Why is the Macroeconomic Impact of Oil Different this Time?

Christopher Allsopp

With oil prices around $70 per barrel compared with a low of about $10 a few years ago, one of the biggest questions is why the impact on the world economy seems (so far) to have been so small. There are lots of hypotheses and stories. One is that the impacts, on inflationary pressure and on world growth, will come through soon enough – they are just delayed. Another is that the nature of the 'shock' – demand rather than supply – is the difference that makes the difference. Yet another is the view that the relatively slow rise in the oil price – spread out over several years – makes it easier for economies to adjust. None of these seems very satisfactory. More plausible accounts appeal to changes in economic behaviour or structure and/or to changes in economic policy – particularly better designed monetary policy in many OECD countries. But what are these changes and why should monetary policy make such a difference?

This short comment goes back to basics, asking the kind of policy questions that were asked about the oil impacts in the 1970s – to see if there are good reasons for coming up with different answers now – and with different policy conclusions. It is true that some aspects of the situation do look very different now. Others, such as the mounting concern over energy security then and now, look very much the same, with the added constraint now arising from concern over climate change limiting the 'obvious' policy options – such as increased dependence on coal.

What is an Oil Impact?

Physical supply shortages

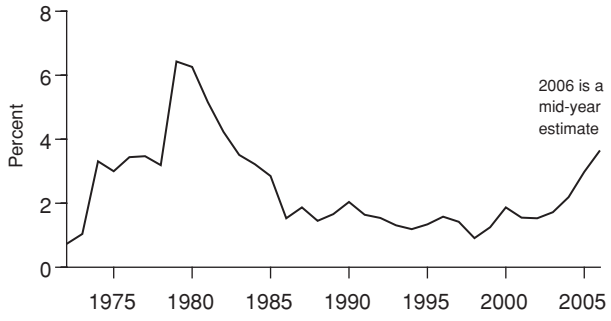
It is often forgotten that the first phase of the first oil crisis (from 23 October to December 1973) was about physical supply. The initial price rise was relatively small, small enough to be mostly neglected in macro policy debates. What really scared politicians was the embargo which created a real threat of physical shortages for some countries. The embargo was ineffective (oil turned out to be 'fungible') but that could not be known at the time, and fairly draconian measures to cut the demand for oil were adopted in many OECD countries (such as restrictions on driving on odd days of the week). There was a crisis atmosphere – which affected subsequent responses.

The big price rise in December 1973 coincided with the ending of the embargo. It was greeted with relief, and policy passed from defence ministries and departments of industry to finance ministries and central banks. The input output tables were put away. The oil impact needed to be looked at in macroeconomic terms along with other macroeconomic impacts and changes, such as taxes and interest rates.

How big?

Even now, many overestimate the macroeconomic significance of oil (and of energy more generally), because of potential supply disruptions which can paralyse an economy. In fact the first oil price impact was of the order of 2–3 percent of industrialised countries' GDP (measured very simply as oil consumption multiplied by the price impact and divided by OECD nominal GDP). Rather conveniently – in terms of the 'stylised facts' – the late 1970s impact was of a similar order of magnitude, and so was the effect of the large fall in oil prices from 1985 to 1986 (which boosted growth and lowered inflation in the late 1980s). (Figure 1)

Figure 1: Oil Consumption as Percent of GDP



So how does the present situation compare? Very roughly, a $10 rise in the price of a barrel of oil translates, for the OECD area, into an increase in expenditure on oil (in the short term) of about ½ percent of OECD GDP. So a rise in the oil price of $40 is about 2 percent of GDP: $60 would be 3 percent. No one really knows what a normal price was before the recent increases, or what the future price of oil will be. But, it should be clear that the present situation does involve – in broad terms – a price shock comparable with the big oil price shocks of the past.

The impact on supply potential

Many studies have attempted to account for the falls in output that followed the oil shocks of the 1970s in terms of the effects in reducing aggregate supply potential, either directly through the production function or in terms of the scrapping of inefficient equipment. Without wanting to discount these potential effects, it is hard to explain large effects on output or productivity on the basis of the stylised numbers above. Indeed, this is what studies in the 1970s and 1980s tended to show. For example, to get any substantial estimated effects from the first oil crisis, Bruno and Sachs (1985)[1] had to include the effects of other commodity price rises as well. It is also the case that changes in real commodity prices of similar orders

of magnitude during the 1950s and 1960s were not particularly unusual.

Long-run effect on inflation

A change in the price of oil is a *real* change. It is fundamental that there should be no effect on nominal quantities, such as inflation, in the longer run.

The Indirect Tax Analogy

In thinking about the impact of oil price shocks, by far the most useful analogy is with an indirect tax increase. Thus, an oil price impact of 3 percent of GDP can be thought of as the imposition of an indirect tax on oil, levied by the producers and paid by the users (firms and households). (This is more than an analogy – in Europe more than half the price of a barrel of oil represents 'taxes' levied by consumer country governments).

The 'special' characteristics of an oil price impact are immediately apparent.

- In the short run, the price elasticity is very low. (It appears to be quite high in the longer run, mainly due, in the 1980s, to the substitution of other fuels –especially for power generation).
- In the case of oil, much of the 'tax' impact crosses national frontiers, so that balance of payments positions are affected.
- As with any other tax, the overall effect depends on the effects on and behaviour of those who pay the tax, and the behaviour of those who benefit from it. A well-known feature of the first and second oil price shocks (and, to a lesser extent, the present one) was that some of the recipients, such as Saudi Arabia and Kuwait, were unlikely to spend the extra revenues in the short term. This adds up to an increase in world savings, which is deflationary unless offset by a sufficient fall in interest rates. (Or by fiscal offsets in consumer countries).[2]

The analogy with an indirect tax rise (of 2–3 percent of GDP) levied on oil (think fuel duty) the proceeds of which are not spent in the short term, immediately demonstrates that the well-known effects of an oil crisis are far from surprising. In fact they are just what one would expect. First, households and businesses in the non oil sector are poorer, since they pay the tax. A cut in expenditure is very likely – that is the deflationary effect. Second, there is a level effect on prices. Some prices, such as petrol, go up directly. Others go up to the extent that firms pass on rises in input costs to consumers. This level effect is not really inflation (though it will be measured as inflation whilst it is coming through – see below). It is a change in the real relative price of oil. Third, there is a clear danger of a wage price spiral as wage earners try to recoup their losses by higher nominal wage demands and as firms try to maintain profitability by passing on increased costs to consumers. It is often suggested that the 'stagflation' of the 1970s and 1980s was paradoxical and a serious blow to the prevailing economic consensus. Nothing could be further from the truth!

It is also clear that there is nothing inevitable about stagflation as a response. There are many examples of taxes (including indirect taxes) that have been raised without triggering an inflationary spiral. Likewise, terms of trade changes have often occurred without these kinds of responses. And there are lots of ways in which the deflationary impact might be avoided, either by direct spending effects elsewhere (e.g. by oil producers, or by governments, or by consumers themselves) or by indirect effects, such as the induced effects on spending of lower interest rates.

In looking at the present versus the 1970s and 1980s, the key question is why the responses might be different – including, importantly, the response of economic policy makers.

Could the Oil Impacts have been Offset?

If an oil impact (say of 2–3 percent GDP) is judged persistent, there is an important sense in which, in the longer term, it cannot be offset. If the oil is imported – the case for most industrial countries in the 1970s – the terms of trade worsen, and living standards fall (economic welfare drops). GDP, however, would be unaffected. The same would be true if the impact arose because of an increase in domestic resource costs: welfare would be reduced, though GDP would be unaffected.

In the short term, however, there is an obvious 'offset' – oil could be de-taxed domestically to the extent that the international oil price had risen. This would offset both the short-term demand effects *and* the price/inflation impact. (In fact, this was proposed as a response by OPEC in 1974.) The consequence, however, would be a rise in the domestic budget deficit. For an oil-importing country, the deterioration of the budget would match the deterioration in the external balance of payments position. For the world as a whole, the policy amounts to balancing the increase in world savings by the oil producers with dissaving by consumer country governments.

Such an offset is largely of academic interest.[3] A policy response which was actually discussed in the 1970s would be to accept the oil price impact (for resource allocation reasons, and to encourage conservation and development of supply) and lower other indirect taxes in a compensating manner. It was not adopted, mainly, it may be argued, because deflation was required anyway to try to control inflation pressures at the time.

The other interesting offsetting strategy would be to lower interest rates – to stimulate demand and maintain growth. (Some of this happened automatically in the 1970s – when real interest rates became very low. More recently, real interest rates have also been pushed down – in part because of oil producers' surpluses, but, more importantly, because of savings and current account surpluses in Asia.) This strategy amounts to a monetary policy offset to any demand lowering effects of an international oil price impact.

Obviously, any offsetting policy for demand would have to be temporary and be phased out over time as savings surpluses declined and exports from consuming countries rose (to pay for higher priced oil).

Macroeconomically, there is nothing special about oil price impacts

What the above should demonstrate is that there is really nothing special about oil price impacts. In fact, in macroeconomic terms, they are in many ways much simpler than other impacts that monetary and fiscal policy makers have to deal with.[4] For example, the Maastricht fiscal convergence process in Europe involved about 3 percent of GDP. The indirect tax rise in Japan in 1996 (a policy error according to most analysts) was about 3 percent of GDP, as is the proposed rise in Value Added Tax in Germany for next year. The rise in public spending between 2000 and 2005 in the UK was about 7.5 percent of GDP.

The basic point is not that oil price shocks do not have macroeconomic effects, but that there are lots of other things going on which also have macroeconomic effects and which pose challenges for policy makers. It is the task of macroeconomic policy to respond to the overall situation, rather than to oil shocks per se.

Oil Price Shocks under 'Flexible Inflation Targeting' Regimes

In comparing the responses now to those of the 1970s and 1980s it is much easier to reverse the time line of history and to start with the present. This is because the framework of macroeconomic policy and of policy responsibilities is much clearer, more explicit and more transparent now than it was back then. For brevity, the discussion is in terms of a system like that in the UK – which is widely regarded as best practice and is one of the most explicit and transparent frameworks in the world. (Similar considerations would apply, however, to Europe and to the more informal US system.)

In the UK, the main functions of macroeconomic policy are assigned (delegated) to the Central Bank and its Monetary Policy Committee (MPC) which is responsible for (a) meeting an inflation target in the medium term and (b) subject to that to stabilise the economy as much as is possible. The control instrument is the short-term policy interest rate. It is a forward looking system in which the 'interest rate policy reaction function' is always working to bring forecast inflation back to the target 'in the medium term'. An important aspect of the system is that it is publicly understood, so that private sector expectations of output, inflation and of the interest rates necessary to achieve the target are affected. The system is 'predictable' in the sense of Woodford (2003)[5] and 'rule like' in the sense of Taylor (1993).[6]

Anything that affects forecast output gaps and inflation needs to be taken into account by the MPC in setting the policy rate. Apart from current trends, this includes the exchange rate, asset prices (such as housing), and fiscal policy, to name but three. Fiscal policy is the responsibility of a different institution (the Treasury) and is one of the things that need to be taken into account by the monetary authority.

In such a system, oil price changes (and anticipated future oil prices) are just one more thing to consider in setting the policy instruments in order to meet as far as possible the mandate to control inflation in the medium term. The level effects on prices of the change in real oil prices are not usually regarded as problematic *per se* (they are not usually regarded as inflation – see above). Second round effects via a wage price spiral or via expectations definitely are and must be contained by policy.[7]

There is much more that could be said. But the way the system can function is well illustrated by a particular decision of the MPC in August 2005 to lower interest rates (by 25 basis points) in the face of rising oil prices. The judgement was in effect being made that the inflationary effects of rising oil prices (especially the second round effects) were not coming through and that the demand lowering effects were. Given everything else, the overall judgement was that a small stimulus to demand via a cut in interest rates was justified in order to maintain inflation targets in the medium term.

One reason for the lack of second round effects – the triggering of a wage price spiral – may well be the credibility of the institutional framework, stabilising expectations. But there are many other things distinguishing the recent situation in the UK and elsewhere from the 1970s and 1980s, including changes in labour market structures and the downward effect on prices of 'globalisation', especially the rising importance of China and India in international trade. One can be sure that if a wage price spiral showed signs of developing, the response of the monetary authorities would be immediate.

A Glance Back at the 1970s and 1980s

There is no reason to expect the responses of policy makers and of private sectors in the 1970s and early 1980s to be even a reasonable guide to responses now. (In the jargon, the policy regime is completely different and the Lucas Critique applies). First there were an awful lot of other things going on: the hangover of the Vietnam War, the ending of Bretton Woods, wage explosions in Europe, excess demand on a world scale in 1973 and so on. Second, policy makers were in a muddle. This did not just lead to policy mistakes. It also altered the likely responses of economic agents throughout the economy. (For example, if you think that everyone else is going to get a wage increase to compensate for higher fuel prices, you would be crazy not to demand one yourself.) Third, the kind of policies that hindsight might suggest were needed then, were probably politically impossible anyway.

In fact, during the 1970s and 1980s the demand reducing effects of oil price rises were pretty well understood. Germany, for example, in 1974/5 appears to have accepted

the need for demand restraint to control inflation. Not offsetting the demand lowering effects of the oil price shock was one way of implementing that. (They adopted other policies as well.) By the second oil shock, there was generalised acceptance of the need for deflation. The impact was not offset. In fact, policies such as the rise in interest rates in the USA at the end of the 1970s (the Volcker shock) had little to do with oil and a great deal to do with the persistence of inflationary pressure. It would be a great mistake to assume that the second oil price shock led, in any simple way, to the recession of the early 1980s.

Some Implications

All this is saying that the past may be a very poor guide to the future. That in itself has large implications.

If oil price rises do not lead to a slowdown in the world economy, there are potentially large effects on the assessment of future oil demand and on price. The feedback from price to slowdown has been absent so far. This is not a question of demand shocks versus supply shocks – as is so often claimed – but of changed responses, within economies and by policy makers. (The two aspects interact, of course).

This means one should be wary of model simulations which suggest, for example, that a $10 oil price rise would, say, knock ½ percent off OECD GDP growth. It might instead lead to a cut in interest rates to maintain growth – with completely different implications.

In looking at economic responses, the two key areas are the demand effects and the effects on inflation.

As far as the demand effects are concerned, it appears that households and firms are much more prepared to smooth their expenditures (letting savings take the strain). This is what theory would predict if agents are not liquidity constrained (they are certainly less liquidity constrained than twenty years ago) and if they are confident that growth will be maintained.

But should they be confident that growth will be maintained? They should be so long as they are confident that policy makers are aiming for such an outcome and that by and large they have the requisite policy instruments available and the competence to achieve their objectives. That confidence appears to have been growing. It appears to have been increased by the observation that there have been some large shocks – the Asia crisis, the ending of the dot com boom, 9/11, geopolitical instability and uncertainty, which, whilst they have had effects, have not seriously dented the trend of world growth. (Thus, the US recession was remarkably shallow.) Such confidence could, of course, disappear very quickly.

The absolute key is the muted response (so far) of inflation. This is not just about oil. Exchange rate changes, tax changes, other commodity price changes appear to have much smaller pass-through effects to inflation than a couple of decades ago. The reasons are not fully understood. If this continues, then policy makers will try to support growth – or rather to maintain growth at productive potential. But any rise in inflationary pressure would lead to a rapid and possibly draconian response. Any widespread rise in inflation – whether triggered by oil price developments or not – would almost certainly lead to a policy induced slowdown in the world economy, just as it did in the past.

There is a chance that the benign trend will continue. (There is equally a danger that other problems – such as the unwinding of world imbalances – will throw it off course.) If it does, there is a fair probability of continuing high or even rising oil and other energy prices.

This leads to two final observations. The first is that it is the benign scenario which includes continuing high oil and other energy prices that accounts for the rapidly mounting concerns over energy security. These concerns would, in all likelihood, go away if world growth slowed down markedly. The second is about the environment. High oil prices are often taken to be a good thing as far as the environment is concerned. But the obvious substitutes are nuclear, coal and tar sands. The latter two could be disastrous in environmental terms, whilst nuclear raises both security and environmental issues of a different kind. Environmental issues are now inextricably mixed up with energy security issues posing a real set of new challenges that policy makers did not face in the 1970s and 1980s.

Notes

1 Bruno M. and Sachs J. (1985), *Economics of Worldwide Stagflation*, Harvard University Press.
2 Referring to the UK, the 'tax' was paid abroad in the case of the first shock. In the case of the second, the UK was self sufficient; the increment of revenue accrued to oil companies in the short term and largely to the government in the longer term (with a lag of about 3–4 years). The impact on the non-oil private sector was similar in the two cases. In both, savings rose, due to OPEC saving in the first case, and because increased tax revenues were not spent in the second. It is thus not surprising that the impacts were essentially similar despite the move from import dependence to self-sufficiency over the 1970s.
3 Or it should be. In fact many countries, especially oil producers themselves, do react in practice by subsidising the domestic price of oil. Even amongst developed industrial countries, a de-taxing response is also surprisingly common.
4 A major reason for this is because of information. The impact effects of oil price changes are particularly clear. So are some of the longer-term responses. In the 1970s, for example, estimates of the build up of oil producers' demand for imports were not particularly wide of the mark – and even the composition of that demand (by product and by country source) was relatively well understood. Of course, major errors have been made about forecasts of the oil price, especially in the 1980s – and recently.
5 Woodford, M., 2003, *Interest and Prices*, Princeton University Press.
6 Taylor, J.B., (1995), 'The Monetary Transmission Mechanism: an Empirical Framework', *Journal of Economic Perspectives*, Volume 9 (4): 11–26.
7 In Europe and in the USA the distinction between level effects and second round effects is embodied in the importance given to indicators of 'core inflation' – excluding the direct effects of energy prices.