The Economic Consequences of the Peace in Iraq

Edward Nell and Willi Semmler

The Administration claims that it invaded Iraq because only a ‘regime change’ would suffice to protect us from the threat of weapons of mass destruction. Moreover, they added, such a change would remove an imminent threat to American security and bring democracy to Iraq and, by example, promote democratization throughout the region. Democracies, in turn, tend to be peaceful, so that the result of the invasion would be greater regional security and a reduced threat to US citizens.

A Skeptical Note

Yet the evidence regarding weapons of mass destruction has always been ambiguous at best. Even now – after the invasion – nothing much has turned up. No doubt there was a threat; but the British and American bombs destroyed many of Saddam’s facilities and inspectors led to the dismantling of many more. There is still no clear-cut evidence of *any* weapons of mass destruction, or any facilities to build them. If solid evidence had been found, it would have been all over the media in a flash. Still, some weapons might have been held and concealed from long ago – but biological weapons were likely to be too old and produced on too low scale to be effective. Of course, eventually something dangerous may still be found, hidden from the inspectors (not nuclear, though – Iraq never succeeded in developing nuclear weapons) and not discovered during the invasion.

What is clear by now, in fact, is that far from being more menacing, Saddam was actually less of a threat than in the past. His army had been reduced to more or less half its previous size; his conventional weaponry had become out of date; his missiles had been used up and not replaced; most of whatever arsenal of mass destruction he had was destroyed. And it was clear that the regime was not popular: in the North, the Kurds were in more or less open revolt; while in the South, the Shi'ite majority had long resented its exclusion from power. In short, before the invasion of Iraq, Saddam appeared to be weaker and less dangerous than ever.

Prior to the invasion, the administration did not seem to have a plan for what would happen after Saddam is toppled. None of the obvious questions were answered. What would replace him? Would there be a new constitution? Who would draw it up and how? Would genuine democracy really be allowed, even if fundamentalist Islamic parties were swept into power? The French and Russians had large investments in Iraq; would those investments be protected? Plus Iraq piled up a huge amount of foreign debt (ten times more than other debt-ridden countries such as Argentina). Much of this is owed to the Kuwaitis, as reparations, but much is also owed to the French and Russians for various kinds of development projects. Would the French and Russians be allowed to participate in the reconstruction of Iraq and be invited to join in policy-making? Finally, the Kurds in the North had already become semi-independent. It is still not clear what is planned for them. Would the Turks consent to the emergence of a Kurdish quasi-state? (They repeatedly threatened to go to war to prevent it, and their suspicions played a large part in their refusal to allow the US to move troops into the North from Turkey.) Then turn to the South: what about those Shi'ites who might wish to establish a fundamentalist Islamic state, or even ally with Iran?

Far from dealing with these issues, the administration has consistently evaded them, and continues to do so. A look at the writings of the group around Vice President Cheney, and neoconservatives generally, however, indicates an interest in using military force to redraw the map of the Middle East. But all along it has been hard to find details. The administration kept its designs largely secret, and concentrated publicly on weapons of mass destruction, threats to the security of US citizens, and so on. The outline of its plans for a new Iraq, and for new arrangements for the control of oil, were not made public before the invasion. It is understandable, of course, that the administration did not want to show its hand in advance. But there has been no evidence that it *had* a hand. Managing and rebuilding postwar Iraq never even seemed to be on the table until the administration was pushed by the international community – indeed, the Bush team is on record *opposing* 'nation-building.' In retrospect it seems to have had something else entirely in mind – perhaps a compliant and authoritarian, but pro-American, government, along with a large US military presence? And why would it be worthwhile to go to war for this?

One reason might be to enhance the security of Israel by reconfiguring the balance of power in the Middle East. This is plausible and the administration has admitted as much. It offers a rationale for using force to remove Saddam and to restructure Iraq. This perspective is in no way inconsistent with our case; indeed, it complements it. But we want to focus on economic questions. And these center on…

The Oil Issue

The story of Middle Eastern oil starts with Franklin D. Roosevelt, who sent the eminent geologist Everitt Lee DeGolyer to the Middle East to answer the question Roosevelt posed, 'How important are Persian Gulf oil reserves to the future of the world?' The answer was, important enough to prop up a backward, medieval monarchy in return for unfettered access to

Saudi oil – a deal still in place, though shakier than ever.

Remember, Saudi Arabia figured prominently in 9/11. It was not just the home of 16 of the 19 hijackers; it was also apparent that internal pressures kept the regime from cooperating in the investigation. Moreover, it emerged that Saudi money had financed both the Taliban and al Qaeda. And, of course, Bin Laden himself – and his money – came from within the Saudi establishment, close to the royal family. The world's largest oil producer, sitting on the world's largest and most easily tapped pool of reserves, could no longer be trusted to remain loyal and cooperative. The US depends on Saudi Arabia – and on Iraq – for imported oil. The Texas oilmen who figure so prominently in the administration are unlikely to opt for conservation and improved energy efficiency. What to do? Well, Saddam's *weakness*, together with his belligerence and general unpopularity, offered an opportunity.

To understand just what this opportunity meant, we need to look at the importing of oil by the industrial countries (US and OECD Europe), together with the annual production of oil, as well as the remaining oil resources by region. The picture that emerges will provide clues to the administration's actions.

Denigrators of the 'oil motive' have often said that the US does not depend much on Middle Eastern oil. Table 1 represents the oil imports into OECD countries by region and country. The first row shows that the US has almost half of the world's total net imports of oil. OECD Europe appears next. The US imports 2.3 million barrels a day from the Middle East, Europe slightly more, approximately 2.56 million. In percentages, the US import share from the Middle East is lower, 20.2% as opposed to 35.9% for OECD Europe. As can be observed, for the US, the largest fraction of imports come from Saudi Arabia. This in fact holds for all the major OECD countries. For the US, however, a large share of imports comes also from Venezuela. It is noteworthy that, apart from Germany, the rest of the European OECD countries and, to an evern greater extent, Japan, are strongly dependent on Middle East oil.

[TABLE 1 AROUND HERE]

One should, however, look not only at imports and import shares from the Middle East, but the annual production, remaining reserves, and time to exhaustion.[1] This lets us see who has command over the most significant potential resources.

[TABLE 2 AROUND HERE]

If we consider the total oil reserves in the US, proved and unproved reserves, there are about 40 years of oil reserves left in the US. For the proved reserves it seems that roughly two thirds of the world's oil reserves are in the Middle East; a large fraction, and 25.7% of world reserves (and roughly 40% of Middle East reserves), are in Saudi Arabia. If those did fall into the wrong hands – it would be bad, but *they could be replaced*. Iraq, second in line (and, rumor has it, possessing even larger reserves than shown here), has about 11% of world oil reserves.[2] Compare Iraq to the combined reserves of the US, Canada (not counting tar sands), and Mexico, which amount only to 5.1% of the world supply. Now consider Iraq's neighbors: the United Arab Emirates have 6.7% and Kuwait 9.7% of world reserves. Together, Iraq, Kuwait, and the United Arab Emirates would account for almost 30% of known reserves. (Some estimates put the UAE higher than indicated here.)

What seemsmore important, however, is that Middle East oil resources – especially those in Iraq – are very much underexploited. The fourth column of Table 2 shows the ratio of annual oil production to oil reserves in the respective countries. For the Middle East this ratio is on average around 0.01 – meaning that means the time to exhaustion of the oil reserves is roughly 100 years. For Iraq, however, it would be roughly 130 to 140 years. In the US, Mexico, and Russia, only about 20 years are left until exhaustion (for the proven reserves). This table underlines a major geopolitical problem: on the one hand, the reserves of the advanced economies are rapidly shrinking and thus *overexploited*; on the other hand, those of the Middle East are both much larger and significantly *underexploited.*

Of course, as mentioned, the exploration and production technology for oil is continuously changing, now more rapidly than ever. This is the result of the so-called 'DOFF,' digital oil field of the future. The DOFF is based on information, exploration, and control technologies which now make exploration and production far more precise. Recently, estimates of recoverable reserves in Alberta, Canada, were greatly increased because of advances in the technology of recovering usable petroleum from oil sands. Such oil will be expensive and it will be some time before any comes on line. Yet the possibility of rapid advances would hold for all oil-rich regions, in particular for the underexploited Middle East. In addition, adding to its attractiveness, Middle Eastern oil is still much cheaper to produce.

In sum, in the US, oil, natural gas and coal together provide about 82% of all energy, and oil and gas roughly two-thirds. Two-thirds of proven oil reserves are in the Middle East. The supplies in the US, Mexico, and Venezuela, and less so Canda are expected to last only one-fifth as long as those in Middle East. If China and India, let alone the rest of the Third World, are to be brought up to a decent standard of living, consumption of fossil fuels will more than double. US and world oil production peaked in the year 2000 at around 25 billion barrels and will decline to less than 5 billion before 2050. Texas oil production has fallen by roughly half since 1980, but the Middle East reserves will last much longer.[3] The Middle East is and will increasingly be the world's premier source of energy.

Of course, modern economies are energy- as well as knowledge-based. But as the Iraq invasion has shown, modern war requires not only information technology of the highest standards, but also a huge amount of energy. Knowledge can be produced, but energy has to be secured. There could also be a shift to renewable sources, but this shift will require energy. Indeed, the oil reserves of the Middle East will be needed to provide the energy for the transition – which can only be done once, since non-renewable resources will be used up. In other words, as we have argued above, if this war 'is not' about oil, the discussion *should* be about oil. Control of oil, not weapons of mass destruction, is the real long-run issue, not only for the West, but for the rest of the world as well. Basically, the world has *one chance* to make the transition from an industrial civilization fuelled by fossils to one based on renewable energy. It will need all its present reserves to make this transition. The Middle East has two-thirds of the world's reserves, and it is not only unstable, but increasingly anti-Western.

Sir Arthur Balfour, the British Foreign Secretary, put it well in 1918, speaking of what was then known as Mesopotamia: "I do not care under what system we keep the oil. But I am quite clear that it is all-important for us that this oil should be available."

Costs and Benefits of Securing Iraq

Possible Gains

The main benefit from this invasion will be gaining control not only over Iraqi oil, but over the whole area, allowing the consolidation of Iraqi production with that of Kuwait and the other Gulf states. The long-term presence of a large body of US troops in Iraq, with new ports for the US fleet in the Gulf, could encourage the integration of oil production, refining, and shipping throughout the Gulf region. This will bring the small, westernized Gulf states together, along with Kuwait and southern Iraq, into a regional union, protected by the US. (The Kurdish regions of northern Iraq might break free and develop separately, but would also be protected by American and British bases.) The new confederation of Gulf oil producers would be solidly allied with the US and the West, and would provide an important buffer should the Saudi regime be deposed and its oil fall under the control of anti-Western activists. To put it in perspective, if the Saudi regime maintains its control, a successful takeover of Iraq will ensure that the US and the West have 50% of the world's oil reserves well protected by newly established US air, land, and naval bases. And in the event of a Saudi collapse, the West would still have 30% of the world's oil, and would not have to turn to Russia for energy. In other words, the administration is not interested simply in gaining control of Iraqi oil; the point is to redesign the political geography of the entire Middle East, securing control of the whole region.

Potential Costs

The invasion has already created new tensions and has intensified existing antagonisms throughout the Arab and Islamic world – indeed, in many other areas as well. President Mubarak of Egypt warned that it many create "100 Osama bin Ladens." The attack has been seen – reasonably enough, we suggest – as an oil grab, somewhat akin to old-fashioned imperialism. Not just for Iraqi oil, however; rather it is designed to reconstruct the military and political map of the Middle East in order to provide secure Western control over the whole region's potential petroleum resources. Yet the military actions taken to ensure this appear to be deeply resented all over the world, and are considered by many to undermine the international institutions developed in the post-World War II period, especially the principles of consultation and joint action through the United Nations. In the absence of any real evidence that Saddam posed a serious danger, the doctrine of preemptive strikes appears to be a cover for seizing resources. In the long run, the resentments so engendered could seriously destabilize pro-Western states, including those in the Gulf.

Another possible long-term result could be that popular anger in oil-producing nations might lead to efforts to cut off oil supplies, especially to the US and the UK. An outbreak of anti-American and anti-Western sentiment, including terrorist actions, could be expected. The Saudis, of course, would be key. If they continue to pump, no embargo could succeed. Further, if the embargo is not general, the nations that refuse to pump just deliver the market to others and end up hurting themselves. But what if the Saudi government were itself threatened? And what if other pro-Western governments were also shaken?

Of course, the US would use its influence and diplomacy to try to prevent an embargo, and could sell from its strategic oil reserves, which have been built up in the last couple of years, to keep prices from rising too fast. However, diplomacy may not get very far in the face of the intense passions, and the strategic and non-Middle East oil reserves are limited – too small to counteract a determined embargo. It would not be at all easy to keep prices down in the face of a major cutback.

Economic Effects – World Recession, Cost of War…

In 2001 and 2002 US and world economic growth declined. Now the invasion of Iraq has added more uncertainty, which is likely to exacerbate the recessionary forces. Two scenarios are often considered. The first is pure contraction: it is assumed that oil and energy prices will not rise significantly, but the added uncertainty will reduce consumption and investment demand, weakening output and income and generating a second slump, causing a double-dip recession. Although in central banking circles this scenario has caused fears, such a purely deflationary case does not seem altogether plausible.

The more likely scenario is more complicated – and more dangerous. The basic expectation everywhere was and is that oil prices will rise, perhaps sharply, from today's already high level of about $30 per barrel. Oil is now near its historical peak of $36 per barrel, which occurred during the oil price shock of the 1970s. It also went up sharply during the first Gulf War. Recently, energy and gas prices rose from the middle of February to the middle of March by roughly 35 to 40% and have stayed high. Oil is a scarce resource and – even without the Iraq war – prices are likely to increase. High oil prices give a cost-push to prices throughout the economy, but they also lead to cutbacks in other spending, making the recession worse.[4]

The impact of higher oil prices could be exacerbated by a shift of some producers to denominating oil in Euros rather than dollars. This is already happening and could become more extensive. Payments for oil denominated in dollars do not put pressure on the dollar, even if those payments appear to cause to a balance of payments deficit. The dollars paid for oil stay in the dollar economy, even if they are no longer in the US economy. But if oil is denominated in Euros, dollars paid for oil leave the dollar economy, and the result could be downward pressure on the exchange rate. This would then make imports in general more expensive, creating inflationary pressure.

At present we are experiencing both deflation in prices and recession in activity; product prices, in fact, have been weak for some time. This is even more pronounced in Europe. An increase in oil prices will act like an external cost shock: import prices will increase costs at a time when product prices are weak. Increased costs will squeeze profits – as it did in the oil crises of the 1970s. And this will weaken investment, making the recession even worse.

Given the present state of the US economy a serious rise in energy prices is likely to erode consumer confidence, especially if other import prices also rise. Consumer confidence dropped sharply in the previous Gulf War and triggered a strong recession (which helped lose the election for Bush senior). Anticipating this, and worried by the general uncertainties created by geopolitical feedback from the invasion, short-term overseas capital will be tempted to pull out of Wall Street. (Defense stocks might be safer, but even there uncertainty may lead to caution.) Funds will begin to return to the Euro and the yen. Wall Street will start to fall, and the dollar will fall with it. The further loss of wealth will add to the pressures on consumers, and the fall of the dollar will add to the inflationary pressures generated by the rise of energy prices. Both will tend to deepen the recession, and as the recession deepens, the flight of short-term capital will gather speed. The downward spiral will become self-reinforcing.

Moreover, these recessionary pressures will feed a downswing already well under way. It seems likely that hopes for an early recovery were always overly optimistic. Had recovery come and stayed during the summer of 2002, the recession would have been the shortest on record. The hopes for recovery were based on continued heavy spending by consumers already burdened with unprecedented debt – and who, in the upper income brackets, had already suffered huge capital losses. A further collapse of asset prices, as the bubble economy continues to deflate, will trigger a further decline in consumer spending. Moreover, investment has been low for a year now and the US unemployment rate, at more than 5.7%, is still rising.

In the recession triggered and exacerbated by the previous Gulf War, the Federal

Reserve was still able to come to the rescue by drastically cutting interest rate from 7-8 to 3.5%. Today, however, with a current interest rate in the US of 1.25% and in the Euro area of 2.5% – and almost deflationary conditions – the central banks do not have much space to stimulate the economy. Nominal interest rates can go only to zero and then a liquidity trap is reached – with dangerous consequences, as the Japanese economy has shown in the last ten years.

Another important factor is that the airlines, together with the world tourist industry, are likely to collapse due to fears of terrorism and other uncertainties. Spending on housing has not yet turned down, but it is no longer reliably growing. Experts have suggested that a bursting of the housing and real estate bubble might be more dangerous than the collapse of the stock market. It has not happened yet, but there are storm clouds on the horizon.

In sum, the overall impact of the invasion may have been to exacerbate the recession, while at the same time giving rise to cost-push pressures. What happens next will depend on the invasion's aftermath. In the happy event that peace and good government are quickly established with little or no Iraqi resistance and minimal resentment elsewhere in the Middle East, short-term capital might begin to flow back to the dollar and Wall Street – especially if reconstruction seemed to promise a new and more stable Western-allied oil patch in the Gulf. But this is very optimistic. Far more likely, the damaged oil infrastructure and facilities will be difficult to restore, resentment will rise all over the Arab world, and pressure for an embargo will be at least partly effective. So oil prices will go up and stay up. Terrorism is likely to stage a few more spectacular shows, driving the tourist and travel industry into the depths worldwide. The US recession will deepen, while inflationary pressures accelerate – 'stagflation.'

Finally, we want to note that the impact of higher oil prices will be greatest on Third World countries, where economies are generally already weak. A rise in oil costs will increase import bills, forcing countries to cut back on development plans and damaging their balance of payments. Their currencies will be endangered. The rise in oil and fall in domestic currency will generate cost inflation just as they are forced to cut back development. So they will suffer from stagflation. This, in turn, will reduce world trade, contributing to recession in the advanced countries

This scenario may then lead to what we would consider a disastrous move by the Fed – disastrous but not at all unlikely: to curb inflation and strengthen the dollar, the Fed may feel compelled to raise interest rates. Such action would be unlikely to achieve either objective, but it would further damage the real estate and housing markets. As mentioned earlier, prices in these markets are already widely thought to be excessive. Once they begin to come down, the correction is likely to accelerate and could easily overshoot. In other words, real estate and housing could crash. If they did, the effect on consumer spending would probably be dramatic – made all the worse by the recent, ill-advised toughening of the laws on bankruptcy, which will slow down recovery.

In the longer term, however, there will be an off-setting factor, which is, paradoxically, the reconstruction effort in Iraq itself. If it turns out to be prolonged, calling for large increases in military and related spending, corporate America – the military-industrial complex – will benefit substantially. This will increase both employment and profits in manufacturing and high-tech. However, it seems unlikely that this will be enough by itself either to restore consumer confidence or to bring about a favorable investment climate. (Consumer confidence and spending fell during the Gulf War; investment did not pick up at all until the middle of the 1990s.) Nor will increased military spending do anything to curb inflation – quite the opposite is more likely. With expected growth in the US running below 1%, and in the Euro area below

0.5%, the advanced economies are too fragile at this time to withstand intensive shocks. Yet that is what the aftermath of the invasion almost certainly will bring – not to mention a growing awareness that the central banks may be helpless in the face of such shocks. The economies of today are quite different than at the time of the Gulf war in 1990-91.

If monetary policy is not likely to be effective in a rescue operation, can fiscal policy do the job? Traditionally one would think that the current large deficits – probably $300 billion in 2003, and about the same in succeeding years – would increase spending, output, and employment. Yet this is not so sure.

First, the massive Bush tax cut was not designed as a stimulus package. Such a package would have been quite different. The tax-cut strategy may be basically designed to force reductions in the public sector, making citizens responsible for their own welfare, health, education, and social security spending – an old trick from the Reagan years. Since there would be strong resistance to a direct attack on public spending, the tactic is first to cut taxes; then, when deficits loom, it will be easier to argue the need to reduce spending on public goods, social services, health care and education, etc.

Second, taxes are being cut for rich and will be slashed on dividends. This means that taxes are reduced on income that is normally *saved*, so the effect of lower taxes will be greater saving, not increased spending. In other words, the tax cut will not provide much stimulus. (It is sometimes argued that the increased savings would tend to lower interest rates. This might have been true in earlier times, but today – and in fact since World War II – interest rates have been set by central banks. Market pressures may affect spreads, but this is usually minor.)

Third, there will be a huge amount of additional spending, but most of it will be abroad. Experts estimate the reconstruction of Iraq to cost at least $100 billion and perhaps as much as

$600 billion over the next decade. These funds, which will mostly have to come from the US, supplemented by Iraqi oil revenues, will have almost no expansionary effects on the US labor market, since they will be spent mostly in Iraq.

Fourth, the increase in public sector borrowing implies large borrowing from abroad. But the US current account has been negative every year since the middle of the 1980s and may begin to have difficulty attracting the necessary capital inflows – particularly if the Euro begins to be an attractive alternative reserve currency. This could lead to a rise in long-term interest rates, which would have a negative effect on the purchase of durable consumption goods and investment. Finally, even granted that large budget deficits generally stimulate the economy, there are so many factors leading to increased uncertainty that this deficit spending may not be effective.

One should add a word about the cost of war not only in terms of the loss of human of civilian lives, but also in terms of other damage to the civilian population. The population of Iraq is very young, and children and young people have not finished growing. They are vulnerable to physical damage and injury in ways that adults are not. The war and its aftermath are bound to generate long-term health defects – hearing loss, impaired eyesight, psychological trauma and shock, as well as loss of personal possessions and insults to national or regional honor. Besides this there will be cultural damage – to antiquities, art and archaeology, to ancient buildings and historical sites.

The Bottom Line

There are reconstruction plans for Iraq. Prominent figures have been picked to take over the ministries, and run the country after the war. Yet few of the people appointed appear to have much expertise about Iraq; most do not even speak the language, nor have they ever spent much time in the country. An American executive from Shell has been selected to be the oil czar. Ahmad Chalabi, whom the Pentagon civilians back as a potential leader, seems to have no following in Iraq, and has a very mixed reputation in the exile community. None of this improves the confidence of skeptics, nor does it play well in the rest of the Middle East.

In the end the invasion proved surprisingly quick and easy, after a rocky start. Saddam was toppled and the oil fields taken largely intact; but the immediate and short-run effects so far have remained neutral or negative. Neither the stock market nor business spending has received a boost. Consumer confidence remains weak. Oil prices are still high, and short-term capital flight is still a possibility, which could lead to a plunge on Wall Street and a falling dollar. In addition, fears of terrorism and now of SARS has brought a collapse of tourism and travel. Monetary policy has done about all it can and seems to be running into a liquidity trap.

Given the rising uncertainty in the US, fiscal policy and deficits are unlikely to give much of a boost to output. Also, given the constraints on government spending in the Euro area, fiscal policy cannot come to the rescue. All this will contribute to worsening the recession. But if the peace shows promise of success, short-term capital might be induced to return, the fall in the dollar could moderate, and the rise in oil prices could be kept down as the US consolidates its new Gulf position. Nevertheless, it is likely that the recession will get worse, and inflation, if it is set in motion by high oil prices and a falling dollar, may prove hard to control.

But suppose the peace does not go smoothly; that governing Baghdad and other the cities proves difficult and contentious; suppose anti-American Shi'ite fundamentalists become a powerful force, and that stubborn and intractable guerilla resistance emerges. Suppose that casualties begin to be suffered by our troops and our allies, and not least, by Iraqi civilians.

Suppose anger over the invasion rages through the whole Middle East, and that pro-Western governments are shaken or even fall, while Iraq breaks apart amid factionalism and fighting. Suppose the oil facilities are sabotaged, and the fields set ablaze, and that terrorists assail Americans and Westerners all across the globe, while an oil embargo eats into our standard of living…

Maybe it would have been wiser to give conservation and renewable sources of energy a hearing after all.

Table 1: Oil Imports[*]

	Oil Imports (Mill.Barrels/day)	**Oil Imports from 2002 (Mill. Barrels per day)**				
Total Net Imports	23,74					
US	11,12					
OECD Europe	7,12					
France	1,68					
Germany	2,55					
Japan	5,58					
		US [% of imports from]	OECD Europe [% of imports from]	France [% of imports from]	Germany [% of imports from]	Japan [% of imports from]
Persian Gulf/ Middle East		2,25 [20.20]	2,56 [35.96]	0,46 [27.38]	0,084 [3.29]	4,14 [74.19]
Iran		0 [0]	0,74 [10.39]	0,09 [5.36]	0 [0]	0,63 [11.29]
Iraq		0,32 [2.88]	0,58 [8.15]	0,13 [7.74]	0,002 [0.08]	0 [0]
Kuwait		0,22 [1.98]	0,09 [1.26]	0 [0]	0,02 [0.78]	0,55 [9.86]
Saudi Arabia		1,68 [15.11]	1,13 [15.87]	0,23 [13.69]	0,081 [3.18]	1,28 [22.94]

[*] The numbers are millions of barrel per day, averaged over the year 2002. The data is from the Department of Energy, Energy Information Administration, Washington, DC. The upper part of the table shows the total net oil imports for the US, OECD Europe, France, Germany, and Japan. The lower part of the table shows where those countries obtain their imports from. The absolute numbers are millions of barrels per day and the numbers in brackets represent the percent of imports from the different regions.

United Arab Emirates		0,012 [0.11]	0,04 [0.56]	0,02 [1.19]	0 [0]	1,18 [21.15]
Venezuela		1,32 [11.87]	0 [0]	0 [0]	0,011 [0.43]	0,018 [0.32]

Table 2: Oil Production and Oil Reserves*

	Production (2001) **(Thousand Barrels/day)**	**Reserves (2001)** **(Billion Barrels)** **[% of world total]**	**Ratio of Production to Reserves** **(2001)** **(annual production/reserves)**
World total	67,95	1.017,73	0.024
OPEC	28,3		
Persian Gulf/ Middle East		662,48 [65.09]	
Iran	3,38	99,08 [9.74]	0.0123
Iraq	2,32	115,00 [11.3]	0.00073
Kuwait	1,85	98,85 [9.71]	0.00067
Saudi Arabia	7,30	261,65 [25.71]	0.0104
United Arab Emirates	2,04	62,82 [6.17]	0.0117
Venezuela	2,63	50,22 [4.93]	0.0189
US	5,80	21,50 [2.11]	0.057
Canada	2,03	5,36 [0.53]	0.0136
Mexico	3,13	23,11 [2.27]	0.0487
Russia	7,05	53,86 [5.29]	0.047

* Figures from the *Energy Information Administration,* January 2003. The first column shows the oil producing countries, and the second column, world oil production in 2001, that is, daily production. The third column represents the proved oil reserves, which, of course, depends on detection and exploration technology and related matters. In the third column, in brackets, we can see the share of each country's or region's oil reserves as a percentage of total world oil reserves. The numbers in brackets denote the percentage of the world total. In the fourth column the ratio of annual production (obtained by multiplying the second column by the number of days per year) to reserves are shown.

NOTES

[1] For details of how to compute reserves and time to exhaustion see A. Scholl and W. Semmler, "Sustainable Economic Growth and Exhaustible Resources: A Model and Estimation for the US" *Discrete Dynamics in Nature and Society* 7, no. 2 (2002).

[2] For some time rumors from the intelligence community have put Iraq's oil reserves at the level of Saudi Arabia's or higher. The London-based Center for Global Energy Studies estimated Iraqi oil reserves at 300 billion barrels, well above Saudi Arabia (*New York Times*, 10 April 2003). But this estimate has been rejected by the US Geological Survey.

[3] Long Term World Oil Supply, EIA, 2003.

[4] Besides the tendency of oil prices to increase there is also the fact that they have shown striking instability in recent years. Even if they don't rise that much further, the evident tendency to fluctuate will add to uncertainty and to costs of planning and hedging, leading businesses to act with caution.