The Price of Oil – Recent Developments and Future Expectations

Paul Stevens and Peter Bild

Surrey Energy Economics Centre
Discussion Paper

Number 24

University of Surrey
June 1985

CONTENTS

These papers are revisions of presentations made originally at a Surrey Energy Economics Seminar on 11th October 1984.

FUTURE PRICE OF OIL

Paul Stevens

University of Surrey Energy Economics Centre

This section of the paper will concentrate on two areas; the economic influences on prices and the longer term prospects.

The 'purely' economic factors which underlie the current and future situation will be outlined using conventional supply and demand analysis. Two dangers with this approach need to be outlined. To omit political elements is to leave out a major source of shifts and changes in shape of the supply and demand curves. However, this is an area which is to be covered by Peter Bild. The second problem is more serious. There exists a severe limitation inherent in the use of a supply and demand approach to oil prices. This arises from the question which asks what the present price of oil has to do with supply and demand? The short answer is that there is very little relationship because the current price is based upon an administrative rather than a market decision. There exists a serious myth in connection with this idea which argues that while the government official sales prices are administered, the spot prices are in some sense 'real' market prices. The fallacy in this myth can be seen as follows. Let us begin with the final consumer driving into a garage to buy petrol. He pays some $1.84 per gallon. He pays this because he has to or do without petrol. He can of course shop around and maybe find some petrol a few pence cheaper but that is the going price. Where does this price come from? The retailer charges that price because he must cover the cost of buying the petrol at the refinery gate, pay the government's indirect tax and cover his own costs including some profit. He would of course like to charge more than $1.84 but if he does so he will lose customers to other garages. Let us assume he has bought the petrol on a spot contract, ex refinery, at $1.15 per gallon. Why has he had to pay this amount?

The refiner charges that sum because he must cover the costs of the input and try and make a profit. As with the retailer, the refiner would like to charge more than £1.15, but if he does, then the retailer will buy from other refiners who are willing to undercut him. Of the refiner's input costs, the largest single item is the crude input which he has bought say on spot contract at 27.50 dollars p/b. Why has he had to pay that amount for the crude oil? The spot price of 27.50 dollars p/b arises because the crude producer is willing to sell at that level; but why that particular level? He sells at or near that level because the administered price has been set at 29 dollars p/b and in order to sell more crude he is willing to shade prices to give him a competitive advantage. He too would like to charge more for the crude but if he does so, other producers will sell cheaper and he will lose volume.

Thus right up to the motorist buying petrol the price structure is based upon the administered price of crude. If OPEC suddenly met and decreed a price structure based upon 20 dollars per barrel, then the spot prices would simply reflect that level although it would be influenced in the market period by whether there was a shortage or surplus of buyers and sellers. Clearly within this process there are market forces at work. Competition restrains individuals from over-pricing at various stages. Thus the market puts a lid on the pricing structure. The market through surpluses and shortages also dictates whether or not the spot price moves up or down around the marker. However, the market has nothing to do with the overall level of crude spot prices. This is set as a reflection of the administered price which has been set according to the principle of "think of a number". To call the spot price a 'real market price' (as a number of journalists have recently done) which somehow reflects the 'true' value of crude is clearly a nonsense and a serious misuse of economic terminology.

The second area on which the paper will concentrate is to look at the longer term prospects of the oil market up to the mid 1990's. This leaves Peter Bild to cover the more immediate future.

Before examining the future, it is necessary to outline the current situation and the background to that situation. This will be done very briefly because much of the background has been outlined elsewhere (El Mokadem et al, 1984). The main reason for looking at the background is to pick out those elements of the story which will be important for the future. In particular, to anticipate my conclusions, I wish to emphasise the crucial role of leads and lags in the market. The neglect of leads and lags by many observers of the industry goes a long way to explain why their projections are consistently wrong.

The current situation can best be described as one of considerable uncertainty over prices. 1984 began with fears of a Third Oil Shock which arose following the escalation of the Gulf war. By summer, the market appeared to be on the brink of a price collapse. This occurred because of the increased supply by producers in anticipation of crude shortages followed by a grave weakening of discipline by some OPEC members on price. The danger was averted by Saudi Arabia reducing production and the British government pressuring the oil companies to accept BNOC's price levels via a ministerial letter with the Ninth Licensing Round as the potential stick to command obedience. By late summer, the market had appeared to stabilize with prospects of increased winter demand. More recently fears are growing again of price weakness following Saudi Arabia's change in the export blend and Abu Dhabi's threat to unilaterally change its oil prices to deal with the problem of differentials*. Thus the adjective 'uncertain' seems apt.

* This paper was given four days before the current crisis broke with Statoil's price reduction followed by BNOC and Nigeria.

What underlies this uncertainty? A convenient starting point is the Second Oil Shock of 1979-80. This was primarily a crisis generated by perceptions and actions directed by perceptions (El Mokadem et al, 1984). The result was a chaotic helter skelter increase in oil prices which culminated in October 1981 when OPEC was finally able to agree a price structure based around the 34 dollar marker. This price bore no relationship to reality. For the subsequent effects of this Second Oil Shock, we can use supply and demand analysis to provide a sense of analytical order.

On the supply side, non-OPEC supply expanded rapidly. This was in part because new fields, prompted by the First Oil Shock, began to come onstream following the inevitable lag to discover and produce the crude. The outbreak of the Gulf War for a short time alleviated the over supply situation. However, effectively Saudi Arabia lost its ability to act as the swing producer as a result of financial, technical and political constraints which placed a floor level on production. It was this role of swing producer which had kept control of the market between 1974-78 (Stevens, 1982 (A)).

On the demand side, consumption of oil fell. All are agreed that the fall was due to a combination of recession and conservation. The disagreement is over the relative magnitudes (Stevens, 1982 (B); Stauffer, 1984). Unfortunately, recent studies on the subject are unsatisfactory because of the lack of data. My own view is that 'conservation' is more important and will be more important in the future than is generally credited. I should add that I do not use the term, conservation correctly since included is fuel switching, hence the inverted commas. Two points are relevant for the future. Firstly, part of the 'conservation' which began to appear in 1979

was the result of the First Oil Shock. The reason for the delay was the time it takes to carry out the R & D for new energy using appliances, together with the re-equipping to produce the appliance and finally the time taken to inject the new appliances into the existing stock of appliances. This latter point of stock turnover is crucial and will be examined later. The second point relevant to the future concerns the response of the industrial consumer governments. Their response to the Second Oil Shock was quite different from their response to the First Shock. The essential difference was that in the Second Oil Shock the increased crude price was fully (and more) passed on to the consumer whereas after the First Oil Shock, the consumer was protected. This is clearly seen from Table 1 below.

TABLE 1

Energy Price Increases 1978-1982 in Selected OECD Countries

Price Increases 1970-1975 = 100

	Germany	Italy	Belgium	France
Crude - Frontier Value	59.3	62.3	63.6	65.2
Income per KWH by Public -HV	196.7	324.1	52	77.9
Supply Plus Taxes -LV	98.6	279.0	170.7	186.6
Four Star Petrol	153.8	115.4	152.9	139.4
Derv	94.4	317.3	203.0	196.7

Source: Derived from the Energy Statistics Yearbook - Eurostat, Various Issues

The figures in the table show that the increase in crude prices was much lower in percentage terms in the Second Oil Shock compared to the First Shock while for the most part, the increase in energy prices to

the final consumers was very much greater.

An explanation of this change in reaction is required. During the First Oil Shock, the macro economic policy of the industrialized countries was determined by what may loosely be described as Keynesian thinking . Thus increased energy prices to the consumer would fuel inflation or aggravate economic recession. Also if energy prices were allowed to rise by the countries individually then this would damage export competitiveness. Finally, increased energy prices would do nothing to solve the energy crisis because of the low own-price elasticity of demand. With such a view of the world, it is hardly surprising that the OECD governments tended to cushion the consumer against the rise in crude prices by reducing their own tax take on products or by subsidising public energy utilities.

During the Second Oil Shock however, there were signs that market forces disease was starting to spread. The symptoms of the disease are an unthinking belief in the idea that correct pricing will solve all problems. This carried a number of implications. First, higher energy prices would not aggravate inflation because inflation is caused by something else. Second, demand would respond to higher prices over time - a tenet of market forces disease which growing empirical evidence since 1973 supports. Finally, the OECD via a series of 'Group of Ten' summits, took a collective political decision to reduce dependence on imported OPEC oil in general and imported Middle East oil in particular. If everyone increases energy prices equally then export competitiveness (at least in theory) is not affected. In any case, even if import dependence was not reduced by these methods, at least higher energy prices via indirect taxation would help balance the budget - a target close to the monetarist's heart.

The result of the subsequent supply and demand balance together with the change in industry structure (Stevens, 1984) was a weakening of prices which culminated in the London Agreement of March 1983 (El Mokadem et al, 1984). Following the London Agreement, supply and demand continued to interact. On the supply side the degree of adherence to the quotas was rather mixed while on the demand side the expected upturn in demand which was to rescue OPEC from the rather poorly formulated London Agreement, failed to materialize. Whether this was because of a faltering in the economic recovery or continuing 'conservation' is an issue to be discussed later. As for prices, OPEC discipline was excellent until Spring of 1984 when discipline weakened.

The Gulf crisis effectively fizzled away for two reasons. First, the oil companies had done their homework and had learnt a great deal from the experience of the Second Oil Shock as had the consumer governments. Thus the companies concluded that with sensible use of strategic stocks by governments, the costs of a Third Oil crisis did not outweigh the costs involved in trying to avert the crisis. Second, contrary to the expectations of many observers (including this author), many tankers' owners, far from withdrawing their tankers from the danger zone, actually withdrew tankers from lay up to send in. If the tanker delivered the load, money was made because of the higher freight rates, if the tanker was lost even more money was made as a low value investment was replaced by a large insurance claim.

It is now possible to turn to the future. Over the last year or so there has developed a strong conventional wisdom. This is being peddled both by the oil companies (Reid, 1984) and by many respected observers of the industry (Mabro, 1984). The conventional wisdom

runs as follows. On the supply side, by the mid 1990's, the export availability of crude from many current exporters will be severely curtailed. This will be due to a combination of natural reserve depletion coupled with a growing domestic consumption of oil. The result is that by the mid 1990's, the world will be dependent for its traded crude on the big five gulf producers (Saudi Arabia, Kuwait, Iraq, Iran and the UAE) and Mexico. On the demand side, OECD demand will start to pick up as the economic recovery strengthens and in the meantime, oil demand from the 'newly industrialized countries' will be growing rapidly. Taking both supply and demand together, the market will be tight, the big six will be in control of the market and prices will begin to rise.

The remainder of the paper will suggest some reasons why this view of the future may be false. In particular, my argument is based upon the fact that the conventional wisdom is not giving enough emphasis to the role of technical change both on the supply and demand side and is also ignoring the influence of leads and lags.

On the demand side, the first question is how much conservation is still to come. The history of 'conservation' is presented in Figure 1 although the use of the term, conservation here is quite misleading since it also includes fuel switching. More recent data is difficult to come by. I have taken recent data from the USA because it represents the worst example possible for my argument. This is for three reasons. First, as can be seen from Figure 2, real end use energy prices have shown minimal change since 1973. Second, since the end of 1982, the economy has been growing in spectacular fashion. From the start of 1983 to the end of the second quarter 1984, GNP has increased by some 10 per cent while manufacturing output

FIGURE 1

OIL/GDP RATIOS 1973 = 100

Source: IEA Annual Review of Policy

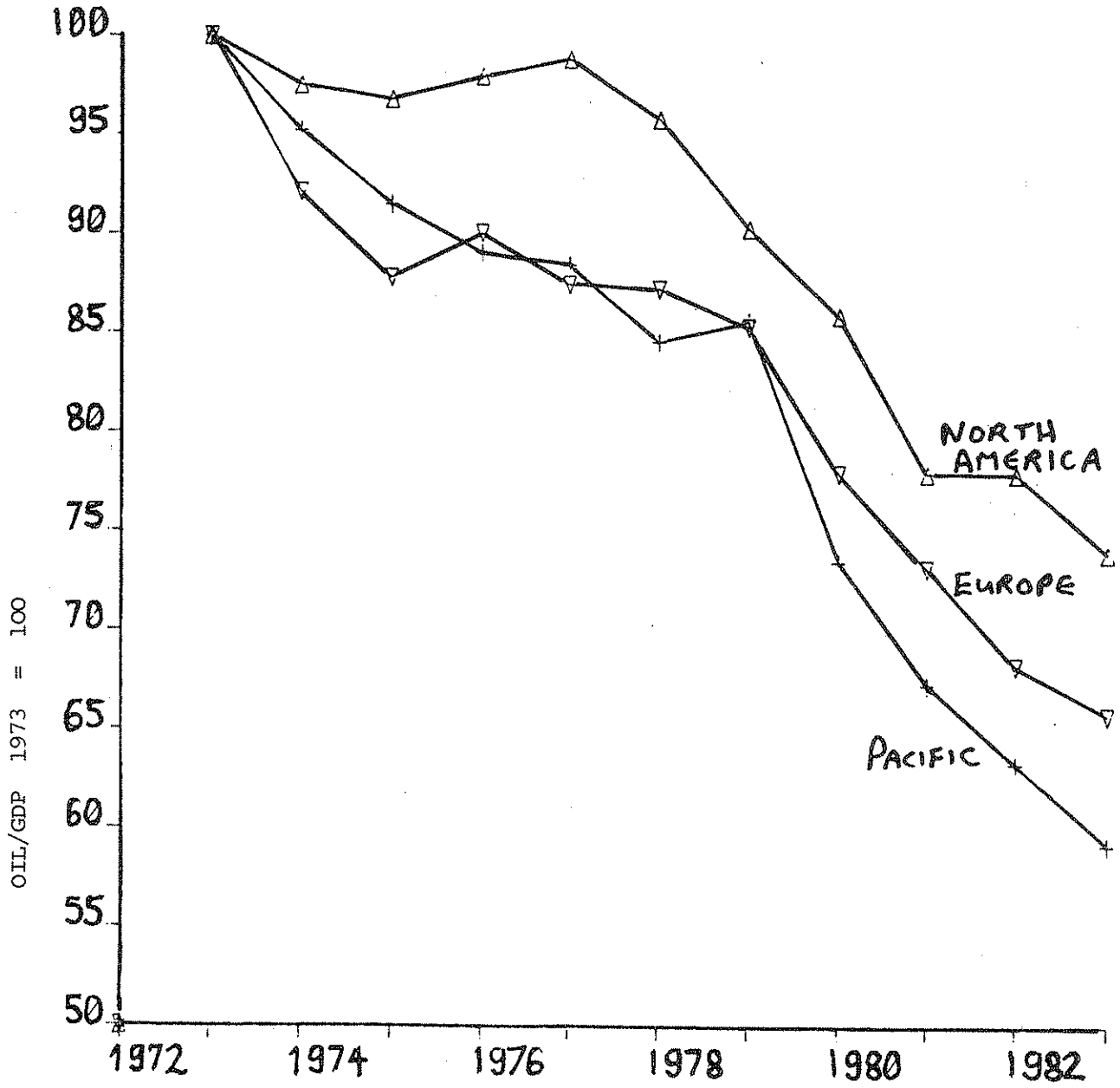
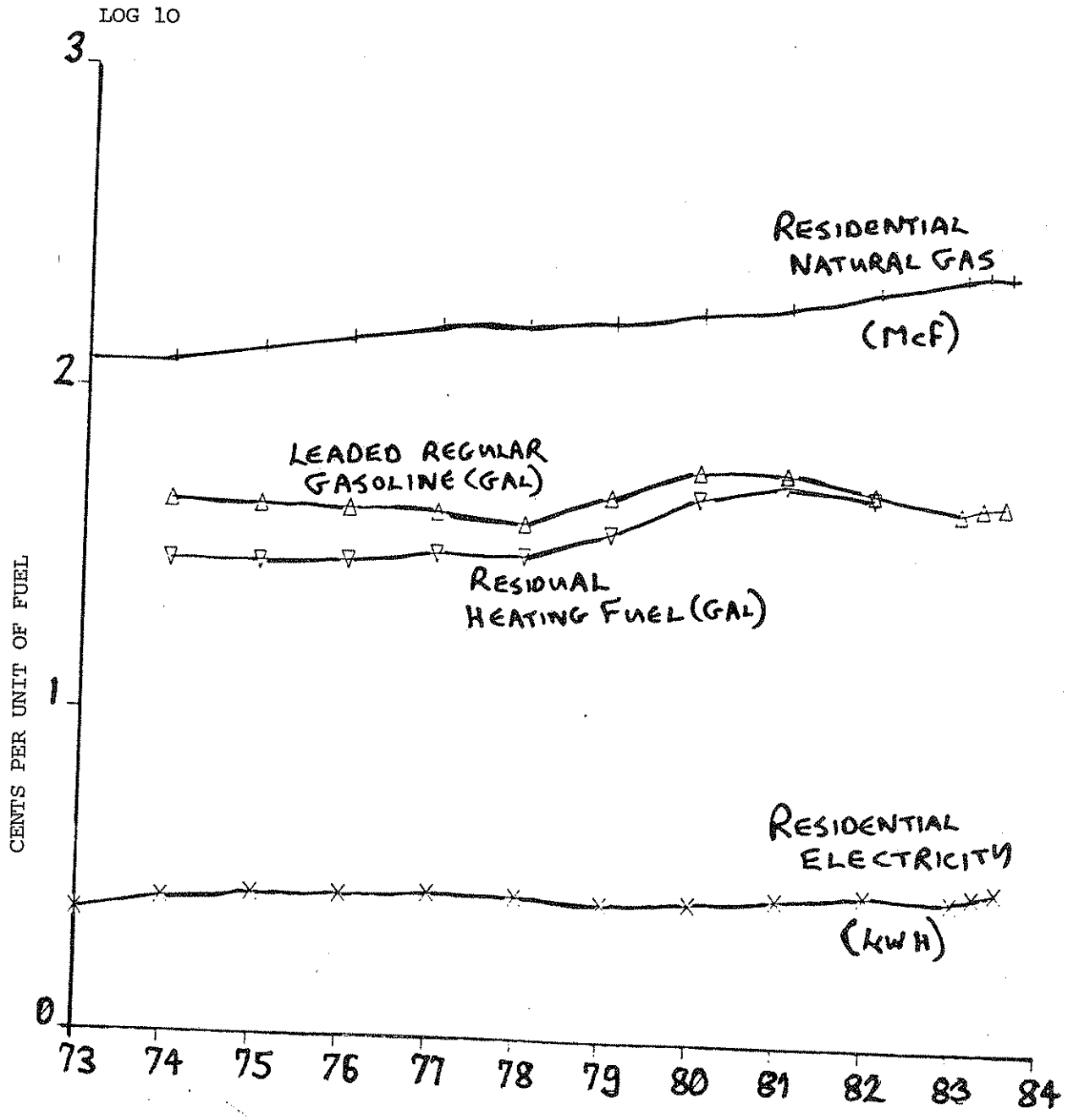


FIGURE 2

PRICE TO END USE CONSUMERS BY FUEL
CONSTANT 1972 DOLLARS

Source: USA Dept. of Energy Monthly Energy Review. February 1984.



has grown by more than 13 per cent. Finally, despite the rhetoric from successive administrations, energy self sufficiency is much less of an issue than is the case in Europe or Japan simply because dependence on allegedly insecure oil supplies is significantly less. The picture presented in Figure 3 shows little change.

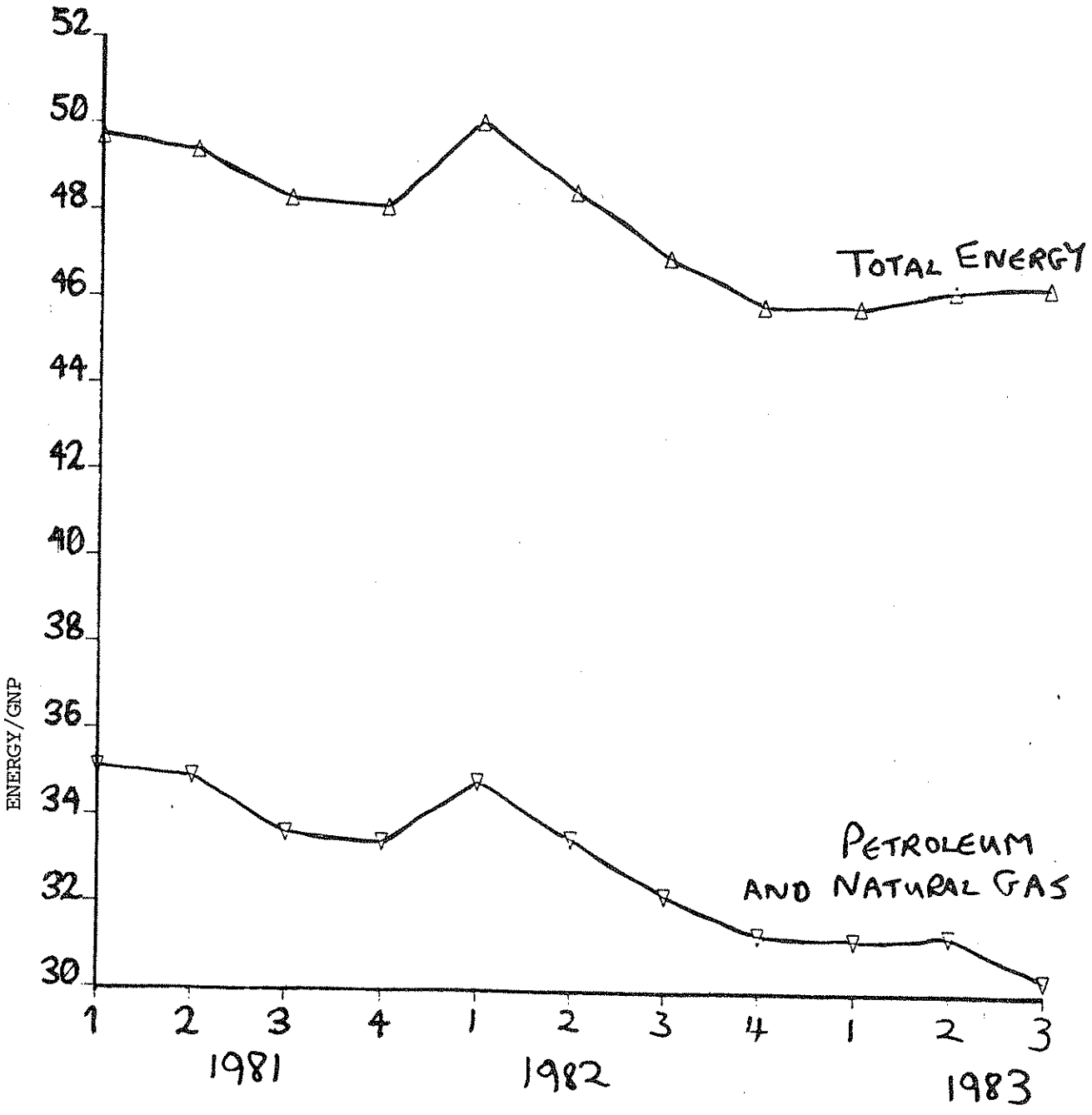
On a priori grounds, there are good reasons to expect the conservation trend to continue, It has already been pointed out that there is a significant time lag between the increase in energy price and the introduction of energy saving appliances. The time lag is made up of the time for R & D, the time to re-equip to produce the new appliances and finally the time to turn-over the existing stock of energy using appliances. It is this last element of the time lag which I wish to emphasise. The best example was a press statement in 1983 to the effect that 'cars in Britain are now 20 per cent more efficient than was the case in 1979'. This of course is a completely misleading statement. What should have been said is that 'new' cars are more efficient than 'new' cars in 1979. Thus the majority of the car stock is much less fuel efficient and will take the lifetime of a car to become more fuel efficient.

The next question concerns what causes the stock of energy using equipment to be turned over? It is necessary to distinguish between capital goods and consumer durables. Capital goods in a recession are scrapped as firms go bankrupt. In recovery, there is new investment in more efficient equipment. There is however, a common counter argument to this which must be overcome. The argument concerns the way in which firms take investment decisions. In recession, firms become obsessed with minimizing costs and are therefore willing to invest in energy saving investments. However, in recovery and boom,

FIGURE 3

ENERGY CONSUMPTION PER $ OF GNP
THOUSAND BTU PER 1972 DOLLAR

Source: USA Dept. of Energy Monthly Energy Review. February 1984.



firms are much more interested in maximizing sales and turnover and therefore are unlikely to invest in energy saving equipment per se. While I accept this as an accurate description of firms' behaviour, there is a further element. For the last fifteen years, designers and engineers have been subjected to a massive brainwashing campaign to the effect that energy is scarce and will, in the future, become scarcer. This campaign has been courtesy of the oil companies and the environmentalist lobby although for rather different motives. The result is that energy conservation is now willy-nilly embodied in the equipment whether the buyer wants it or not. Thus even if the investor says 'to hell with energy saving give me increased output', he will get energy efficiency irrespective.

Consumer durables are different. In a recession, their life is unnaturally prolonged. The new car or fridge is postponed as the consumer struggles with higher mortgages or declining income. Thus in recovery, the stock of consumer durables is unnaturally old and therefore will be turned over at a much more rapid pace. Once again, whether or not the consumer wants it, he too will be forced into buying more energy efficient equipment because this is what the designers have decreed is required. Of course it is still unknown if he will make more use of the equipment because it is cheaper to run.

Thus for the OECD, economic recovery may cause an initial increase in energy demand, but as the equipment stock is turned over, demand will flatten and conceivable fall further. It is worth pointing out that given the lags involved we have still to see the genuine conservation impact of the Second Oil Shock.

The second demand issue is related to the first and concerns the role of the OECD governments. The political will to reduce dependence on imported oil remains. In fact, since the Gulf war scare of early 1984, the will must be reinforced. Moreover, the outbreak of market forces disease has now reached epidemic proportions. Thus, irrespective of what happens to crude prices, prices to the end users will not fall and it is the end user's price which matters for conservation. This will be reinforced by the new structure of the international oil companies which has forced them to seek increased refinery margins. The recent OPEC study on where the 1983 $5 price cut went (PIW, 1984) suggested that in nominal terms in the USA and Japan it was passed on to the consumer, in Germany between 0 and 26 per cent was passed on but in the UK. France, Italy, Denmark, Belgium and Holland not 1 cent went to the consumer.

The final issue on the demand side concerns LDC demand. The current situation is shown in Figure 4 and there does appear to signs of a slow-down in demand. While the issue of LDC energy demand is extremely complex (Pearson and Stevens, 1984), let me suggest several reasons why LDC oil demand may be less than expected. There is massive interest developing in the LDC's in promoting domestic energy sources in order to save foreign exchange. To cite one recent example: in a forecast of Phillipino energy demand 1982-87 (Sycip, Gorres, Velayo and Co, 1983), while aggregate energy consumption is set to rise by 34.6 per cent, oil demand is set to fall by 14.8 per cent with traditional fuels increasing by 15.1 per cent. Many other examples could be cited to suggest that alternatives may supersede oil.

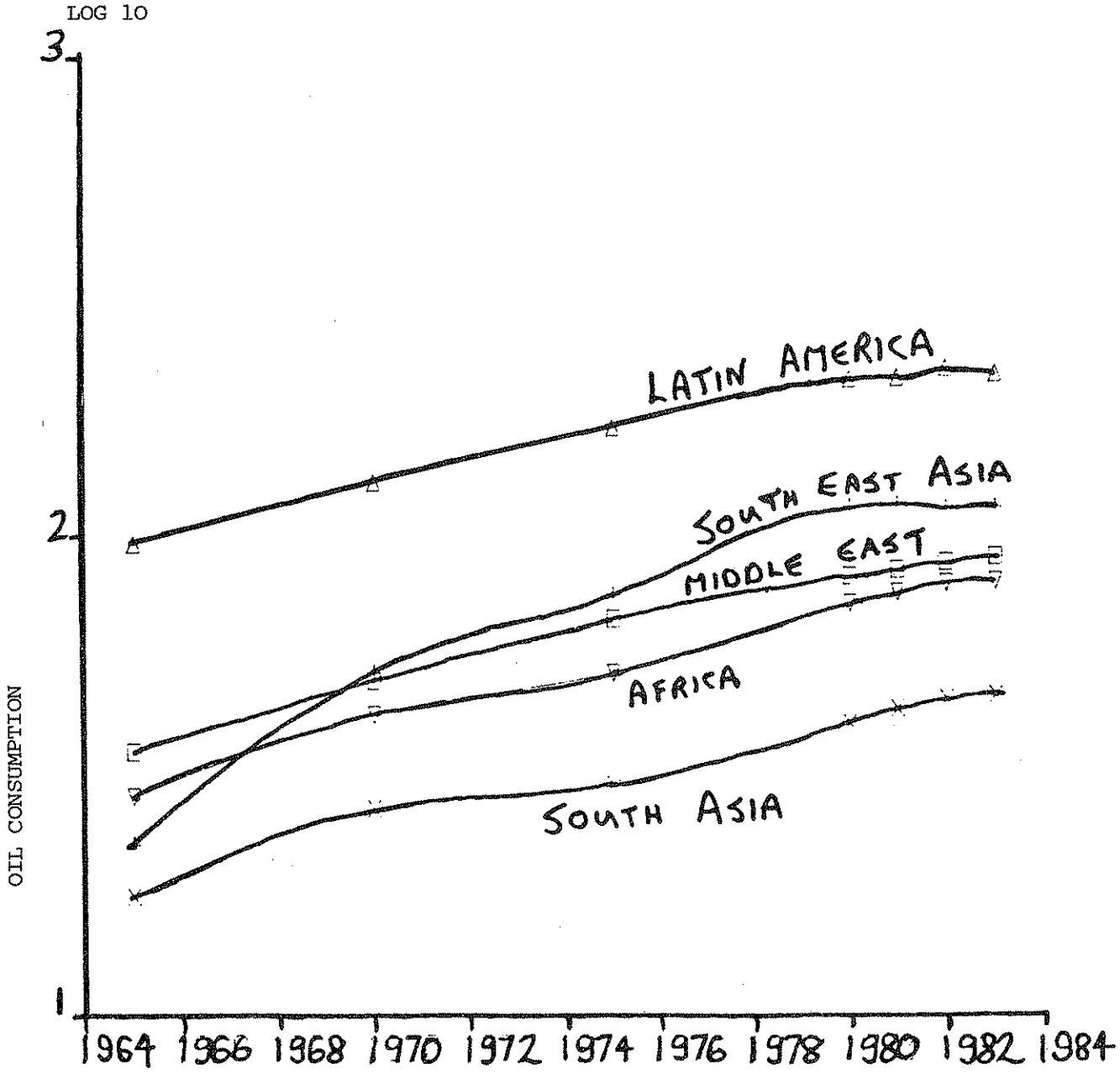
Also, given the LDC's dependence on imported technology, then the LDC's will get more energy efficient equipment in the same way as their

FIGURE 4

LDC OIL CONSUMPTION 1965-1983
MILLION TONNES

Source: BP Statistical Review of World Energy 1984.

Before 1979 No Area had an Annual Decline



industrial country counterparts although the extent of the increased energy efficiency is always questionable given the tendency to poor maintenance. Finally, it is worth asking how on earth these countries will be able to pay for higher oil imports? A recent balance of payment forecast is presented in Table 2. Clearly, such a forecast implies that foreign exchange for oil imports is going to be a very scarce commodity.

Taken on balance, the overall picture for demand increases may be much flatter than is suggested by the conventional wisdom.

In addition to queries with respect to the demand aspects of the conventional wisdom, there are also doubts on the supply side. I will mention only two, the issue of export surplus and the question of the recovery factor.

An important cause of the decline in export availability between now and the mid 1990's is the assumption that rising domestic demand in the oil producers will reduce export availability. There are two factors which work on domestic demand, price and income. Most of the oil producers are currently increasing their domestic energy prices from very low levels largely as a result of growing pressure from the World Bank. This might be expected to reduce the growth in domestic consumption. However, what tends to be overlooked is the question of who is consuming the oil. In many of the oil producers the main energy consumer is either the oil sector itself or public utilities. For example, in Kuwait in 1980, about 81 per cent of domestic consumption was in these sectors (Gummar, 1984). Thus, unless the higher domestic energy prices coincide with the introduction of stringent public sector financial targets, the higher prices will have a limited

TABLE 2

Forecast of 21 Major LDC Borrowers
Current Account & External Debt

Billion $

	1982	1983	1985	1990
Current Account	-61	-41	-28	-34
External Debt	514	557	619	822

OECD Growth	3% P.A.
Oil Price	0% ($32)
Non Oil Commodity Price	1.4%

Source: World Financial Markets. June 1983
Morgan Guaranty

impact on consumption. This of course adds weight to the reducing export surplus argument.

The other determinant of energy consumption growth is the income effect. The very high rates of domestic energy consumption experienced in the OPEC countries have in the main been caused by the revenue spending spree which began in the early 1970's. These days are now over and it is likely that domestic energy consumption will reflect this. Thus the export surplus may well be larger than envisaged by the conventional wisdom.

The second supply factor which I wish to raise is the recovery factor. Most oil is now recovered using only primary and secondary recovery techniques. In general (and this is a dangerous area about which to generalize) use of these methods means only 30-35 per cent of the crude is recovered. This leaves the remainder, or at least part of it, to be recovered by tertiary recovery/enhanced oil recovery (EOR). EOR technology is still in its infancy since before 1973 it was generally regarded as unnecessary. However, the potential is enormous. A 1 per cent increase in the recovery rate would increase reserves by an amount equal to 1.5 years of world consumption (Takin, 1984). What are the prospects for EOR? Some figures for the USA are presented in Table 3. What emerges from this is that it is a luxury for the larger companies which reflects the fact that currently EOR is expensive. However, as the technology becomes more widespread, so it may be reasonably expected that the cost will fall. Also, there still remains a very large rent element in the price of oil, even in the so-called 'high cost' areas. Thus if governments want self sufficiency, then reduced tax rates on production would improve the economics of EOR. Clearly it is becoming more important. Of the 12 companies in the Hoare Govett Study (Toalster and Craven, 1984), in 1978, worldwide,

TABLE 3

Recovery Factors

Ultimate Recovery Factors for US Fields

1967	1972	1977	1981
30.3%	31%	32%	32.5%

Source: Dr. M. Takin, Recoverable Oil and Strategies for Production OPEC Bulletin September 1984

Change in US Reserves 1980-82 by Source

	Revisions	Improved Recovery	Discoveries Extensions
154 Independents[1]	0.9%	0.6%	98.5%
16 Majors[1]	22%	11%	67%
12 Majors[2]	25.3%	30.6%	44%

Source: 1 Arthur Anderson Study 1983 quoted in - Hoare Govett, Oil Discovery Costs, August 1984

2 Toalster and Craven 1984

only 7.3 per cent of the Gross reserve additions were due to improved recovery. By 1983, this figure had risen to 26 per cent. This suggests that the anticipated decline of some areas is greatly overstated even assuming no further reserve discoveries.

On balance, this attack on the conventional wisdom suggests that the current levels of excess producing capacity will be around for a long time to come. This in turn means that OPEC must keep the lid on the market for much longer than many imagine. My own view is that this will be an extremely difficult task and one which is unlikely to be achieved.

REFERENCES

1. J. Al-Gummer, 1984. Energy Demand Forecasts for Kuwait. Volume 4, Proceedings of the Second Arab Energy Conference. OAPEC.

2. A.M. El-Mokadem, D. Hawdon, C. Robinson and P. Stevens, 1984. OPEC and the World Oil Markets 1973-1983, Eastlords Publishing Ltd.

3. R. Mabro, 1984. The Gulf as an Oil Power. Paper presented to the Oxford Insitutue for Energy Studies Seminar. 'The Gulf: Economics Politics and Security.' April 1984.

4. P.J.G. Pearson and P.J. Stevens 1984. Integrated Policies for Traditional and Commercial Energy in Developing Countries. Development Policy Review, Volume 2 No.2.

5. Petroleum Intelligence Weekly 1984. August 27th.

6. R.G. Reid, 1984. An Oil Company View of Structural Change. In D. Hawdon (Editor), The Changing Structure of the World Oil Industry. Croom Helm.

7. T. R. Stauffer. Where Have all the Barrels Gone? Middle East Economic Survey, 2nd July 1984.

8. P.J. Stevens, 1982 (A). Saudi Arabia's Oil Policy in the 1970's - its Origins, Implementation and Implications. In T. Niblock (Editor) State, Society and Economy in Saudi Arabia. Croom Helm.

9. P.J. Stevens, 1982 (B). The Future of World Oil Prices: The End of an Era? ODI Review, No.2.

10. P.J. Stevens, 1984. A Survey of Structural Changes in the World Oil Market. In D. Hawdon (Editor), The Changing Structure of the World Oil Industry. Croom Helm.

11. Sycip, Gorres, Velayo and Co., 1983. Energy Balance Forecasts in Developing Countries: The Case of the Philippines. Institute of Developing Countries. Japan.

12. M. Takin, 1984. Recoverable Oil and Strategies for Production. OPEC Bulletin. September 1984.

13. J.R. Toalster and D. Craven, 1984. Oil Discovery Costs. Hoare Govett.

THE PRICE OF OIL

Peter Bild

Petroleum Intelligence Weekly

It is a few weeks now since I was asked to speak about oil prices. Quite frankly, the prospect was daunting. But, let's face it, opinions are plentiful, and looking at the record of forecasters over recent years, it is comforting to think that nothing I say, no forecasts I venture, and no prescriptions I offer could be any less accurate than those offered by oil companies and governments' in-house futurologists. I felt it might be indelicate in these surroundings to include academics in my list of those who have got it most wrong, and in their defence, it can usually be said of academics that when they have got it wrong, it has at least been for all the best reasons - as doubtless Prof. Adelman would claim.

In these circumstances, it is only natural to look at the background and qualifications of anybody foolhardy enough to do what I am doing today - and to judge opinions in the light of that person's experience. Having tried to look at myself from outside, or at least through the eyes of many of those likely to be listening today, I can't say I am greatly comforted. Have I spent most of my adult years writing about oil - NO. Do I have real hands-on experience of the oil business? NO. Have I bought or sold a barrel of oil - wet, dry or paper? NO. And certainly I have never run a refinery, installed a cracker or done the thousand-and-one things that real oilmen tell you makes them different from all other mortals. At this stage, I began to think hard - do I have any qualifications at all for being here on this

side of the table, rather than reporting the words of some omniscient politician or businessman - which is, after all, what Fleet Street hacks are supposed to do - at least those who know their station in life.

It was at about this point that I began to think back and try to recall whether there was ever a time when I felt confident in forecasting where oil prices might be a few months or years ahead. And I realized that there was indeed such a time. And basically it was the time when I was just starting to learn something about the oil business as an observer. And the strange thing is, looking back over the years, that the longer I have been involved in some way in thinking about oil, reporting it and writing about it, the less confident I have become. And stranger still, my lack of confidence in my own opinions today and my relative certainty a number of years ago, have both been justified. Rash predictions made many years ago over a pint of beer often proved correct. And careful, heavily qualified judgements that I have made in recent years have generally proved wrong.

So I offer first this empirically based proposition: the less one knows about the oil business, the more likely one is to say something wise. So on the basis that most of those present know more than I do, I justify my presence here today.

In fact, I offer those apparently frivolous thoughts not merely as

a way of getting started, but because I want to suggest that what might be called the anecdotal or journalistic element is all too often overlooked. Whether we are looking backwards to gain a broad perspective of developments or whether we try to sum up the fundamental forces that are likely to shape our immediate or distant future, - and I think this is particularly true of the oil business, we are apt to forget that the short term and the long term are not two different things. The long-term is made up of lots of short terms. Historic developments are not in a totally different class from individual decisions arrived at in smoke-filled rooms (you must excuse me for lapsing into journalistic cliché). They are in effect a depersonalised, conceptualised summation of such individual decisions. And if these individual decisions are influenced by the large-scale sweeping forces analysed by Paul Stevens - the fact is that oil prices today, $29 a barrel officially for Arab Light, $30 a barrel for North Sea Brent, are exactly those numbers, rather than say $25 and $26, for the simple reason that a group of people decided that that is what they should be.

What is equally clear is that these decisions, though they may ultimately be arbitrary, are not reached in a vacuum. When OPEC oil ministers got together in London a year and a half ago, it was no idle whim that booked them into that appalling hotel on Hyde Park Corner. I think it is worth running through the circumstances preceding that meeting if only to gain some sort of insight into the sort of pressures that those 13 ministers felt

they faced when they met. I want to emphasize again, the pressures they themselves BELIEVED they were up against and the solutions they BELIEVED were open to them.

A year earlier, these same men had met and decided to control OPEC production jointly to defend a $34 dollars a barrel marker price. They had met, as was their custom, for a couple of days following a lot of advance haggling and jockeying for position. And in those two days, they had virtually agreed to a set of production quotas effectively dictated by Saudi oil minister Sheikh Yamani. Three months later - in July of 1982 - the production accord broke down. Why? This is where it gets difficult to disentangle the fundamental reasons from the clash of personalities that I believe contributed to the breakdown. The Venezuelan delegation, led by Humberto Calderon Berti, insisted on its right to a higher quota, as did other delegations, most notably Iran. Now in one sense it is quite true to say the breakdown was caused by the unexpectedly steep fall in demand then taking place. But that doesn't, for me, explain why OPEC ministers - as they were to do nine months' later in London - failed to curtail production effectively or to adjust official selling prices. Now personally, I think the clash between Sheikh Yamani and Calderon Berti was an important factor. Calderon was, and doubtless still is, an overtly ambitious politician. He wants above all to be President. In Venezuela, as in most OPEC countries, oil policy is by a long way the most crucial element in economic survival and development. But there

is a major difference. Unlike most OPEC nations, Venezuela is a democracy where oil policy and pricing is the stuff of daily debate between and even within political parties. Party political and personal political points are scored and lost according to a minister's success or failure in defending Venezuelan oil interests. And the debate is conducted and the points are scored or lost through public perceptions formed through free, lively newspapers, radio and television.

What they meant in practise, especially given the gregarious and voluble nature of Mr Calderon, was that every negotiating session would be preceeded and followed by public statements, interviews, setting out negotiating positions and making minimum demands. While other ministers made their way tight-lipped into the conference room past a pressing, heaving throng of journalists - mostly representing the irreverent and hostile western media - there would be chubby, jovial Humberto apparently enjoying the cut and thrust of journalists' questions about closed-door negotiations, keeping his name on the agency wires to be picked up by the Venezuelan newspapers, and keeping his face on Venezuelan television screens. Not at all the sort of thing that most ministers would view as decent or proper.

Now I happen to think that all these circumstances played a role in settling the outcome of that failed meeting in the middle of 1982. It is perfectly reasonable to argue in retrospect that all OPEC countries, and Venezuela in particular, lost out financially

as a result of that failure in mid-1982. The deal over quotas cobbled together nine months later left official prices more than 15% lower; and the production quota accepted by Venezuela in March 1983 was actually substantially lower than the level Calderon had refused as unacceptably low nine months before. Why then did events pan out the way they did? And why did they pan out differently nine months later?

I do not have a single, ready answer. To say that Calderon Berti's political ambitions and political fortunes dictated the outcome would be absurd simplification. To put the result down solely to broader political disagreements between Iran and its Arab neighbours is also not a sufficient explanation. At the same time, I believe that a broad economic analysis which does not take account of the particular political and personal circumstances of the decision makers would be equally misleading. It would be self-indulgent to delve further into the pros and cons of comparing historical methods in analysing the forces that shape oil prices. But I think the illustration I have given is important. If these political and personal obstacles had not intervened in the middle of 1982, OPEC might have been able to share out a global ceiling of 17.5 million barrels a day at a price of $34 a barrel, rather than $29. And had OPEC done so, might that have not significantly altered economists' present perceptions about oil's price elasticity in respect of both supply and demand?

Having to some extent decried the value of fundamental analysis, let me now backtrack a little. I think it must be clear that I view the decisions of individuals, or small groups of individuals, as being the immediate determinant of oil prices. Economic historians, especially those with a strong ideological bent, will doubtless be able to tell us 50 years from now why oil prices in the 1980's moved the way they did. And no doubt, the exponential growth in the rate of technological change will play a role in their analysis; so too will complex theories relating to the economics of depletable resources. People like me who believe that the minutiae of history are actually important are sometimes accused of failing to see the wood for the trees. My reply to that is as follows: the wood is made up of trees whose individual composition determines the nature of the forest.

I would now like to give a view on the demand for OPEC oil. Why OPEC oil? Because in the foreseeable future, OPEC pronouncement's are still the single most important factor for all oil prices. This is not to say that OPEC prices are slavishly followed as will become obvious. In my view the recession/conservation argument is sterile. GNP/oil demand ratios are highly variable. I believe that improvements in oil efficiency may well increase with economic growth or slow down in recession. Either way, I see no reason for quick recovery in demand. This is reinforced by trends in individual behaviour. Material demands, the urge for mobility - both energy and oil intensive - are lower priorities now than some years ago. The younger generation are more interested in

doing for themselves than in owning or using up materials. Admittedly this trend cannot be quantified, but it is likely to prove negative for energy and oil demand.

On the supply side, the oil industry consistently under-estimates the size of oil resources. This is the natural, cautious engineer's approach to the individual reservoir. But it is very misleading unless allowance is made for the almost invariable phenomenon that oil reserves, even when discovered, are understated.

I am also assuming that OPEC is going to get very little help from non-OPEC members. A little encouragement on price maybe, a few friendly words, maybe a letter or two from HMG to a few refiners but nothing on volumes.

As I said before, my purpose is only to derive the bottom line for OPEC demand, not because I think one can derive any meaningful price forecast from it, but to guage the sorts of pressures that OPEC countries and their ministers will find themselves facing in the coming years.

Conventional wisdom says 17 million b/d or so is the trough in demand and that we can expect a gradual climb to 20 m.b/d or beyond by the 1990s. I am not saying that it is necessarily wrong, but what is the result if you are only slightly more bearish on demand or bullish on supply. As OPEC is a residual

number, it needs only a very small margin of error to put OPEC 3/4 million b/dlower instead of higher. In the case of a freely traded commodity, this would mean lower prices. But oil is not like that.

In taking the above scenario, the standard OPEC response is to cut quotas to defend price. It is impossible to recoup revenue through lower prices. Therefore it is always worthwhile to cut volume. There are 2 approaches to analysing this situation. Firstly, a theoretical approach which asks how low can OPEC go on production and survive financially and at what level does production become unshareable? We might answer that 21/22 m.b/d would be a comfortable rate but that the OPEC preferred rate would be 29 m.b/d etc. Some analysts have put forward the idea of an ultimate pain barrier. The OPEC cartel on this view would collapse at production rates of less than 17.5 or 16 m.b/d. The basis for this view lies usually in an analysis of per capita income and development programmes. My main criticism of this approach is that it is quite arbitrary, textbook consultancy, and that OPEC has a very great capacity to adjust although with pain.

The alternative, anecdotal approach suggests a curtain raiser for 1986. On this scenario there would be an extraordinary OPEC marathon meeting which while haggling over quotas and differentials, would end with an eleventh hour breakthrough. OPEC ministers would fix new quotas and a reference price for Arab Light, or maybe a cocktail of OPEC crudes, perhaps at $28 or $26 per barrel. There is a fresh start for OPEC, with goodwill to

consumers. Believable? Only just, since the scenario ignores the crucial element of ownership structure in the oil industry. The question remains as to what happens in 1988/9 when the pattern repeats itself.