

Lessons of the Financial Turmoil
Annual Money and Banking Conference
Buenos Aires, 1-2 September, 2008.

America's Housing and Financial Crisis: Domestic and Global Lessons

Edmund S. Phelps*

Some forty years ago, in a series of models, I argued that monetary policy cannot keep the unemployment rate forever below (by a non-vanishing amount) its structural tendency. In the medium run, in which firms have fully adjusted their workforce for the time being, unemployment tends to its medium-term structural-equilibrium level; a similar statement applies to the long run.[†] It was a huge error, then, to view monetary policy as a static problem of achieving a “balance” between unemployment and inflation. *Optimum* policy solves a *dynamic* problem: it forgoes the temptation of short-term benefits in order to contain the expected inflation rate; if the latter is already too high, it invests in a temporary cutback of jobs to lower inflation in order to reduce expectations. Now everyone understands that monetary policy manages inflation expectations. But how much more do we understand?

One of the *towering* lessons of the present crisis is that it has made *vivid* to us what has long obvious to all but the most doctrinaire academicians. Radical uncertainty, known as “Knightian uncertainty,” is always present in some respects and is always a significant consideration – at least, in a modern economy or even a traditional economy operating in a modern global economy. When a novel shock or

* Director, Center on Capitalism and Society, Columbia University, and the winner of the 2006 Nobel Prize in Economic Science. This paper expands upon a dinner speech at the 7th Annual BIS Conference on Monetary Policy, Luzern, 26 June 2008, and a lecture at the Borsa Italiana, Milan, 11 June 2008.

[†] The main publications were my paper “Expectations of Inflation and Optimal Unemployment Over Time”, *Economica*, 1967, and my book *Inflation Policy and Unemployment Theory*, Norton, 1972.

a concatenation of novel or infrequent shocks occurs, the level of Knightian uncertainty spikes. The economy's participants feel at sea – lost.

An important consequence of this flare-up of uncertainty is that the *central bank* does not know the *level* to which to set the “policy rate of interest” and thus the *direction* in which to start moving the policy rate. The bank may mistake where the rate of structural unemployment is headed relative to the present unemployment level. If these points are accepted, the Taylor Rule in the usual interpretation is not *operational* in the context of the U.S. economy or any economy experiencing gradual or abrupt structural shift: The policy interest rate – think of this as the short-term *expected real interest rate* – is to be raised in response to an increase of unemployment rate *in relation to* its medium-term *structural tendency*. But the change in the latter is *not known*. Similarly, the policy rate is to be raised, other things equal, in response to an increase in the *natural* level of the real short-term interest rate. (In other words, if expectations of inflation are on target and likewise the unemployment is already at its medium-term natural level, the *real* “policy interest rate” is to adjust point-for-point with each change in the natural real rate at the short end or medium-term maturities.) But the latter change is likewise *not known*. The natural real rate could go *up* or *down* after a contractionary shock.[‡]

That must apply to market participants too! We economists commonly *assume* that a market economy will have a tendency to *reach* some medium-term rest point – the point at which things have settled down, relatively speaking – if the

[‡] It might be thought it would do no harm to interpret the Taylor Rule as taking both the structural-equilibrium unemployment rate and the natural real interest rate as *constants*. But that would not escape problems. The rule, so modified, would not be forward-looking at all. It would, for example, call for a zero response of the policy real rate – the nominal policy rate *minus* the expected inflation rate – as long as the actual unemployment rate has not changed yet following a shock. Furthermore, if the supposed natural real interest rate is a constant that is always too low – lower than what the actual real rate will tend to be once the unemployment regards its long-run natural level – there will have to be an increase in long-run inflation in order to induce the central bank to bring its policy real rate, which would otherwise be too low, up to the level of the true natural real rate.

bank does not wreak too much havoc in the markets.[§] But prevailing uncertainties may be such that employment overshoots or falls short of the “medium-term structural *equilibrium*,” since market participants likewise do not “know” a whole lot, so employment may be driven for a time by too much optimism or pessimism; and employment may come to “rest” for awhile at a point that is not very close to the economy’s *medium-term structural equilibrium* level, where average opinion will turn out to be correct, upon averaging over the prevailing opinions.

In sharp contrast to these possibilities, the Keynesian economists of this world, of whom there are still quite a few, and even the textbook writers, who know better, regard nearly every market force that contracts employment as operating only through the channel of “aggregate demand” while creating *no change at all* in the *structure* of the economy. But, in general, and in particular in the situation of the U.S. economy for more than a year, now, it can hardly be doubted – with the benefit of hindsight – that the economy’s structure *has* changed.

To support that contention I am going to argue that recent shocks in the U.S. have almost certainly caused a *serious increase* in the structural-equilibrium *unemployment rate* on the medium-term horizon – the “natural” unemployment rate. In fact, I will suggest that the medium-term structural rate has risen *more* than the *actual* unemployment rate to date. *One* line of explanation is to say that *it takes time* for the actual unemployment rate to reach the vicinity of its medium-term structural level; and since the unemployment rate still shows no sign of slowing down – as it would tend to do if it were getting ready to dock at the medium-term level (or to loop around it) – it is plausible to infer that the unemployment rate still lies below its medium-term destination. *Another* line of explanation is to say that

[§] So I will try to refer to a medium-term structural *tendency* or *destiny* rather than to “equilibrium” in any general-equilibrium, perfect-knowledge sense.

we have *good theoretical reasons* for thinking that the two or three or four structural forces occurring have, on balance, driven the medium-term unemployment to a very much higher level than it had been in the benchmark years of 1995 and 1996. I will return to this soon.

I am also going to argue that once the U.S. economy has come into the vicinity of the “medium run,” the *medium-term* level of what we call the *natural real rate of interest* (at the short end but also farther out on the natural yield curve) will be markedly higher than it was in, say, the pre-boom times, such as the benchmark years of 1995 and 1996.

In the course of my informal analysis several lessons from the recent experience will be clear, even if I do not find it convenient to digress on each one.

- First, as already noted, because of the structural shifts that have taken place there is the strong possibility that in the U.S. and some other countries, the “structural tendency” of the unemployment rate is *well above* recent levels: 5.7% in August and 5.4% in July. In that case, the policy rate – which was set “low” because the economy was “weak” – is unsustainably low.

- Each month (or open-market committee meeting) that a central bank persists with a very low policy rate costs the bank some of its credibility, so that even if inflation expectations do not utterly break loose from their moorings, the next time the bank needs to count on expectations to hold firm it will start with a smaller fund of “good will.”

- Similarly, it would have been argued by the Austrians that the longer the policy rate is held down the farther it defers the “healing” of the financial sector. (Vincent Reinhard, a former student of mine, suggests that the low interest rates in the U.S. induce the banking industry to delay r

- For one thing, the housing boom, which got started as early as 1997 and peaked only after 10 long years, expressed a neurotic obsession with home ownership, as I argued to Amity Shlaes in a recent column. This must have crowded out some business investment, even though the U.S. economy is highly open.
- Another lesson: the increases in the uncertainty premium both before “Bear Stearns” and in the past month or two constitute a global shock. It would be a shock to any economy outside the U.S. even if no outward capital flow resulted, since it is somewhat like a universal tax on investing in projects, innovative or otherwise, that present considerable Knightian uncertainty.
- Still another lesson: Although some brilliant economists spotted flaws in the Austrian contention that ill-founded booms are inevitably counterbalanced by a compensatory slump, the flaw seems specific to a build-up of capital that enters production functions and thus raises the marginal productivity of labor; a housing boom and a financial boom that leaves toxic assets on the books of financial institutions *does* tend to produce over-shooting. We should expect employment to over-shoot on its downward phase before recovering to its new medium-term natural level – of course it will not have any tendency to recover to its over-extended levels during the crazy part of the boom.
- Finally, the recent experience is a dramatic refutation of the neo-neoclassical doctrine of Rational Expectations. It is unimaginable that anyone could believe that the recent boom made optimal use of all information in a world in which the workings of the national economies are perfectly understood! Yet it is that kind of position that the Rational Expectations have been arguing for decades!

Structural Shifts in Housing, Banking and Business Investment

It there are forebodings of “stagflation” – lower employment without the solace of lower inflation. Economists with structuralist intuitions instinctively feel that the

present downturn is the effect of structural shifts, not the undoubted shift in aggregate demand. They doubt that a central bank should drag out the effects, which it cannot forestall forever. If employment is down owing to shifting structures, gearing the money supply to prop up employment would generate inflation exceeding expectations. ** Inflation expectations would sooner or later break loose.†† The mission would then have to be called off. Some of the central banks that have refrained from making rate cuts may be thinking this way.

We have a difference of opinion and of policy. Yet the structuralist view is rarely articulated and argued. What among the noticeable *non-monetary forces* are the main drivers in the present downturn? As important, what are the *non-monetary* channels through which these forces have *structural* impacts on the economy – and thus finally on the labor force and the natural rate of unemployment?

1. Two distinct forces have come out of the housing industry. First, there is the end of the *equilibrium part* of the housing boom. Something like 70 per cent of the rise in the inflation-adjusted price of houses in the US from 1997 to 2006 appears here to stay, justified by increased rentals on residential units in many big cities from New York to Los Angeles. A corresponding spate of house building would have developed had only the justifiable price rise occurred. Yet even such a “precision boom” comes to an end once the thirst to own more houses has been slaked. At that point, home building must subside to the level needed to replace old properties that have been shut and to house fresh increases in the population. Construction

** Even if money went on being printed merely as fast as usual, the contraction of jobs and output supply would force a one-time lift in the price level, which might – or might not – raise inflation expectations.

†† The central bank’s reservoir of credibility is not bottomless. Even if some force should pull the natural rate back down before the Fed backs down, the credibility expended would leave less available next time.

workers in the housing industry and loan officers in the banking industry then suffer job losses – even as prices and rentals on houses remain high.^{‡‡}

Second, there is the decline in real house prices as the market gives back the excessive part of the rise in real house prices – the part not justified by realized rentals.^{§§} The decline leads to an additional structural contraction in the demand for labor in the housing and banking industries. Obviously this force too has a contractionary impact on employment in construction and banking.

Does this industry-specific job loss entail a loss for *total* employment in the economy? The loss of jobs in the construction industry, which is quite labor-intensive, fails to induce an offsetting rise. Total employment does not bounce back, since a full re-employment of the jobless workers elsewhere in the economy would require real wage cuts that would exceed what some workers would be willing to accept. (In my models, it is only if all workers in the economy found their wealth fell in the same proportion as the market-clearing economy-wide that the wage would fall enough to re-employ everyone. But there is no reason for the fall of housing wealth to have such an impact on workers' total wealth.)

2. Another set of structural forces operating to contract employment flow from the overextension of credit by the financial sector, primarily in the form of subprime

^{‡‡} Suppose that at time t_0 a step increase in rentals was suddenly and correctly foreseen to occur at future time t' . The price of houses would immediately jump in anticipation of the higher prices prevailing when the rental increased. The ratio of rental to price (the “rental rate”) would be reduced but offset by the anticipated capital gains needed to generate a total yield competitive with the world real interest rate, taken to be an exogenous constant. In the phase until t' , the rental rate is declining and the capital gain rate rising in compensation. In the phase after t' the price must be rising at a vanishing rate as the rest point is approached. Assume the contrary: that the price is sliding back to its ultimate rest-point level, having overshot. Then the rental rate would be rising on top of a vanishing capital loss rate as the rest point was approached. But that is impossible if, as supposed, the world economy dictates a real yield that is constant over time. QED. The equilibrium trajectory $ABB'A'$ in Figure 1 depicts this story. It is a paradox that through this trajectory the rising housing *stock* drives a rising housing *price*.

^{§§} In Figure 1 the *disequilibrium* trajectory is depicted by the ABCD. The bubble burst at point B.

mortgages, as engendering another set of structural forces. These are forces that, though non-monetary and related to the end of the housing boom, cannot be subsumed under the housing forces just analyzed.^{***} For one thing, the bursting of the bubble in house prices caught many investment banks with packages of mortgages and mortgage-backed securities not sold off to the rest of the financial sector. The prospect that a massive amount of these securities might become non-performing made banks reluctant to try to sell them and caused worries that the banks would not be able to find buyers for them in a timely way. With the safety of banks lending to other banks put in question, the big banks have found it hard to borrow from one another.

This “illiquidity” and resulting “seizing up” in the “plumbing” of the credit markets is one force causing a cut back in the supply of loans to the business sector and to the housing industry. Hedge funds are investing more in liquid assets, less in venture investments, to raise their liquidity at a time when many assets are illiquid.

Another structural force is the enormous increase in bank assets of uncertain value relative to current bank capital – thus excessive leverage. Hence some of the big banks may be operating in a condition of uncertain solvency, which makes their share prices vulnerable to rumors of unacknowledged or undetected insolvency. In this situation, a decision by management to make loans to the business sector as usual would raise added hazards of bankruptcy, takeover or closing.

^{***} How can these *banking* forces be treated as fundamentally non-monetary? And why should they be? I feel that we gain clarity – at little cost – by supposing, contrary to factual details, that the financial sector lends and invests out of savings from households in the form of common stock, commercial paper, etc., the market for which is broad and liquid. These instruments are the medium of exchange. Housing output expands or contracts in response to *relative* price and the *real* or *product* wage. It may be of little consequence that in fact what we call money is used as the medium of exchange.

This capital insufficiency has driven banks to cut their supply of finance for all kinds of business investment. (The managers may see it in their interest to deleverage by boosting their capital – e.g., issuing more equity. The owners of ordinary shares may see it in their interest instead to de-leverage by decreasing lending. But both avenues leave less finance for business.) In theoretical terms, we may say that the *uncertainty premium* has been pushed up and that force impacts on the generality of investment projects, most of which pose some *Knighitian* uncertainty owing to strategic issues and shifting structures. In fact, we observe over the past year that credit spreads have all widened; further, bank lending to business has shrunk in that time and mortgage lending has all but stopped.

It is straightforward to argue that an increase of the uncertainty premium drives down employment (driving up the natural unemployment rate correspondingly). In the models I use, uncertainty about new loans or investments forces the value put on an added unit of a business asset to cover not only the cost of acquiring the added unit but also the uncertainty premium. In the terminology of taxation theory, the premium drives a *wedge* between the value of an added unit of the asset and the cost of acquiring it. An increase in the premium widens the wedge. As a result, the rest point to which the economy tends in the medium-term future – the new and lower plateau that it will tend to fluctuate around pending any new major forces – will exhibit a lower level of asset prices, thus a lower level of investing of all kinds in the business sector and housing industry, and in the medium-term rest point lower levels of the stocks of the business assets, including the stock of employees in business. A diagram depicts this in Figure 2.

3. Another category of structural forces consists of productivity relative to wealth per worker (hereafter “wealth”). In my framework, productivity is positive for employment, wealth negative (other things equal). These forces are slow-moving but can wield mounting influence. One pattern is an increase in the trend growth rate of productivity without an immediate and offsetting increase in the growth of wealth supply. As productivity gets ahead of wealth, the wage-to-wealth ratio is also increased and thus the labor supplied; but as wealth catches up, the wage ratio

and employment fall back. A case in point is the relatively fast productivity growth from 1990 to 2005: the wealth ratio was falling till about 1995 and employment was rising from 1992 to 2000. (Actually, the wealth ratio overshot the mark, as we all know, falling to earth from 2000 to 2002. And productivity took off again in 2002, but this time wealth did not fall behind, owing to the housing boom.)

The slowdown of productivity growth in the U.S. economy over the past three years, taken as a whole, is of concern in this respect as well as others. When households revert to their habits of saving, the ensuing growth of wealth will be a *drag* on the wage-to-wealth ratio and thus the labor supplied – *if* productivity does not grow at a matching rate.

Furthermore, the slower pace of productivity is likely to damp business *expectations* for productivity growth over the medium-term future. This spells a reduction in the trend growth in the profits that business firms would expect from any new investments they undertook. The effect of that, in turn, would be a drop in the shadow prices that firms place on the business assets in which they invest, including the customer and the trained employee. An end-result is a decrease in investment demand, thus cutbacks in jobs in commercial construction and other capital goods industries. Again, such localized job cuts do not induce an equal and opposite increase in jobs elsewhere in the economy.^{†††}

It is important to add that in *open* economies (which have by no means been excluded here) the same structural forces exert structural effects through an *additional channel*. When structural forces, by reducing the value, or shadow price,

^{†††} There is potentially another category of structural force raising unemployment in the U.S. and the west generally: a slowdown of output or a speed up of consumption in China and the Middle East. Either development, in raising world interest rates, would impact negatively on the shadow values/prices that American businesses place on added employees, customers, and office space.

placed on unit-additions to the business assets, causes investment demand (and consumption demand as well) to drop, the *real exchange rate* is weakened as well: either the nominal exchange rate falls or the price and wage levels fall. (A basket of domestic output is worth less in foreign goods.) This is necessary for exports revenues to increase by enough to pay for the (ultimate) increase in the import bill or, at any rate, to increase in anticipation of paying later for the increase in the import bill. The real exchange rate depreciation “stimulates” a diversion of some domestic output to export, although finding buyers in many cases will take some time, but not an increase of total output and employment. Yet domestic firms, now better shielded from overseas rivals, will act more like monopolists – raising their markups, which is equivalent to cutting their supplies. Through this channel, then, employment is unambiguously decreased.

It will be no surprise that the analysis here rests on a body of pre-existing ‘structuralist’ models.^{***} These models differ from the Mundell-Fleming model of a small open economy. The latter is thoroughly Keynesian: There is no *structure* in production: the entirety of investment activity revolves around a single capital good, which is produced the same way as the consumer good. In that model, a fall of the dollar has only an expenditure-switching effect, which *stimulates* exports and consumption demand at domestic producers – thus *boosting* employment until money wages adjust to nullify the effect. In contrast, the structuralist models recognize the *variousness* of investing – constructing office space that is more labor-intensive than is production in the consumption sector, training new recruits for work as employees, and price cutting (or other methods) aimed at acquiring new customers. Several statistical tests performed from around 1990 to 2003 consistently show that real exchange rate weakness augurs a decrease of employment.

4. Finally, there are the steeper prices of imported oil and a range of imported primary products, from metals to soya. Beneath that structural force are underlying forces: There is the rapid growth in Asia. Some countries have driven up oil prices

^{***} The basic models are collected in my *Structural Slumps: The Modern Equilibrium Theory of Employment, Interest and Assets*, Harvard, 1994. See also the paper by Hoon, Phelps and Zoega in Willi Semmler (ed), *Monetary Policy*, 2003.

by allowing their capacity to dwindle in the expectation of better prices later or by subsidizing oil. The prices of some foodstuffs increased when subsidies to energy products raised the opportunity costs of growing many primary products, such as soya, and some of those subsidies did little to reduce the price of energy.

Obviously, the higher prices on these intermediate imports cost a country some of its national income. But what is the effect, if any, on total employment? It is commonly supposed that economics gives compelling reasons to believe that an increased oil price pulls down employment. True, the usual textbook analysis points to a decline in the marginal productivity of labor once employers, in an economy move, give employees less oil to work with, and the resulting fall in the real wage is supposed to reduce the amount of labor supplied, thus contracting the labor force. But it cannot be assumed that the incentive wage offered by firms will not decrease in the same proportion, thus averting a rise in unemployment. It may be that the percentage fall in the marginal productivity of labor is roughly matched by the percentage fall in the marginal productivities of capital and land. In that case, the income from wealth falls as much as the real wage. Once suppliers of labor recognize that proportionality, they may (depending on their preferences) be willing – theoretically, at any rate – to go on supplying the same labor as before, thus swallowing the drop of their real wage. That would suggest that the economy should in that case be able to continue with unchanged employment and perhaps even an unchanged sense of prosperity. This “neutrality” of oil is the dream of central bankers!

Another channel would appear to lead to employment contraction. Since consumer goods normally require these intermediate products for their production, the increased cost of the intermediates will normally bite into the profits earned by producing consumer goods; this in turn will decrease the value, or *shadow price*, of

the capital goods used in the production of the consumer goods. The difficulty, however, is that the *opportunity cost* (in units of the consumer good) may *also* be decreased as a result of the drop in the real wage caused by the price increases on the intermediate products. So the net effect on business activity producing capital goods (from office space to trained employees) is still ambiguous!

Empirically, though, it does appear that oil prices are a negative for jobs. How, then, to obtain an unambiguous implication of employment contraction?

- It could be supposed that it is the *value* of household wealth (hereafter “wealth”) – not the *income* from that wealth, as above – that matters for the reservation wage, thus the size of the labor force, and for the incentive wage employers need to pay, thus the medium-term natural unemployment rate. Then, after the oil shock, there might be expectations of some recovery of the rentals earned on capital in the home country, which would cushion wealth from falling by as much proportionately as the income from wealth – e.g., energy savings.

- It could be supposed that oil is sufficiently important for the production of the capital goods that the opportunity cost of producing capital goods falls by less than the real wage falls. The employment in the production of capital goods would tend to fall, which would pull down total employment.

- The employment effect coming through the real exchange rate channel is negative, as argued under sub-section 3 above. (I am referring to the real depreciation prompted by the need to pay sooner or later for the higher import bill, not the real depreciation occurring by sheer accounting when some of the foreign prices increased exogenously.)

Actually, the idea that a high oil price is devastating for prosperity is overblown. The impression that employment will collapse under the weight of a high oil price arose in the mid-1970s recession, following the 1973 oil shock. Some economists, including me, showed that the higher oil price could so increase costs of production as to make the increase in the *unit cost* of producing national output, given the *money wage*, exceed the increase in the *price* that buyers of national output would be willing to pay, given the *money*

supply. Then a secondary contraction of output would occur, leading to a lower employment. But today the central banks do not keep their hand on the money supply – they set interest rates and let the money supply increase freely with any increase in the demand for it. Whatever the money price we have to pay for our bread, our central banks will be there for us! Furthermore, oil today receives a much smaller share of the GDP than it did three decades ago. In the 1970s we economists were unaware that the increased unemployment of that decade was caused mainly by the end of the extraordinary productivity growth that prevailed from 1955 to 1975, not energy prices.

There are structural forces working the other way, of course. Export demand is still increasing fast. The information and communications boom is not dead yet, judging by the considerable venture capital activity in Silicon Valley, but I do not see it poised for growth at a rate faster than that in recent years.^{§§§} My sense is that the four categories of contractionary forces outweigh the expansionary force of exports. The decline of total investment, business plus residential, in the U.S. has been about as large over the past 12 months or so as the rise of U.S. exports; but the former reflect a decline of wealth that has reduced consumer demand and thus has weakened the dollar and further reduced output and employment. That is reinforced by the observation that the dollar has *weakened* in the past year (as well as the year before), not strengthened, from an already weak level.

There would not seem to be any other way to explain the recent contraction of employment and rise of unemployment. The recent disruptions do not appear to be mainly the result of monetary forces. The 2002-2005 dip of interest rates and investment boom in the U.S. was not associated with any acceleration of the money supply, either M1 or M2 – certainly not if we normalize the money stocks by productivity multiplied by active-age

^{§§§} The possibility of productivity growth about as fast as in 1995-2005 cannot be ruled out, however. Recall that productivity in the U.S. economy has suffered a *fall* as a result of the malallocation of labor and the malinvestment of capital up to 2007, owing to the establishment of the “wrong prices” on assets, companies and industries. The *re*-allocation of much labor and much capital will surely deliver a bonanza for national income and GDP calculated at the constant prices after the fall.

population, which serves to remove the trend and allow for surges in productivity and population. Likewise, the 2006-2008 deceleration of output and more recent employment downturn in the U.S. are not associated with a deceleration of the money supply, either M1 or M2.

How far has 'natural' unemployment risen? More than actual unemployment?

This analysis, as just noted, points to a future with a relatively *high* natural unemployment rate – certainly high relative to the remarkably low natural levels to which we became accustomed in the second half of the 1990s and the first half of the 2000s. How high?

It might be thought that the natural rate is now back to the unemployment level of the mid-1990s, particularly 1995 and 1996 – a tranquil period in which both the actual unemployment rate and the inflation rate were neither rising nor falling. This also happens to be the range in which the actual unemployment rate has been over the past couple of months (as of this revision at the end of July 2008). Is that a plausible estimate of the medium-term natural unemployment rate – the level to which the equilibrium pathway takes the unemployment rate?

There is evidence to suggest that the natural unemployment rate is higher than that benchmark level. The level of real stock market capitalization in the U.S. expressed as a ratio to business product is lower now than it was in 1995. The real exchange rate is much lower. There is also the evidence that the Fed, in driving short-term real interest rates into negative territory, has been digging in its heels to try to brake the descent of employment. This suggests that when the Fed takes its foot off the brake, the economy will lurch downhill for some further distance. Finally, if the actual unemployment rate is below its new medium-term natural level, our models prepare us to see signs of a *general* rise of prices – the “core” included. We do see that – the sharply higher prices in auction-type markets being

the most conspicuous, of course. The core part of the CPI has risen in the past two years by about one percentage point above what would have resulted had the Fed been hitting its target on average. Judging by this evidence, the natural rate today significantly *exceeds* the 1995-96 benchmark.

If so, I would remark *en passant* that the US economy and some economies in western Europe too were saved from a dreary decade by their housing booms – aided by optimism about productivity and by cheap oil. One might imagine that the housing boom came at the expense of the information and communications boom. But, throwing my previous analysis into reverse, it is easy to see that the expansion in the housing industry, which is highly labor-intensive, raised real wages (above where they would otherwise have been) and total employment: it did not simply move labor and capital in equal proportion from the business sector to the residential construction with no effect on employment and real wages at all. Furthermore, in this age of the Global Economy, a housing boom does not have to suck blood from some other investment activity in order to live. The US economy could have both booms – and it did. Now the US faces a future without benefit of a boom for the foreseeable future. And the beneficial effect on the natural unemployment rate of the housing boom, an expansive banking sector, rapid productivity growth and cheap oil were far greater than imagined.

The bottom line: Recent developments have driven the *natural* medium term unemployment rate *above* or, in the best case, *at* the level it tended to be in the mid-1990s, before the internet boom in the second half of the 1990s and the housing boom of the first half of the 2000s – a level in the neighborhood of 5.5%. (If the GDP and share prices level off, the unemployment will go on rising owing to productivity growth.) The fact that neither inflation expectations nor the core

inflation rate have broken loose from their moorings does not refute the existence of the natural rate; it simply suggests that the Fed enjoys a reservoir of credibility.

Suspected Mistakes in Current Policy Thinking

For a couple of decades we have been accustomed to interpreting monetary policy in terms of the Taylor rule. But this rule has no operational significance without specification of how two of its crucial elements are to be estimated: the medium-term natural unemployment rate, to which the actual unemployment is supposed to be tending, and the current (or maybe the medium-term) natural real rate of interest, which would be the observed interest rate if the economy were at its medium-term natural level and the (expected) inflation rate were at its target level. As a consequence, it may be impossible to be sure that a central bank is or is not following the Taylor rule.

As I see it, the Federal Reserve is *not thinking right about the natural rate of unemployment*. The Fed appears to believe that the medium-term unemployment rate is well *below* the present level of 5.5%. The Taylor rule would have a central bank respond to such a rise of the unemployment rate above its medium-term natural level with a *cut* of the policy rate (the Federal funds rate in the U.S.) on the grounds that the unemployment rate, when so elevated, will cycle back to its unchanged medium-term natural level; so in cutting the policy rate the central bank would be shaving something off the trough of the cycle. Of course, the Fed's early rate cuts may have been driven by a gut feeling that banks might collapse if rates were not cut. But now the rationale for keeping rates low appears to be the feeling that the low rates serve to "cushion" the economy against what would otherwise be a worse trough and to reduce the "tail risk" that the unemployment rate will go very much higher before turning around.

But if one believes that the forces driving up the unemployment rate are structural forces and that most or all these forces will not turn around, then it is not clear (to me at any rate) what the rationale is for setting rates at unusually low levels. Some say it is to “forestall” foreclosures and bank closings. But if unemployment and the short real interest rate are bound to meet their medium-term natural destiny, the foreclosures and closings will happen anyway. Others say low rates are really a response to the present (and temporary) illiquidity at banks. But the Fed could lend to banks without upping the money supply. Perhaps it is believed at the Fed that the medium-term natural unemployment rate will be low again – will no longer exceed the present unemployment rate – once the illiquidity is resolved. But there is no lack of other structural forces driving the natural rate above recent levels of the actual rate.

I am not saying that the Taylor Rule is wrong to suspend concern about inflation expectations when the unemployment rate has drifted well above the natural unemployment rate; I am saying that the Taylorian analysis justifying low rates is inapplicable, since unemployment is *below* the medium-term natural rate, not above it.

I agree with Taylor that it can make sense to tolerate a worsening of expectations over some medium term in order to avert an avoidable rise of unemployment or speed its decrease. This property is one of the virtues of the Taylor rule. But it is one thing to *cause* or *aggravate* a worsening of inflation expectations for some time in order to *damp* a transient rise of unemployment and quite another thing to *slow* a rise of unemployment the full extent of which will occur anyway. The former serves to shave off the troughs – the worst extremes of unemployment – while the latter prolong below-natural unemployment a while before the inevitable trough materializes. It would seem to me groundless of the Fed to believe that the economy will soon gain back some of its lost strength and dangerous to decide on that belief to hold down short-term interest rates as long as

unemployment is high or appears to be heading high. (Likewise it would be risky for the European Central Bank to meet calls to freeze the short-term nominal interest rate in the face of increased expectations of inflation: that would be tantamount to *reducing* the *expected real* interest rate when inflation expectations are already too high and maybe rising merely to postpone for a time whatever rise in unemployment structural forces are going to impose. *Sooner or later* expectations of inflation (or of deflation) become so far from the target as to *force* a central bank to set the expected real interest rate at the level consistent with the emergence of the natural unemployment rate in order to prevent any further deterioration of inflation/deflation performance. (Absent such action, the inflation (or deflation) rate would explode until it hits a natural ceiling or floor.)

The reply, it has occurred to me, is that when those forces reduce employment they also reduce the rate of return to investing and thus the “natural rate of interest.” But here, as I see it, the Fed is *not thinking right about the natural rate of (real) interest either!* First, the present rate of return on equities is about 5.5% per cent, according to Barton Biggs, which is far higher than the policy rates set by the Fed (after adjusting for inflation); and that rate of return could go higher if share prices give up optimistic hopes of prosperity just around the corner. Second, what will be driving real rates of interest once the economy settles into its new growth path is the rate that households require on loans. Since their new wealth levels will be sharply reduced relative to the future wealth levels to which they can look forward as they recoup - leaving their present consumption sharply pinched relative to their future consumption – the expected real rate of interest they require is going to be a lot higher than it has been in recent years. So, it appears that the present near-zero real rates are not sustainable. Inflation would become appreciable, causing expectations of inflation to get out of hand. Moreover, it is hard to see how the Fed could lend for long at rates that undercut the private sector: it would run out of ammunition.

In the present circumstances it would make sense for monetary policy to start raising the expected real rate of interest at the short end until it matched and finally exceeded the expected inflation rate.

Possible Lines of Fresh Thinking

The most plausible prospect for the U.S. economy over the medium-term future – until the next boom – is a dull labor market: the unemployment rate fluctuating between 5 and 6 per cent (or a little more) with high unemployment rates for black males and Latino males hard hit by the end of the housing boom. Prospects will be much worse if confidence in the value of business and financial assets collapses.

Whatever the best monetary policy and the best fiscal policy are in the present situation, the fixation on monetary and fiscal policy has diminished the incentives anyone might have had to think “outside the box.” Who would listen? Yet ideas for new initiatives are apt to be our best bet. They may be indispensable.

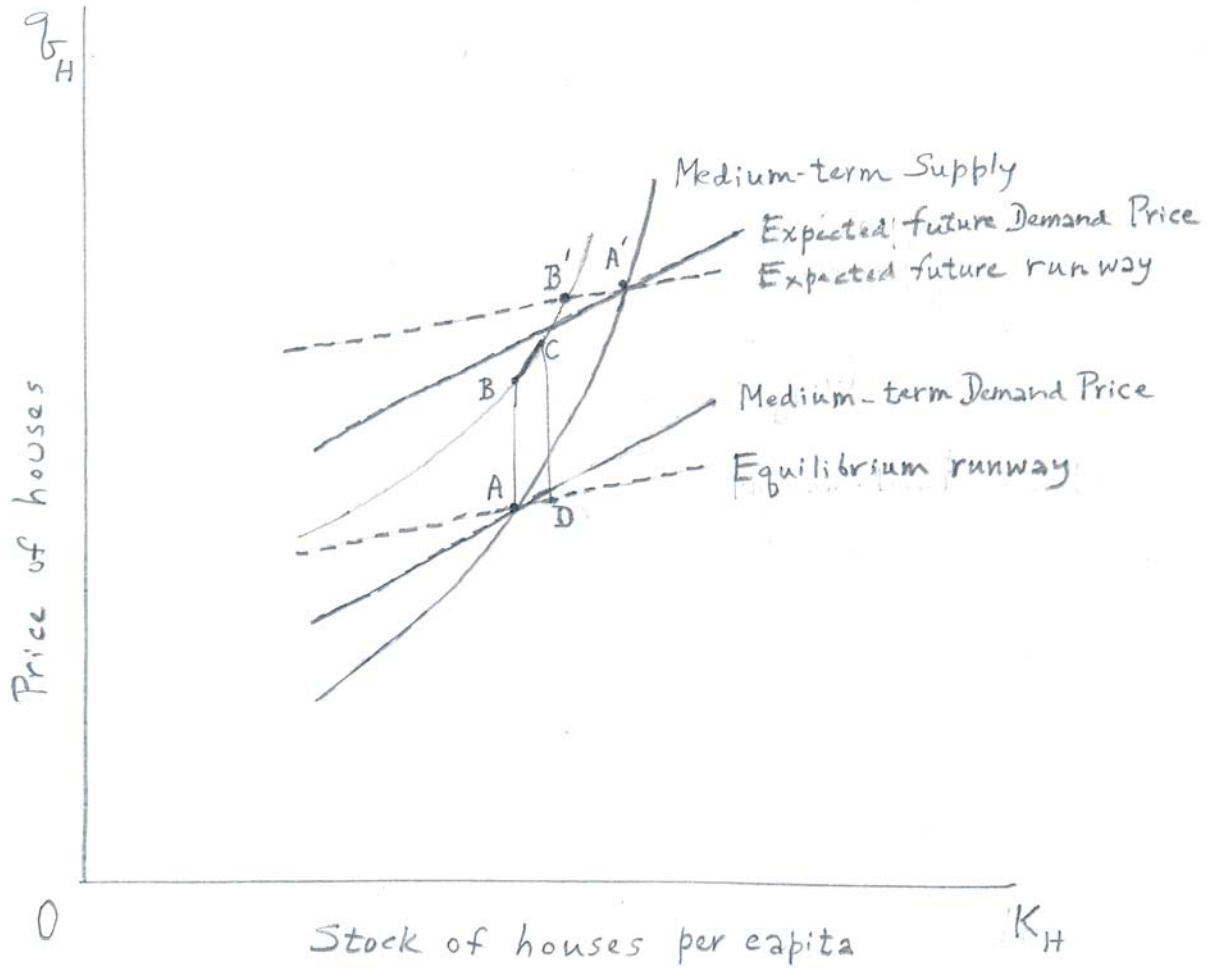
For a decade I have been making a case for low-wage employment subsidies – paid to employers at firms over a certain size and graduated according to the pay rate. Such a program would serve to pull up wages and employment among workers from disadvantaged groups. That would contribute to economic inclusion and social integration. My sense is that this is the right time for this initiative.

Yet such subsidies will not suffice for high prosperity. It is necessary also – in the US economy and the European economies even more – to increase economic dynamism: the financial sectors seem not to be very oriented toward innovation; corporate governance and management practice seem to have failed (with

exceptions) to encourage strategic vision; in Europe the labor markets are another hindrance to innovation. More dynamism would lead to more novelty and change, thus more mental stimulation, and problem-solving, thus to the development of talents (in Rawls's words) and the expansion of capabilities (in Sen's words). It would also encourage originality, exploration and innovation in the business sphere. In these ways, more dynamism can serve to reduce unemployment and expand participation, which alone would be of great benefit and would widen opportunities for lives of adventure and self-discovery – thus to lift the human spirit.

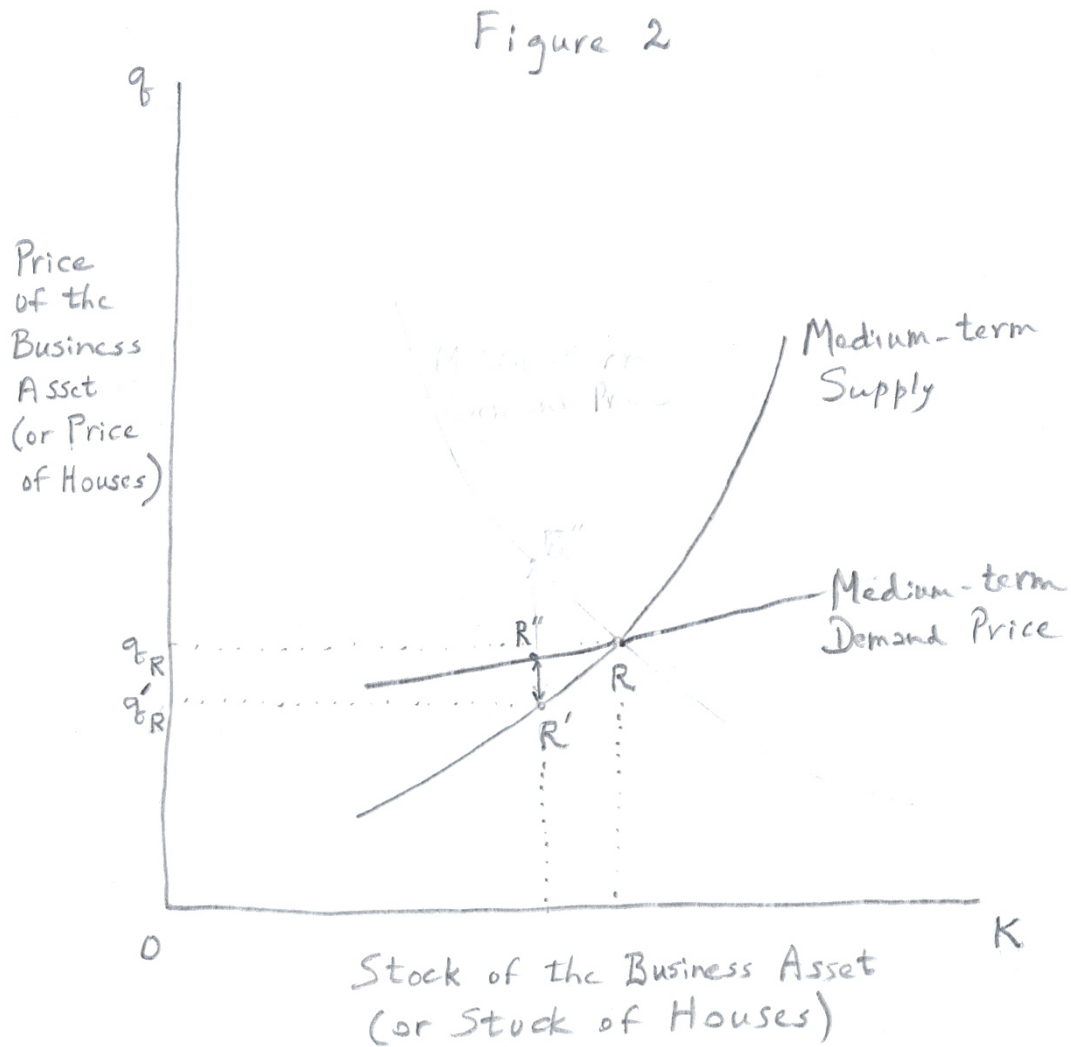
Appendix

Figure 1



The sudden expectation in the initial state A of a future step up in rentals, thus demand, causes the house prices to jump to point B. The economy is then expected to transit to B', thence to A'. A crisis occurs if at a point like C these expectations are seen to have been groundless. Then the price drops to point D, resulting in a housing depression and gradual return to A.

Figure 2



There is in general an uncertainty premium, represented by the wedge $R'R''$ between the Demand Price, which must be high enough to cover the premium, and the Supply Price, which reflects the net price – the observable price of which supply is a function. The rest point moves from R to R' , where the price is lower and the stock smaller.

Figure 1

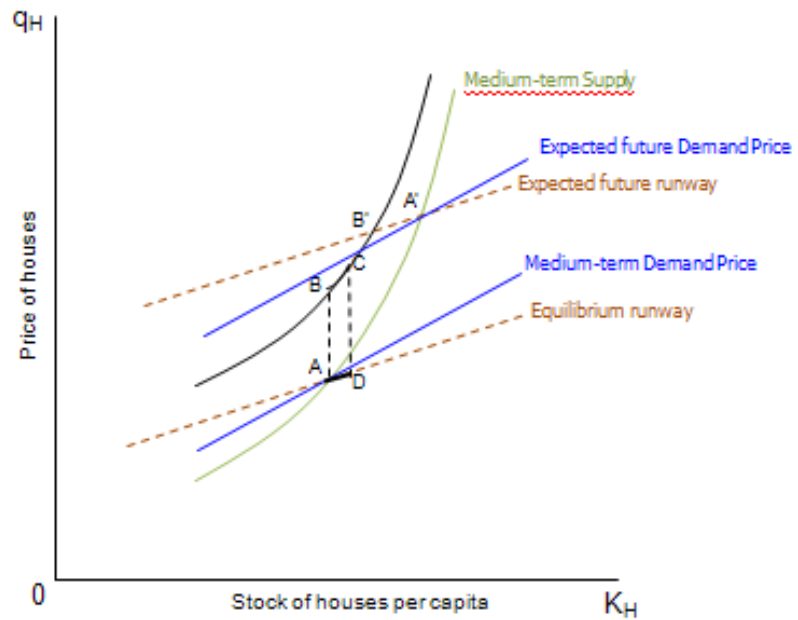


Figure 2

