Macroeconomic Crises and the Social Order*

Axel Leijonhufvud  
University of Trento  

May 2003  
Revised December 04

Just before leaving Italy to come here I received the latest issue of the *American Economic Review*. As is the case with every March issue, the Presidential Address of the year is the lead article. This year it was Robert Lucas’s turn and he chose as his title “Macroeconomic Priorities”.1 His thesis is that we should switch our priorities away from “depression prevention” because macroeconomics has “solved [that problem] for all practical purposes” and concentrate our energies on growth, because:

“[over a 50 year horizon] ... the potential for welfare gains from better long-run, supply-side policies exceeds by far the potential from further improvements in short-run demand management.”

Seventy years ago, the arithmetic of compound interest did its wonders also for John Maynard Keynes when he wrote “The Economic Prospects of Our Grandchildren.” But the overall tone of Keynes’s article was far different. He, obviously, could not regard “the problem of depression prevention [as] solved”. (His own ideas on the subject were far from clear at the time). He was intensely aware of the possibility that the train to our grandchildren’s fabulous riches might well derail. But there is also a darker undertone to Keynes’s writings. He was, as Donald Moggridge has put it so well, always conscious of “the fragility of the social order.” The social order might not survive an economic train wreck.

I should confess that it is not fair to Bob Lucas to take the calculations that he has based on the last 50 years of United States experience and put them before

---

*Invited lecture, 8th Jornadas de Economía Monetaria e Internacional, Universidad Nacional de La Plata, Argentina, May 9, 2003.  
an Argentine audience in today’s situation. It is, as Americans say, “a cheap shot”, used for rhetorical effect. I am counting on Argentine listeners to know that disasters of economic instability still happen and to know in their very bones that they threaten the social order.

Lucas has been a dominant figure in macroeconomics over the last quarter century, as was Keynes in the second quarter of the century just past. Keynes and Keynesianism has been long superseded in economics by the New Classicals. If, then, we feel more kinship with Keynes on the dangers of extreme economic instability, this might be a good reason to reflect a bit over the path that economic theory and economic policy has taken from Keynes to Lucas and Prescott.

A few reminders

Encounters with younger colleagues in Europe or the United States often make me reflect on how the worldview of economists have changed over the last forty or fifty years. Back then, most believed that the private sector was unstable and riddled with market failures but that an enlightened and benevolent government could fix all that. In more recent times, this worldview has taken an 180-degree turn – a rather dizzying turn for people of my generation. The majority of economists now appear to believe that “free markets” will not only be stable but, if not interfered with, deliver outcomes so nearly optimal as makes no difference. Only the short-sighted, time-inconsistent meddling of politicians who tax too much and spend even more cause problems.

Presumably, the development of scientific knowledge has led to this clarification – if such it is – of the nature of the world we live in. What, then, were these scientific developments? I have to be very brief.

1. Recall that Keynes rejected Say’s Law. In his theory “supply did not create its own demand”. Not always, in any case. Whenever supply failed to create its own effective demand, a case could be made for stabilization policy – understood as the management of aggregate demand.

2. Friedman’s natural rate of unemployment (or NAIRU) doctrine in effect reinstated Say’s Law. The supply of labor was again thought to create its own demand. Of course, supply might exceed demand if
wages were too high, but that is true in all markets and does not contradict Say’s Law.

With Say’s Law again in force, so to speak, aggregate demand management policies have no theoretical foundation. So governments should be constrained from using them. Instead, we are left with supply-side policies, just as Lucas said.

So this, in a few words, is the theoretical foundation of the Washington consensus, the Maastricht Treaty, and the fashion for independent central banks and inflation targeting. You will recognize it, I think, as what the young emissaries of the IMF have been trained to believe.

There has been some confusion here. In no small part, the confusion has been over whether we are dealing with nominal or real magnitudes. In Friedman’s theory, employment will go to NAIRU as soon as money wages have caught up with past changes in the money stock. His opponents -- often called Keynesians or New Keynesians -- agreed with this and argued basically that he underestimated the inflexibility of wages. Lucas pointed out that, if money wages were market determined as in Friedman’s theory, only unanticipated monetary changes would have real effects. But attempts to manage nominal aggregate demand by “fooling” the public would be worse than pointless. (They would amount to trying to override Say’s Law in a system where the Law was actually in force!) Unanticipated monetary shocks, however, were found to be neither theoretically nor empirically plausible as explanations of employment fluctuations in the United States. So, we ended up with Real Business Cycle Theory, in the canonical version of which fluctuations are the representative agents’ optimal adaptation to periodic technology shocks. The trivial welfare cost of business fluctuations calculated by Lucas are in effect the scaled-up cost to this representative agent. This representative agent, one supposes, is unlikely to have trouble with the “fragility of the social order.”

Let’s go back to Keynes for a moment. He did not maintain that money wages were too high relative to the money stock for full employment to be achieved. He argued, rather, that if real saving exceeded real investment at the full employment level of real income, real output and employment would have to fall below that level. If then nominal wages and prices were to fall, the situation would go from bad to worse. The “immense burden of bonded debt, both national and
international, fixed in terms of money” would be “deranged”, he maintained, with disastrous although incalculable consequences.\(^2\) A general deflation of nominal prices would not relieve the intertemporal coordination failure.

Obviously, Keynes would have objected to the NAIRU doctrine and it is obvious also what his objection would be: If real saving were to exceed real investment at NAIRU, output and employment would have to fall below the NAIRU level, and after that balanced deflation would not help. It is not true that wage flexibility is all that is needed for an economy to converge on NAIRU. The NAIRU doctrine as commonly understood is a BIG theoretical mistake.

All the old Keynesian textbooks would always insist that the problem was that saving and investment decisions were made by different people. I am not sure students found this very helpful. After all, the decisions to produce and to consume beer are also done by different people (and production and consumption of milk even by different animals). Suppose saving and investment were made by the same people. What would saving > investment then mean? It would mean that the representative agent was trying to build up or to restore his liquidity position.

Keynes’s one-time conviction that modern economies were possessed by a passion to save more than they could productively invest we no longer share. But a situation of persistent general attempts to rebuild liquidity is one we can recognize. And we know that it is not always alleviated by deflation. If, to paraphrase Keynes, the initial situation is one of an “immense burden of bonded debt, both national and international, fixed in terms of dollars” and the dollar values of prices and wages fall by 3/4ths, a quick recovery of employment (we know) is not thereby assured. Here Argentina has in effect furnished us with an empirical test of a long contested theoretical proposition.

**Whither monetary theory?**

As an economist, I’m proud to say, I have two strings to my bow. One is Keynes and now you have heard that tune replayed. The other, of course, is

inflation. So, allow me, please, to fiddle on that string for a little bit.

The causes and the cures of inflation is what interests the policy-oriented economist. But when Daniel Heymann and I were working on our book, *High Inflation*, I was particularly interested in the consequences. It is perhaps a subject of less immediate import for policy purposes but it is, in my opinion, one of considerable theoretical significance. Inflation, and particularly high inflation, is a kind of “stress-test” for our monetary theories. The theoretically interesting thing is that our theories all flunk. They fail to predict the important consequences of inflation and misdirect our attention to relatively unimportant ones. I think we might agree that a good theory of money should not do that.

The relatively unimportant consequence of inflation is the “shoeleather cost” of the inflation tax. The proposition that this is the main social cost of inflation is patently false, but it happens for some reason to be one of those falsehoods that is so entrenched in the mainstream literature that it cannot be gotten rid of. Let me briefly recapitulate three of the consequences that are of more consequence:

1) When high inflation renders the unit of account meaningless, this disrupts those principal-agent relationships in the economy where accountability is enforced by monitoring accounts that are drawn up in monetary terms. Such principal-agent relationships are quite pervasive. A particular example is the inability of corporations to convey accurate information about their real earnings to the stock market which therefore becomes by and large inactive.

2) In mild inflations long-term markets for nominally denominated contracts disappear. In high inflations virtually all but the very shortest intertemporal markets disappear.

3) In high inflations, the decrease in real money demand is so drastic that bank intermediation of credit virtually ceases.

So, no stock market, no bond market, and no intermediation. Countries

---


4 ... and in this respect like the canard that Keynes assumed rigid wages to explain unemployment. (There he goes again!)
suffering high inflation cannot grow. They cannot finance growth. But finance may of course be crippled by credit crises as well as by inflation. The general problem of crippled financial systems unable to support growth is one that intertemporal general equilibrium theory (with money) has not done much to elucidate for us.

The monetary theories that fail us so badly in understanding inflations have one thing in common, namely, they are constructed as if the economy reaches an equilibrium among real variables through a process in which money plays no readily apparent role and as if money then simply determines the nominal scale of those real magnitudes. It would help, I believe, if we could change our habitual conception of “money” from that of a good with certain special attributes to that of a social institution in the sense of a set of rules governing how certain interactions among agents are normally carried out.

Let me focus on the role of budget constraints. In a non-monetary general equilibrium model, for example, we define budget constraints in real terms and we assume that they always hold. But the budget constraints under which agents actually operate are defined in monetary terms and are monitored and enforced -- to the extent that they are enforced -- through our monetary institutions. How big a subset of the commodity space these budget constraints will span depends upon how well the monetary system is functioning and so does the extent to which a coherent price system rules across the budget constraints of different agents. When money breaks down completely, as in Russia around 1996 for example, the exchange opportunities of individuals or firms reduce to short lists of pairwise barter possibilities with a few other agents. No “law of one price” links these opportunity sets into a coherent trading system. I imagine that Argentina had to go through something very similar in the immediate aftermath of the breakdown of the convertibility system.

To understand how a monetary system works, we need to go beyond theories which take budget constraints for granted and assume that they always hold. We need, I believe, some theory of budget constraint violations, that is, a theory which asks under what conditions such violations are likely to occur and what happens when they do occur.

Equal value in exchange

Budget constraints impose equal value in exchange. Trades are not
simultaneous but spread out over time. The monetary system enforces individual budget constraints over time, in the simplest case -- without credit -- by settling all trades in cash. It also tends to maintain, but cannot guarantee, the consistency of budget constraints across all agents. In principle, the system should see to it that no transaction gives rise to a credit without also creating a corresponding debit elsewhere and no payment should cancel a debit without also extinguishing a corresponding credit. The system is predicated on respect for the laws of arithmetic.

In the classroom, I often use the conceptual experiment of a fully computerized monetary system.\(^5\) All exchanges have to be registered as a credit to the seller’s and debit to the buyer’s account in the computer of a Central Bookkeeping Authority. If someone tries to overdraw his account, red lights flash, sirens go off, and the culprit is hauled off to jail. In the first approximation, no credit transactions are allowed. No one can buy if he does not have a positive credit balance. But this means that the system must have some credits to which there does not correspond debits -- or no one would be able to make the first move. So this is in effect a cash-in-advance economy requiring some outside money for its operation. This money will be demanded for the privilege of not having first to make a sale every time you want to make a purchase. This demand for real net balances in the computer determines the price level.

Note in passing that this system would not require that payments be made. There would be no need to extinguish matching debits and credits through payment as long as the central computer has enough memory. The essential function of the monetary system is social bookkeeping, not providing a means of payment.

Two kinds of violations of the equal-value-in-exchange constraint are of interest in this simple case. One occurs when the government issues new outside credits.\(^6\) The other would be if some hacker invented a method of computerized counterfeiting, creating credits to his own account to which there would be no corresponding debits. Discovery of these violations will entail the need to "correct" individual wealth positions. The rules for doing this differ. The government’s new outside credits remain valid and everyone shares in the loss of apparent wealth to


\(^6\)Outside money in the sense that there does not correspond to these credits any debits, for example, in the form of (future) tax liabilities imposed on the private sector.
the extent of the inflation tax. The loss from the counterfeiter’s activities is borne altogether by those whose accounts with central bookkeeping show sales to this person.

The next step is to allow credit transactions in this centralized monetary system. I proceed in this way in the hope of elucidating a famous observation by Sir John Hicks made some 35 years ago:

Even if we say that metallic money has given place to credit money, we are still not getting to the bottom of what happened. For credit money is just part of a whole credit structure that extends [beyond] money; it is closely interwoven with a whole system of debts and credits, of claims and obligations, some of which are money, some of which are not, and some of which are on the edge of being money .... In a world of banks and insurance companies, money markets and stock exchanges, money is quite a different thing from what it was before these institutions came into being ....

Metallic money is an expensive way of performing a simple function; ... That is the reason why the credit system grows .... there is the penalty that the credit system is an unstable system.\textsuperscript{7}

Introducing credit alters a number of things. The main monetary effect is that the demand for outside money is reduced, since cash-in-advance is no longer everywhere binding. In a closed system, the price level will therefore rise.

The main real effect is that the economy’s growth opportunities are enlarged. Investment opportunities are always perceived by particular individuals. Without credit and capital markets, the resources needed to realize them cannot be obtained in exchange for a share in future revenues.

One can imagine an equilibrium where all credit transactions end up being just opposite movements by borrowers and lenders along their respective

\textsuperscript{7}Sir John Hicks, \textit{Critical Essays in Monetary Theory}, Oxford: Oxford University Press, 1976, pp. 157-58, italics added. I have quoted this passage previously in a review article of the book, “Monetary Theory in Hicksian Perspective,” in my \textit{Information and Coordination}, New York: Oxford University Press, 1981. For present purposes, we should replace the “metallic money” of Hicks’s text with “outside money.”
intertemporal budget constraints such that the price level is unchanged and independent of the volume of “inside credit”. But one may equally imagine the possibility of an all-around credit expansion in which everyone extends credit to customers and takes credit from suppliers. In such an all-around balanced extension of accounts payable and receivable, an unchanged real GNP can be exchanged at a higher price level. This is what happens in a Wicksellian inflation. An exogenously fixed volume of outside money will not necessarily provide a reliable "anchor" for the price level in this case since the expectation of rising prices will make people economize on outside money.

There are all sorts of classroom exercises that can be done with this little conceptual experiment and the following is a bit arbitrary. However, imagine, for a moment, that the economy keeps going for some prolonged period without any payments being made. Everything is taken on credit. Balance sheets as recorded by the CBA keep getting longer every period by the accumulation of debits and credits, and are never shortened by credits extinguishing debits, i.e., by payment. The only institutional control we have is the computer checking that net credits recorded to individual accounts are always non-negative.

Now, suppose that it becomes known that not all promises will be honored. Whether because of fraud or because of miscalculation, many of the outstanding IOU's will not be paid back. Just before this discovery, people believed themselves in the aggregate wealthier in real terms than is consistent with the system's production possibilities. There were more claims to current and future output than could be met. To bring individual estimates of wealth into line with what is feasible, the current holders of the defaulted IOU's should be made to bear the loss, just as in our previous case of counterfeits. But the system has allowed them to borrow or buy (“on credit”) on the presumed strength of the claims they held -- and if these claims turn out not to be good, some of them will be unable to assume the entire loss as a consequence. The Central Bookkeeping Authority would then have to track down the agents who had sold to them on credit in order to make these people take the loss, and so on. But we have assumed that no debits have been extinguished by final payment for a prolonged period. All these past transactions would in effect have involved the extension and the acceptance of credit. A's ability to honor his commitments is conditional on B's, whose ability to pay is similarly

---

8The following paragraphs borrow liberally from my “Two Types of Crises”
conditional on C's, and so on. Thus there is no telling where the process of locating the ultimate losers will end up. The financial structure that we are imagining is a dense web of such more or less endless chains of conditional promises. Hence everyone would be at risk. It is an endogenous risk, not the exogenous risk of Arrow-Debreu constructions. The system is financially fragile.  

In this situation, individual agents will not know what their own net worth is. They must first find out who is and who is not solvent and what commitments, therefore, are or are not good. But when widespread fraud is discovered or miscalculation revealed in a financially fragile economy, sorting the good credit risks from the bad ones can only be accomplished by shortening the chains of promises-conditional-on-promises until an overview of the situation is achieved. This is done, of course, by demanding payment from debtors and prospective customers. The possession of outside money will then be at a premium.

Under conditions of financial fragility, however, the switch from credit expansion to credit contraction will not just sort out the negative net worth balance sheets from the positive ones. It is likely to lump the merely illiquid with the bankrupt. The demands for payment now rather than later will bring down also many of those who have borrowed short to lend long or to invest in capital with long payback periods. There is bound to be many such agents because any well-developed financial system has as one of its most important functions the piecing together of large, durable investments from many small and short-lived acts of saving. The eventual outcome will be to a large extent be arbitrary because who will be able to collect before he is forced to pay, and who will face the demand to pay before he can collect, is often a matter of chance.

In my example, aggregate wealth was overestimated initially. The miscalculation is discovered but, in the decentralized economy, the institutionally dictated monetary process of ascertaining its magnitude and determining the incidence can easily fail to screen the solvent but illiquid debtors from those who have been overoptimistic or fraudulent. Potential aggregate wealth will then be underestimated. The way to insulate oneself from the contagion of a credit collapse is to demand payment on one's claims and to pay off one's short-term debts, so as to

---

cut oneself out of the collapsing web of conditional promises. When the representative agent decides to take this course, he will increase the excess supply of goods and services and the excess demand for final means of payment in the economy. Such attempts to improve liquidity positions correspond to the old Keynesian saving > investment condition that I made note of previously. As long as this condition persists, the economy will not converge on the natural rate of unemployment.

This situation will get worse if debt-deflation sets in. By increasing the real value of outstanding debts and claims, deflation reinforces the prevailing uncertainty about who will and who won't be able to pay in full. If this deviation-amplifying process is just allowed to run its course, it can lead to a kind of bifurcation of the economy into solvent and insolvent agents, with liquid assets piling up in the hands of the former while the latter are unable to exert any effective demand. The system can then remain far from equilibrium for a long time.

Towards a political economy of broken promises

Finally, I want to discuss the work of a man whom I am sure many here remember, as I do, with great affection, namely Daniel Vaz. Daniel wrote his UCLA doctoral dissertation on Four Banking Crises: Their Causes and Consequences.11 Two of the arguments he pursued in that work are pertinent.

First, all four of the crises that he studied originated in the private and not in the public sector. In three of the four, the governments stepped in to save the banks so as to avoid the threat of depression, but the assumption of large volumes of bad debts so undermined the public finances that lengthy periods of persistently high inflation ensued. The general public of modest income earners would not vote the taxes to pay for the depredations of the "big shots" responsible for the financial crises. It is true enough that the cause of inflation is "always and everywhere" too rapid growth of the money supply12, but as we move behind this proximate cause,
the certainties of monetarism fade away and the political particulars of each historical situation come to dominate any attempt at explanation.

Daniel’s study is a useful corrective to the simplistic worldview of recent years that the private sector will take care of itself and that all macroproblems originate with the government. This is the way that Latin American experience of the 1980's was seen by many U.S. economists and pretty much the way that it became enshrined in the so-called Washington consensus. In the Indonesian crisis, the IMF first reacted, as you will recall, on the basis of what was widely thought to be these lessons from Latin America and urged fiscal retrenchment. But the Indonesian crises stemmed mainly from the private sector while the public finances were in decent shape and the IMF eventually had to reverse itself.

Second, Daniel Vaz was at pains to drive home the point that these crises did not develop as rational expectations stochastic dynamic programs. They were quite unexpected when they broke and threw most agents into a situation that they ill understood and for which they had no contingency plans. “This is indicated most conclusively “, he pointed out, “by the facts that the policies improvised in response to very similar crises differed widely, that remedial measures had no basis in pre-existing law, and that the regulatory frameworks were entirely overhauled in the light of the crises experiences” (italics added).

In standard theory, we assume that agents optimize subject to certain rules, most particularly the budget constraint. Here we have assumed that certain promises have been broken, violating the rules. The question then becomes: When the rules have been violated, what then are the rules?

For relatively small, isolated defaults, a well-developed market economy has well-defined legal rules that specify the priority ordering of creditors and so on and which therefore determine who has to take the necessary loss. The system can tolerate a certain amount of such defaults and still work more or less normally. Here we have assumed that the volume and magnitude of broken promises went beyond this tolerable level. The enforcement process that is then triggered does not have much to do with optimal calculation and the associated equilibria. It becomes rather a matter of the system mindlessly grinding away, ruining some and saving others in an often highly arbitrary manner. If market processes are just left to run their
course, the eventual outcomes will certainly not conform to those notions of justice and fairness that have previously made people willing and accepting participants in the system.

Consequently, when default occurs on a large scale, the rules themselves end up in the political arena. In this process, the effective rights and obligations of agents become still more uncertain and ultimate outcomes very opaque. Who would attempt to predict today, for example, how the insolvency of the Chinese banks will one day be settled and what methods will be used to make the population pay what necessarily must eventually be paid? The resolution of this kind of pervasive uncertainty with its paralyzing effect on the economy can be long delayed. The will or the ability to force a political resolution -- when the distributive consequences are highly complex and almost certainly also unpalatable -- may be lacking, as in the case of Japan during the last decade. This audience knows far better than I how hard it is even to suggest a set of principles that could guide the resolution of the financial chaos in Argentina and bring a widely shared sense of justice -- even if rough and approximate justice -- to the outcome.

We then come to repeat our previous question at a deeper level: When the rules for how to deal with the violation of rules come themselves to be broken, what rules will then apply? In the branch of behavioral economics that focuses of cognitive issues, researchers nowadays stress that most economic behavior consists of routine actions within a framework of well-known rules. Such routines tend to be efficient, perhaps even highly efficient if under the pressure of competition. If, however, the agents find themselves in the stressful situation of being forced to act outside the accustomed frame, they are far less likely to make good decisions at first. Thus, as Daniel Vaz stressed, the "policies improvised" in response to very similar crises were not at all the same and remedial measures were taken that had no basis in law.

If default is widespread, insisting that outstanding contracts must be settled according to pre-existing law will not lead to a final outcome consistent with norms of justice on which that law has been based. When existing claims exceed what can possibly be paid, decisions have to be reached on the incidence of the loss of wealth. Who has to accept how much of the loss? The economy will not -- it cannot -- begin to function at all normally until the incidence issues have been settled. But in grappling with the problem of how to apportion the losses -- and to bring the economy back down from a large overestimate to a realistic level of wealth – the
polity may come to abridge or infringe upon also property rights other than the nominal claims of the financial system.

It will be clear to you that as we move from our accustomed models where equal-value-in-exchange always holds, first to consider budget constraint violations, then to “improvised policies” using taxes and subsidies to change the incidence of the loss of wealth, then again to changes in the legal rules for dealing with broken rules where these changes may have no “basis in pre-existing law”, we are getting further and further away from the economist’s basis of competence and into areas of social dynamics far harder to analyze. But there are good reasons, I believe, for social scientists to attempt the development of a Political Economy of Broken Promises.

One object of study to that end would be the Great Depression in the United States. You will recall that it was met with a large number of "improvised policies" and that President Roosevelt even tried to pack the Supreme Court in order to free himself of some of the constraints of existing law. His Administration experimented with all sorts of measures, some of which were undoubtedly helpful but several of which have been criticized not just by contemporary political opponents but also by later economic historians. The political genius of Roosevelt did not lie in the capacity to come up with optimal policies in an entirely unprecedented situation.13 It lay, rather, in his ability to reassure the population in general that, even though what it all would involve could not be known, the New Deal would be one of social solidarity and that no group would be left out. And that, in the end, may be the main lesson to be drawn from the Depression.

13 The economics profession, for that matter, did not show much ability to think outside the accustomed frame.