidies and tariffs were eliminated, currencies were floated, international trade was expanded through globalisation, and financial markets were broadened through derivatives and so on. The two decades before the crisis were called (Bernanke, 2004) "The Great Moderation", when macroeconomic volatility in both inflation and output declined significantly.

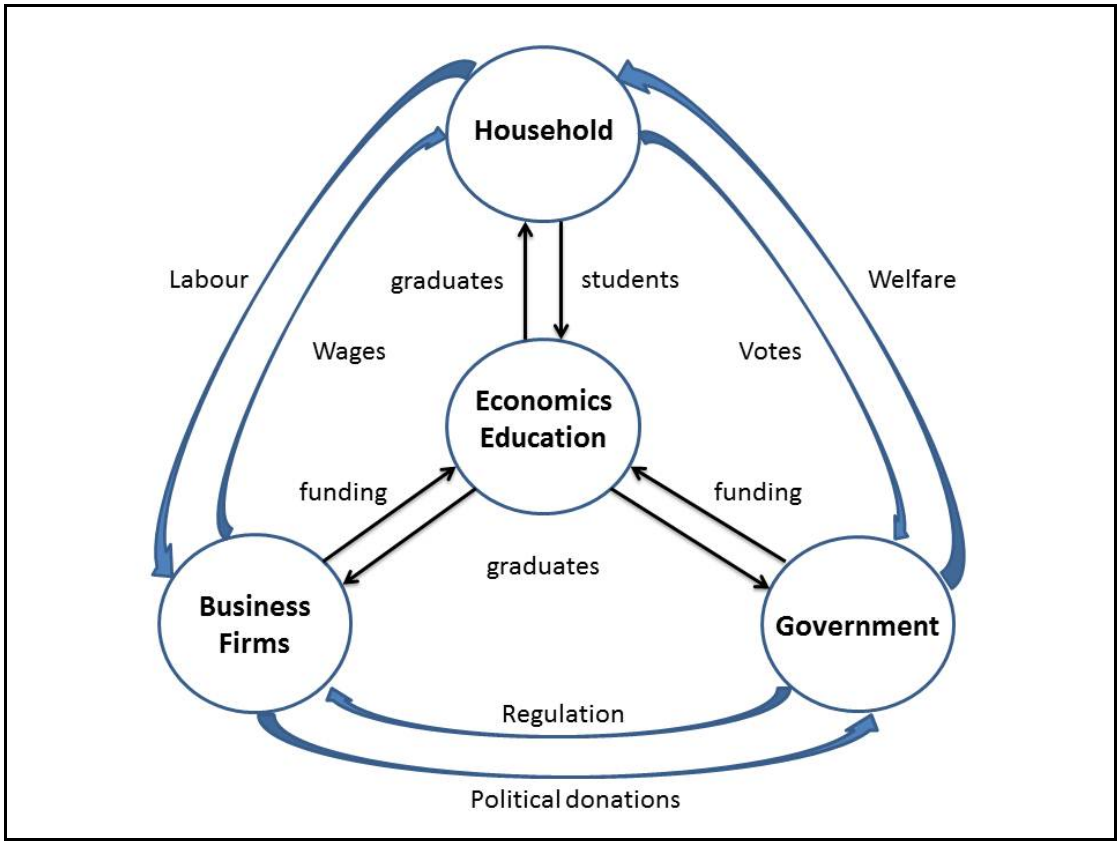
Economic orthodoxy interpreted this outcome as due to both beneficial structural change and effective monetary policy. Essentially, the neoclassical paradigm survives because there appears to be no practical alternative and because the paradigm appeared to work for the global economy. Despite many shortcomings, particularly when compared with empirical evidence - as we will mention below - why was there no other serious contender, thus allowing the neoclassical paradigm to become the clear consensus?

Manufactured consensus

Like other areas of human activity, the development of economic theories depends on resources allocated to it. Once a consensus has been created, it tends to be self-reinforcing, similar to the "network effect". What we describe here is how the current consensus is manufactured and it is not meant to imply a universal process.

Figure 1 is a schematic summary of the main influences in the process of manufacturing of the consensus which is the economic paradigm. Similar processes also apply to create other paradigms as well.

Figure 1: Influences in the manufacture of consensus



Economics education has much greater impact than many realize. The sector includes university faculties, research centres and academic journals. It is placed at the centre of the manufacture of the economic consensus, because, as we argue below, new economic ideas are propagated from there. The economic paradigm embodies a selection of those ideas, which are taught to first year undergraduate students as "core" economic knowledge.

The economic paradigm gains its influence by being carried by graduates to all areas of society, providing the intellectual framework for public opinion and public policy. Advanced ideas at the frontiers of academic research actually matter far less than the graduates who are the vectors of the paradigm. The graduates may not always be aware of the role they are playing, because for the most part, they think they are at university to get the necessary qualifications for employment.

Employers are mainly in the business sector and they have significant influence on the manufacture of the consensus, through private sector funding and through their selection of graduates. For example, faculties will not receive grants and donations, and graduates will not be employed, if they are seen to hold economic views which are considered to be anti-business.

The government, which responds to voters, provides substantial funding to universities in an apparently unbiased way. But, over time, as government funding has declined in relative terms through applying the "user-pays" principle in smaller governments, the influence of private sector funding has increased. For example, the increasing demand by business that university research and education be "relevant" has seen a progressive commercialization of universities and education. Research grants from the government are now required to be linked to the industry.

Hence public policy framed through the economic paradigm is strongly influenced by business interests. Even so-called independent economic think-tanks which consult to government and business are not immune from the power of the paradigm, as they also have to work within the economic paradigm.

Business interests

Clearly business, particularly the banks, strongly favours the economic paradigm. Over the past decades, not only did many large government enterprises pass into private hands, but also many cooperatives were encouraged to demutualize, further expanding the private sector to become the main engine of growth of the economy. Deregulation or light-touch regulation to reduce market friction provided even more freedom and scope to exploit profit-making opportunities.

In discouraging complex objectives by business, such as promoting desirable social ends, Milton Friedman (1970) said: "The social responsibility of business is to increase its profits". Friedman's rationale argues that the executives of business have responsibility only to their shareholders and that anything with a social purpose is the job of civil servants and governments.

Maximization of shareholder profits also coincides with maximization of executive remuneration, as alignment of principal and agent interests is held to be good corporate governance. High executive pay is justified as efficient market valuation of the worth of executives, who are "doing God's work" (Blankfein, 2009). Indeed, those executives and their traders, with high volume principal trading, are seen to be creating liquid capital markets and their high remuneration is the "efficient market" reward for their work to facilitate capital allocation.

Light regulation, great profit-making opportunities and enormous remuneration potential formed a business environment which most executives favoured so strongly that they were prepared to fund elite economic departments and prestigious academic journals to educate the public on the merits of the economic paradigm.

Education and business

As university education became more commercialized, it became easier for business to select the economic curriculum from a range of contending alternatives. Profitable businesses, particularly those from the financial services industry, provide funding to selected elite economic faculties and academic journals through endowments and donations. Quality and standards are further influenced by research grants, awards and prizes, particularly the Nobel Prize for economics. Once business funding defines and controls the criteria of excellence, it strongly influences the direction of research and the economic paradigm.

Also, the increasing proportion of business funding at elite universities led to increasing influence of business in setting education agendas. Indeed, education itself has also become more and more like a business, where financial independence from public support is seen to be more and more desirable.

Academics are controlled by metrics (Parkins, 2010) which are based largely on publications in ranked academic journals . Metrics influence hiring, promotion and tenure at universities. By controlling the content of elite journals, the economic paradigm is shaped and protected. For example, the efficient market hypothesis (EMH), which provides a powerful justification for the financialization of the global economy, has been well protected from discredit.

There has been an enormous amount of theoretical and empirical research falsifying the EMH, all of which have been classified by elite journals as "anomalies", trivializing their significance. Thus the EMH continues to be taught at universities and continues as a valid assumption for the formulation of public policy, including Australian superannuation (Sy, 2011), market mechanism for carbon pricing, etc.

In summary, it is probably not an exaggeration to suggest that, through the education system, business has enthroned the neoclassical theory as the economic paradigm and at the same time the economic paradigm has empowered the influence of business. The citizens who, and the households which, mostly depend on business for employment, will largely comply with whatever facilitates getting jobs and advancing careers.

But does the suggestion that business and the economic paradigm are tightly coupled under-estimate the role of government, which is still a substantial funder of education and research and therefore should have significant influence on the economic paradigm? Indeed, the

proponents of the economic paradigm would assume that the government is well-resourced and fully capable of passing rational and independent judgement on how economic theory is used in public policy.

Government and bureaucracy

How government really works is a mystery to most people, and there are obvious and less obvious reasons why the government does not make a serious attempt to lift the veil of mystery. This lack of understanding by the public leads to misplaced expectations and disappointments.

Not all governments are exactly alike in terms of their power and structure; hence they may be difficult to describe in general terms to the public. This is often not recognized. In fact, a general reason for the failure of Keynesian economics is due to an over-idealized conception of government, which is the key player in macroeconomic theory.

In a modern state, even in a socialist one, a government is not always decisive in dealing with new challenges, as envisaged in macroeconomics, because it is not a simple, rational entity. A government is in fact a very complex organisation, composed of politicians and bureaucrats, many of whom pursue their own self-interests in the context of different employment settings with different political ideologies.

Politicians who worry about re-election are concerned about public opinion and the opinion of their voters. Government bureaucrats have become more and more politicized, in that they answer to the bidding of their political masters. Since its invention in ancient China, the civil service is designed for stability and continuity, which are achieved by a strongly hierarchical structure similar to a military organisation.

Sticking to rules and procedures is synonymous with being “bureaucratic”. It is a misnomer to call a government bureaucracy “public service”, if civil or public servants merely serve their immediate superiors, following their orders and instructions in a strongly hierarchical structure. What a government bureaucracy does is ultimately controlled by its head and the head is usually controlled, in turn, by a politician.

It is understood that some individuals in government and the bureaucracy are motivated by a desire to do public good and to improve society. But they are restricted by what they can accomplish within the system, and in most cases they may have only a marginal impact.

Government work is generally targeted to specified goals and objectives, in the name of efficiency. Through the performance evaluation process, government employees are controlled and discouraged from thinking or working outside their agreed functions . In fact, much of the resources of a bureaucracy are spent in monitoring, managing and reporting on each other’s activities.

Government bureaucracy has neither the resources nor the inclination to debate contending economic ideas. Because of their structure, modern democratic governments endorse, and work within, the economic paradigm. All regulatory reforms are required to be consistent with the economic paradigm. For example, Basel Accords are consistent with the neoclassical

assumption that systemic risk to the banking system comes from exogenous shocks, which are unpredictable.

In summary, governments do not question the economic paradigm and, by applying it to their policy formulation, they also implicitly validate it. In other words, it is a common misconception that governments are gatekeepers who exercise independent thought or judgement to protect the public from all manner of economic distortions or misdeeds. In fact, not only did governments fail to see the crisis coming, they amplified distortions originating from flawed economic ideas and contributed to the endogenous origin of the crisis, as we discuss below.

Bubbles and crises

The global financial and economic crisis is a process driven by the logic of the economic paradigm; it is a process and not an event. It is certainly not, as Greenspan (2008) asserts, a single "once-in-a-century credit tsunami"; neither is it, as Paulson (2008) would have it, a "once-or-twice-in-a-100-year event" like an earthquake. The crisis is not an exogenous shock, but an endogenous, anthropogenic process, which gave rise over time to a sequence of events, some of which may be called "black swans" (Taleb, 2007), characterized by rarity, extreme impact and apparent predictability only in hindsight. Even with the benefit of considerable hindsight, some leading neoclassical economists (Lucas and Stokey, 2011) still maintain that the crisis was an unpredictable "bank-run" event due to irrational herd behaviour

We propose that the crisis, like other crises before it, is a process with a spontaneous origin, driven by businesses exploiting systemic weaknesses or opportunities to extract economic rent. By "spontaneous", we mean being triggered by some new, not fully predictable development - e.g. a technological or financial innovation which enables existing opportunities to be exploited for abnormal profit (Schumpeter, 1934, Chapter IV). The economic paradigm encourages financial innovation but, at the same time, discourages regulation under laissez-faire capitalism, leading eventually to unmanaged systemic risk.

Each crisis has something sufficiently novel to capture public imagination: in 1987, it was junk bonds and portfolio insurance; in 1998, it was fixed income arbitrage and LTCM; in 2000, it was the information technology boom and Enron; in 2007, it was sub-prime mortgage securities, and so on. All these crises may be considered to have originated from the economic paradigm, which provided the moral umbrella to pursue self-interest by whatever inventive scheme, so long as no laws were seen to be broken.

Far from the previous crises being seen as warnings to prevent future crises, they were seen to validate the belief in the inherent robustness of the system. In the neoclassical paradigm, asset bubbles are assumed not to exist and they only appear to exist due to hindsight bias. Asset bubbles may also be seen to have beneficial effects, as Greenspan (2002a) said following the bust of the technology bubble: "The increased volatility of stock prices and the associated quickening of the adjustment process would also have been expected to be accompanied by less volatility in real economic variables. And that does appear to have been the case". In other words, increased financial volatility is considered to have been compensated by decreased economic volatility.

It is not surprising, since the economic paradigm assumes that asset bubbles do not exist, that there is relatively little knowledge about asset bubbles - and certainly, there is no commonly accepted model of asset bubbles to guide economic policy. So even if the policy-makers want to, there is no consensual basis to identify and alter the development of suspected bubbles. Consistent with others at the Fed (Bernanke, 2002a), Greenspan opined (2002b): "But whether incipient bubbles can be detected in real time and whether, once detected, they can be defused without inadvertently precipitating still greater adverse consequences for the economy remain in doubt."

If bubbles cannot be treated pre-emptively, then they have to be dealt with afterwards when they proved themselves to be bubbles by bursting naturally. In the aftermath of the dot-com bust, the Fed fund rate was lowered from 6.5 per cent in May 2000 to 3 per cent in September 2001, whereupon the terrorism attack in New York and the Enron debacle saw monetary policy eased further to 1.25 per cent in November 2002. In relation to these regulatory actions, Greenspan (2002b) said: "If the post mortem of recent monetary policy shows that the results of addressing the bubble only after it bursts are unsatisfactory, we would be left with less-appealing choices for the future."

The official approach and response to bubbles and crises are wholly consistent with the economic paradigm and its clear articulation probably invited creative forces to engineer new bubbles to exploit money-making opportunities, provided by the "Greenspan Put".

The endogenous crisis

"The results of addressing the bubble only after it bursts" were the low-interest rate policy and its fuelling of another bubble. The recent crisis is shown here to have originated endogenously from the US housing bubble which was stimulated by both the invention of mortgage-backed securities (MBS) in the mid-1980s and the repeal of the Glass-Steagall Act (1999), which allowed the growth of the "shadow banking" system.

The shadow banking system was necessary to supply the housing bubble with the rapid credit growth which would have been difficult under the regulated, traditional banking system. Mortgage securitization was a form of market-based lending, which is an unregulated alternative to regulated institution-based lending. The economic paradigm encourages market-based solutions in preference to institution-based solutions. The disintermediation of bank lending lowers the cost of capital and the cost of regulation in a new form of cheaper loans for borrowers.

Serious flaws in the process of mortgage securitization were noted by Minsky as early as 1992. The mortgage originators who wrote the loans earned brokerage commissions, but were not the actual buyers or holders of the debt. The mortgages were pooled in a securitization vehicle, where mortgage repayments were collected, managed and passed through as coupons of mortgage-backed fixed income securities.

The ultimate lenders of mortgages were the buyers of mortgage-backed securities (MBS) who were mostly investment managers, pension funds and other institutional investors. These buyers had little knowledge of the underlying mortgages, but relied instead on the investment ratings by approved credit rating agencies. But the ratings from credit risk models were based on the neoclassical paradigm, where historical probabilities of credit defaults were

simply projected to the future. No account was taken, because of the lack of data, of the deteriorating credit quality from the new origination process, with flawed incentives.

Without Glass-Steagall restraint, the traditional banks were able to use their established branch networks to increase substantially off-balance sheet lending through the originate-and-distribute model of the shadow banking system. By 2007, half of all outstanding mortgages ($14.4 trillion) in the United States were originated for packaging as mortgage securities (FRB, 2008). As anticipated, a significant number of mortgages were of low credit quality, with names such as “sub-prime”, “Alt-A”, “non-conforming”, etc.

The economic paradigm assumes that markets are efficient because buyers and sellers are driven by self-interest to deal at best prices and, therefore, the transactions are assumed to reflect accurate competitive prices. However, in the actual market for mortgage securities, most of the transactions which took place were not the direct decisions of the ultimate lenders or securities buyers - who relied solely on investment ratings and thus suffered from information asymmetry.

Also, many borrowers may have been misled into taking comfort from their mortgages being approved because they thought knowledgeable lenders must have accurately assessed their capacities to service the approved mortgages. In other words, imperfect information and other market imperfections have led to inefficient markets with mispriced securities, as we learned subsequently when the markets later failed, with buyers withdrawing from the market due to significant unexpected losses.

Furthermore, since 1999 with legal certainty that the over-the-counter derivatives would remain largely unregulated, there was little impediment to the creation of innovative derivatives based on the rapidly growing MBS market, including collateralized debt obligations (CDO), credit default swaps (CDS) and other complex derivatives. The light-touch regulation was meant to facilitate risk management since, according to the regulator (Summers et al, 1999), “Over-the-counter derivatives have transformed the world of finance, increasing the range of financial products available to corporations and investors and fostering more precise ways of understanding, quantifying, and managing risk”.

Clearly, repeal of the Glass-Steagall Act and the limiting of regulation of over-the-counter derivatives were justified by the economic paradigm which encourages the minimization of market friction. We conclude that the government policies were instrumental in facilitating endogenous processes to fuel the US housing debt bubble which subsequently developed into the crisis. These government actions, which ultimately advanced the interests of business through the economic paradigm, are examples of regulatory capture.

Regulatory capture

Once the assumption of exogenous instability took hold, regulation appeared irrelevant and became vulnerable to capture by special interests. Indeed, when nominated by President Reagan as the new chairman of the US Federal Reserve in 1986, Greenspan (2007, p.372) confessed: “Avid defender though I was of letting markets function unencumbered, I knew that as chairman I would also be responsible for the Fed’s vast regulatory apparatus. Could I reconcile that duty with my beliefs?” As it happened, his “libertarian opposition to most regulation” did not cause conflicts; on taking charge of the Fed, Greenspan (2007, p.373) later

recalled: "What I had not known about was the staff's free-market orientation, which I now discovered characterized even the Division of Bank Supervision and Regulation".

In other words, for the past few decades, the world's most powerful and influential regulator did not really believe in the usefulness of regulation. Even as the US mortgage market was about to collapse in August 2007, the new Fed chairman Ben Bernanke (2007) observed, "I suggested that the mortgage market has become more like the frictionless financial market of the textbook, with fewer institutional or regulatory barriers to efficient operation." The free-market paradigm led to the financial deregulation mentioned in the previous section and to a tolerance of greed and fraud which lie at the systemic origin of the crisis.

The major indictment for fraud so far in this crisis led to a lengthy prison term for Bernie Madoff. It was not a success story of regulatory intervention, as Harry Markopolos had provided the Securities Exchange Commission (SEC) with well-researched and documented evidence of Madoff's Ponzi scheme many years before. The SEC did not act adequately: firstly, because the Madoff hedge fund used derivatives, which were unregulated; and, secondly, the SEC is a government bureaucracy which does not work outside its agreed jurisdiction (Sy, 2009).

An assumption of the economic paradigm is that fraud is impossible between rational individuals in well-informed markets. Even if fraud does occur occasionally against individuals, the paradigm assumes that it would not occur against large financial institutions - which are well-resourced and well-informed, and which the financial regulator recognises in the law as "sophisticated investors". However, the reality is quite different, as Gresham's dynamics operate in financial markets where bad firms committing accounting fraud, if undetected, will drive out good firms (Black, 2010).

Through institutional lobbying, the regulators (FASB, 2009) even changed accounting standards in order to save the financial markets during the crisis by allowing US banks, in their earnings reports, to set their own "fair prices" for their assets. The rationale for abandoning "mark to market" rules was that, when a market is "distressed", it becomes illiquid and therefore prices are inaccurate, no longer reflecting fair values.

After the Lehman Brothers collapse, in the congressional hearing investigating the crisis, Greenspan conceded (2008): "Yes, I've found a flaw. I don't know how significant or permanent it is. But I've been very distressed by that fact." On derivatives and financial engineering, he said: "This modern risk-management paradigm held sway for decades. The whole intellectual edifice, however, collapsed in the summer of last year."

When referring to the demise of the Keynesian economic paradigm, Lucas and Sargent (1978) said: "… our intent is to establish that the difficulties are fatal: that modern macroeconomic models are of no value in guiding policy and that this condition will not be remedied by modifications along any line which is currently being pursued." Ironically, a similar thing may now be said of the neoclassical economic paradigm, where the core assumption of inherently stable and efficient markets has misguided policy in the financial sector.

A new paradigm

Without other alternatives, governments reverted to Keynesian fiscal and monetary stimulus to manage the "great recession" by using improvised measures to transfer enormous public wealth to shore up the private financial system, which has already proven to be seriously flawed. Paradoxically, Keynesian intervention has been used to bolster the neoclassical paradigm, where financialization still dominates. It is evident that there is no coherent knowledge to manage the current crisis. Proposed regulatory reforms, such as Basel III, are still based on the same paradigm, where the same flawed credit risk models are accepted and financial instabilities are assumed to be exogenous.

Some have called for a new economic paradigm, but as Stiglitz (2010) warned: "Changing paradigms is not easy. Too many have invested too much in the wrong models. Like the Ptolemaic attempts to preserve earth-centric views of the universe, there will be heroic efforts to add complexities and refinements to the standard paradigm. The resulting models will be an improvement and policies based on them may do better, but they too are likely to fail. Nothing less than a paradigm shift will do."

As we have discussed in this paper, a paradigm is a complex concept - with fuzzy intellectual boundaries - consisting of key objectives, assumptions and methods. Fortunately, creating a different paradigm does not require specifying immediately all the key components of a paradigm, which would be a difficult, if not impossible, task. Only a new key objective or a new perspective needs to be specified and the rest (assumptions and methods) will change to accommodate the new key requirement.

From the perspective of our paper, we suggest that an economic crisis was allowed to develop endogenously because the economic paradigm assumes that it would be impossible. Clearly, if we were to assume that an economic crisis can develop endogenously, then the neoclassical paradigm would have to change radically. An economy without crises is like a person without illnesses. Just as we need to understand diseases to avoid illnesses, we need to understand endogenous crises to avoid economic instabilities.

In understanding the endogenous origin of crises, the new economic paradigm will confront the reality of finite resources, which is at the core of what we mean by the study of economics. Infinite economic growth implied in neoclassical equilibrium would be impossible with finite resources. In fact, economics might actually become helpful in addressing humanity's pressing economic problems related to the issue of sustainability. To be relevant to the real world the new economic paradigm must also take friction seriously.

Conclusion

The global financial crisis has stimulated an enormous amount of debate in the media and many journal publications. The harsh reality is: most of these will have little or no impact on our lives, unless they are somehow incorporated in a new economic paradigm, which will form the foundation of future public policy. We have emphasized the critical importance of the economic paradigm, and how and why it is established.

Our contribution to the analysis of the crisis is to view the crisis as an on-going endogenous process driven by the economic paradigm. Our insight is that governments are politically and

bureaucratically constrained by the economic paradigm and they may take policy steps which, while consensual, may actually amplify the flaws of the paradigm. We have provided evidence for this view through a collection of published statements made by key policy makers who justified their actions based on the tenets of the economic paradigm.

All proposed reforms so far, including Basel III, are necessarily still based on the current economic paradigm, where systemic risk is assumed to arise from exogenous shocks. In view of our recent experiences, where we have provided evidence that the crisis may have been endogenous, we should at least entertain the possibility of endogenous crises, and treat with scepticism the regulatory reforms which make exogenous assumptions.

Economics and the economic profession need significant reforms in many areas (Fullbrook, 2010). Rather than examining a long to-do list or criticising the assumptions and methods of the economic paradigm, as others have done, we suggest the inclusion, as one of the central objectives of the new economic paradigm, the question: could economic instabilities be endogenous? There is a social imperative to answer this important question.

University graduates are the purveyors of the economic paradigm to the world outside academia. A significant first step in the direction of a needed paradigm shift would be to warn students of Economics 101 - particularly those at elite universities - that real-world imperfections could lead to economic crises, which are not discussed in their introductory textbooks. Pathology is as important in economics as it is in medicine.

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