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'Very well researched contributions with excellent details and analysis in retrospective. Even those who were closely involved in policy making and marketing, at the time, will enjoy reading it. They will be shocked and amazed by how much they missed in their mad rush to make ends meet.'

– Ramzi Salman, former OPEC Deputy Secretary General

'A comprehensive examination of the oil counter-shocks of the mid-1980s and their consequences for alternative energy regimes, this collection is a major contribution to the history of petroleum in the late twentieth century. It is a must read for anyone wishing to understand the changes in the political economy of oil at the turn of the century.'

– Myrna Santiago, Professor of History, St Mary's College of California, author of *The Ecology of Oil*

'The impact of the "oil counter-revolution" in the 1980s has been as consequential for the contemporary energy order as the far more studied oil crises of the 1970s. This excellent collection of papers by an international group of scholars will help remedy the imbalance. The chapters are focused on key issues and are consistently informative and provocative. ~~*Oil*~~ *Counter-Shock* is international and contemporary history at its best.'

– David Painter, Associate Professor of History and Foreign Service, Georgetown University, author of *Oil and the American Century*

OIL COUNTER-SHOCK

THE PRICE COLLAPSE OF THE 1980S

EDITED BY
Duccio Basosi, Giuliano Garavini
and Massimiliano Trentin

I.B. TAURIS
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Introduction: Counter-Shock and Counter-Revolution

Duccio Basosi, Giuliano Garavini and Massimiliano Trentin

In the mid-1980s the price of crude oil abruptly decreased by one-half. Whereas in 1985 the average spot price for most varieties of crude was around $27 per barrel, during the following year it fell to only $14 per barrel, beginning a long period when prices would rarely climb above $20 per barrel. In real terms, the price of oil had descended in a few months back to the level of 1973: higher than that prevailing in the decades after World War II, but only one-third of the value reached in 1980. Echoing the name that many observers in the oil consuming countries had applied to the price rises of 1973 and 1979–80, in 1986 the then director of Planning at ENI Franco Bernabè described these events as a 'countershock'.[1] More than 30 years later, the making, the significance and the consequences of the counter-shock are the subject of the chapters included in this volume.

Scholarship on the general history of the twentieth century has given the counter-shock only a fraction of the attention dedicated to its 1973 counterpart. In some works it seems that oil prices never descended from the heights of the late 1970s.[2] But even where the fall in oil prices is mentioned, it is usually presented only as the closing event of the previous phase of high prices.[3] While this might reflect some

unconscious notion of 'normalcy' as seen through the eyes of historians who happen to be based mostly in consumer countries, it is also paradoxical, given the importance attributed to the counter-shock in many more specialised studies, where instead the fall in oil prices appears crucial for the understanding of such important processes of the late 1980s and early 1990s as the collapse of the Soviet Union and the dismantling of the Warsaw Pact;[4] the worsening of the 'foreign debt crises' of many countries in the 'Third World';[5] the downsizing of the role played by the Organization of Oil Exporting Countries (OPEC) in world affairs;[6] and the relaunch of a world energy regime centred on the massive consumption of oil and other fossil fuels.[7] At the same time, in-depth studies of the dynamics that led to the counter-shock and framed its significance abounded in its immediate aftermath, but have not made much progress in more recent times.[8] The benefit of the time passed as well as the opening of relevant archives allow us today to take a fresh look at the events of 1985–6. This seems all the more important today, after another dramatic counter-shock in late 2014 put an end to the escalation of prices that characterised the beginning of the twenty-first century, effectively halving the price of crude in only six months and bringing it to about $50 per barrel, where it is at the time of this writing.[9]

The analysis of the 1985–6 counter-shock has usually been conducted along one major line, according to which it represented the defeat of OPEC's pretension, after a protracted struggle against the forces of 'the market', to set the rules of the trade of the world's most strategic commodity.[10] Some authors, in particular, have stressed that the 'counter-shock' marked the beginning of a phase, lasting up to the present, in which there is no single 'administrator' capable of establishing the price of internationally traded oil, as the 'seven sisters' had done in the decades after World War II, and OPEC after 1973.[11] In short, the counter-shock symbolically marked the start of a new regime in the 'oil market', one in which for the first time prices were the result of the daily interactions between supply and demand. To be sure, there is no question that OPEC's pretension to defend both the volume and the

price of its sales was defeated in 1985: in the face of quickly escalating prices, world oil demand had stabilised at the end of the 1970s and even decreased in the early 1980s, while supply from new oil fields from non-OPEC areas created a glut that was bound, at some point, to bring down the price, OPEC's share of the oil trade, or both.[12] After seeing its world 'market share' decline from 45 to 25 per cent between 1980 and 1985, and its official price sliding from $34 to $28 per barrel, in December 1985 OPEC adopted the decision to focus on recovering 'market share'. In reality the decision was made unilaterally by Saudi Arabia, which quit its role of 'swing producer' within an organisation that had become an unruly 'residual supplier'.[13] In turn, the Saudi decision did bring greater sales for itself and for some other members of the organisation, but it also brought large losses in revenues for OPEC as a whole, and the effective renunciation of the once solemnly proclaimed pledge to uphold the capacity to fix the price of oil as a symbol of true sovereignty.[14] The fact that this introduction opens with references to the spot prices, instead of OPEC's official one, is testimony to such defeat. In this basic sense, OPEC did succumb in a 'market' that, in the wake of the 'oil shocks' of the previous decade, had become deeper, broader and more diversified than it had ever been. In the following 30 years, the structural characteristics of the oil trade carried a deep imprint from these events.

From this standpoint, the chapters that follow integrate our knowledge by adding new national and thematic perspectives on the events, by using newly available archival sources, and by enlarging the scope of the research to cover the attitudes and the decisions of a wider set of actors than those usually taken into consideration – inside and outside OPEC. But in showing how the developments described above occurred, all in all the chapters of this book also help us providing the term 'market' with a more determinate meaning than that usually adopted. The counter-shock and its consequences were not a matter of abstract 'market forces' finally triumphing, as if there had always existed an eternal and impersonal 'oil market' that only waited for its moment to be freed from beneath the iron heel of some essentially adversarial

category, be it 'the state' or 'politics'. On the contrary, close analysis of the dynamics that led to and followed the counter-shock indicates that it cannot be understood outside the framework of the international political economy of the 1970s and 1980s, with power relations among states, ideas and ideologies, political movements and powerful private actors all playing definite and discernible roles. It would be impossible, for example, to explain the stabilisation of world energy demand in the late 1970s without referring to the policies aimed at energy conservation and diversification that consumer countries adopted in the wake of the 'oil shocks'; in turn, the oil glut on the supply side derived from decisions that were made either by governments and government-owned companies or, again, within the context of state-led energy policies which authorised and supported the activities of private actors both at home and abroad. The standards set for fuel consumption in the US and elsewhere, the huge Soviet investments in Western Siberian oil fields, the favourable taxation granted by the British government to the companies operating in the North Sea, the 'cheating' by OPEC countries on their respective production quotas, and obviously Riyadh's decision to 'open the tap' are but a few examples showing that states were always relevant not only as operators in 'the market' – where it would be misleading to claim that their moves were always unsuccessful – but also as actors that helped define what 'the market' itself actually contained.

More generally, the 'oil market' of the 1970s and 1980s responded to broader factors at work in the world's political economy, as well as in culture and society. For oil producers such as Nigeria, Mexico and Iraq, for example, the need to finance heavy external debts by maximising production can hardly be dissociated from the dollar policies of the US Federal Reserve that controlled global interest rates. Even countries that did not have heavy foreign debt problems, like the Soviet Union and Norway, could not ignore their own budgetary requirements in the setting of oil policies. And OPEC's 'inability' to behave as a cohesive cartel (after in 1982 it had *de facto* become one) is easier to understand when one remembers that two of its founding members, Iran and Iraq,

were at war with each other from 1980 to 1988, while Saudi Arabia and Kuwait were often targeted by Iranian diplomacy as a stooges of the West. The actual 'market' was as much a function of the interplay of these – supposedly 'non-market' – variables, as a factor influencing them. In line with what the literature on the genesis of 'neoliberalism' has sometimes noted, we shall observe that the politicity of 'the market' that was being created in energy was quite visible even in the very words of one of its great supporters (and architects). Speaking in 1982, the then British Secretary of State for Energy, Nigel Lawson, declared:

> I do not see the Government's task as being to try to plan the future shape of energy production and consumption. It is not even primarily to balance UK demand and supply for energy. Our task is rather to set a framework which will ensure that the market operates in the energy sector with a minimum of distortion and energy is produced and consumed efficiently.[15]

Not only was the choice to abstain from active energy policies presented as a rather deliberate one, but one can say that 'there was no alternative' only at the cost of pretending that such concepts as 'minimum distortion' and 'efficiency' were not inherently political.[16] Last but not least, as Alberto Clô has brilliantly written, there is some 'hypocrisy' in assuming that after 1985 the level of oil prices was determined only by the interplay of demand and supply: 'no one [. . .] can realistically tell what oil prices would be today, if on 28 February 1991 the US army had not handed back Kuwait its full sovereignty' after the Iraqi invasion and annexation of 2 August 1990.[17] This appears as true today as when it was written in 1997.

In order to stress the political economy of the 'counter-shock', we have decided to associate it with the term 'counter-revolution' in the title of this collection. The 1980s marked in many ways the end of the revolutionary prospects that had raised so many hopes and fears during the previous two decades, no matter how contradictory or ephemeral.

Among these, some were impacted directly by the countershock: ideologically, the notion of 'economic sovereignty' as a positive goal was deeply undermined by the successful narrative of the fall in oil prices as the consequence of unfettered markets; in political–economic terms, the rebalancing of North–South disparities, to be achieved in case through the political use of raw materials by 'Third World' countries, suffered an irreparable defeat when it appeared that even OPEC – the only successful, if controversial, practitioner of such doctrine – was now in disarray; finally, the planning for an 'energy transition' – which put policies and ideas in charge of steering complex social–economic processes – was shelved and to an extent reversed, when massive use of oil made a powerful comeback as the driver of consumption patterns, and private actors – often simplistically called 'the market' – were handed the lead in the process.

The 17 chapters that form this collection address these issues in greater detail. In particular, those included in Part 1 take a closer look at what was meant by 'oil market' in the period leading to the counter-shock, and at the specific characteristics of the 'free market' that then came to stay. Giovanni Favero and Angela Faloppa make use of the literature on the performativity of economic theory in the creation of markets to highlight the political and economic impact of oil pricing in the long term, and to show how the adoption of specific metrics for oil pricing contributed to make the counter-shock the foundational moment of a new 'oil regime'. David Spiro locates the run-up to the counter-shock against the backdrop of the monetary hegemony defended by the US governments during the 1970s, and then deployed in instances like the 1979 'Volcker shock' and the 1985 'Plaza Accord'. Spiro shows on the one hand how these were actual factors at play in conditioning the 'oil market' and, on the other, how US monetary hegemony contributed to make the 'free market' a valid explanation for any event once free-marketeers took the reins of US policy during the 1980s. In her chapter, Catherine Schenk focuses on the interplay between the broad tendency toward financialisation of the world economy after the end of Bretton

Woods, and the specific tendency toward financialisation in the 'oil market', showing how in the early 1980s a growing set of oil-related financial products – not all of them successful – were launched in London and New York, to become the actual indicators of 'oil prices' once OPEC abdicated to its price-setting function after 1985–86. While both Favero and Faloppa and Schenk raise the issue of the power of rating agencies in the post-1986 'oil market', Francesco Petrini focuses on the role played by the oil majors in the making of the counter-shock and shows that, while no longer capable of monopolising 'the market' as they once did, the 'seven sisters' could still wield enough 'market power' to help prices down and wrest control over oil from OPEC.

In the following three parts, the policies of some of the main producers and consumers are analysed. In Part 2, three crucial OPEC countries are taken into consideration, in their mutual interactions and in relationship to the broader picture. In his chapter, Majid Al-Moneef details the main phases of Saudi policy from the late 1970s to 1985, and then between late November 1985 and September 1986 (when OPEC was finally able to find a compromise that brought prices up from the lowest points reached during the year), to show that the counter-shock can be interpreted as a 'price war' signalling a new pattern of relationship between Saudi Arabia and OPEC. Based on new archival evidence, Claudia Castiglioni and Ibrahim Al-Marashi discuss in their respective chapters the determinants of Iranian and Iraqi oil policies, highlighting for both countries the overwhelming influence of the war and financial problems connected with it, as well as the importance of their respective and controversial relations with Saudi Arabia. Part 3 takes into consideration the oil policies of four main players of the non-OPEC producers. Juan Carlos Boué analyses the conflicts over Mexico's oil governance between the production-oriented elements and the rent-oriented elements in the Mexican government and state-owned company, and in the context of the country's virtual default on its foreign debt. Using new archival research, Olga Skorokhodova approaches the topic of the mutual interaction between Soviet oil

policies and the 'oil market' in the making of the counter-shock, by highlighting, in particular, the importance of (wrong) expectations in the making of the decisions conducive to the oil price collapse: the widespread forecasts from the 1970s for continuing high prices in the future proved particularly damaging for the Soviet Union, which overinvested in its oil fields and found itself in the 1980s with both the need to find customers and inefficient production management. In their article, Dag Harald Claes and Einar Lie discuss the drivers of Norway's policy within the context of a country traditionally rich in hydro-power and oriented towards oil price-taking, but also subject to pressures from budgetary constraints and changing domestic political equilibria. Martin Chick's chapter concludes this part of the volume, detailing the dilemmas of British policymakers caught between the goals of conserving national oil reserves on the one hand, and maximising production on the other. The ultimate decision, *de facto* in favour of the latter alternative, was made by the Thatcher government when it withdrew from active oil and energy policies in the name of 'pro-market' policies, but also with an eye at budget revenues and the exchange rate of the pound.

Part 4 opens with Henning Türk's analysis of the performance of the member countries of the International Energy Agency (IEA) in terms of energy policies, as seen through US, German, and IEA records. On the one hand, their policies from the late 1970s had indeed contributed to the stabilisation of energy and oil demand in the early 1980s, which in turn were important factors in the making of the counter-shock. On the other, such policies were virtually abandoned in the early 1980s, under the influence of the new inclination, nurtured originally in London and Washington and then elsewhere, for governments not to play an active role in 'markets'. Since the United States consumed some 25–30 per cent of the world's primary energy in the 1970s to 1980s, and was the recognised leader of the 'western world', it is the subject of two chapters. In the first, Victor McFarland discusses the dilemmas of the US government during the Reagan administration, when decreasing oil prices were hailed as a positive result of 'free market policies', but also

feared for their depressing effects on the economies of the oil producing states in the United States itself. McFarland shows (echoing a point raised in Spiro's chapter), that the Reagan administration opted for less stringent environmental regulations and greater reliance on – now cheap – oil imports in the name of 'free trade', but also increased the presence of US armed forces in the Persian Gulf in order to 'let the market work'. Of course, to the extent that the decrease in oil prices was originally driven by diminished demand, it was not obvious that oil consumption would return massively after the fall in prices. Elisabetta Bini offers in her chapter a fascinating explanation of how in the United States a substratum of national consumerist culture interacted with the Reagan administration's will to ride it and expand it, turning the counter-shock into an opportunity to relaunch patterns of 'conspicuous consumption' – in general, and of gasoline in particular – that the 1970s had put into question.

From different but related perspectives, the themes raised in Part 4 are also developed in Part 5, which focuses specifically on non-fossil alternatives to oil, showing how a variety of factors influenced their fortunes – or lack thereof. Both in the years leading to the counter-shock and in the following period of low oil prices, the 'energy market' contributed to shape the 'oil market', and was shaped by it. Two chapters deal with nuclear energy, which was to receive the largest share of the public financial support dedicated to energy diversification in the 1970s and 1980s, and which grew to cover almost one-tenth of the world's primary energy supply by the late 1980s. In her chapter, focused on the US environmentalist movement but attentive to a global context in which environmentalism became an influential cultural and political factor, Angela Santese makes a convincing case that nuclear energy was seen as the 'worst energy alternative since it was dangerous for both the environment and human health, expensive and linked to military technology'. From a different viewpoint, Duncan Connors and Eshref Trushin show in their chapter that the nuclear path taken by countries such as the United Kingdom, United States, Japan, France and the Soviet

Union delivered different results because its outcomes were not 'set in stone' but were rather reliant on a number of dependent and independent factors, including technical choices and how these interacted with the countries' wider economy. Finally, Duccio Basosi reviews the public discourse on renewable energies during the 1970s and 1980s to assess what kind of challenge these represented to the 'fossil energy regime' centred on oil. While renewables were part of a wider global debate on an 'energy transition' then perceived as necessary, Basosi concludes that they were never at its heart: coal, nuclear energy, natural gas and non-OPEC oil were – together with energy conservation – by far the most privileged sources for energy diversification purposes. Of course, the wealth of themes that are touched in this volume indicates that the counter-shock was part of a broader picture, and the 1980s themselves only a phase within a longer story. But the chapters that follow indicate the importance of understanding that particular event in order to grasp both the broader picture and the longer history.

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Notes

1. Franco Bernabè, 'Regulating the oil market after the Countershock: Economic and political factors', *International Spectator* xxvi/3 (1986), pp. 6–12. According to an established convention, here and throughout the volume

'consumers' and 'producers' are used as shortcuts to 'net importers of crude oil' and 'net exporters of crude oil', respectively.

2. For example, there is virtually no reference to the oil price collapse in Jeffry Frieden, *Global Capitalism* (New York, 2006), nor in Eric Hobsbawm, *The Age of Extremes* (London, 1995).
3. See for example: Ennio Di Nolfo, *Storia delle relazioni internazionali* (Roma-Bari, 2008), p. 1232; Paul Bairoch, *Victoires et déboires. Histoire économique et sociale du monde du XVI e siècle à nos jours* (Paris, 1997), vol. III, p. 702.
4. See, for example, Steven Kotkin, *Armageddon Averted: The Soviet Collapse 1980–2000* (Oxford, 2008), p. 65.
5. Alan Gelb, Benn Eifert and Borje Nils Tallroth, 'The Political Economy of Fiscal Policy and Economic Management in Oil-Exporting Countries', World Bank Policy Research Working Paper 2899, October 2002.
6. Leonardo Maugeri, *The Age of Oil: The Mythology, History, and Future of the World's Most Controversial Resource* (Westport, 2006), p. 140.
7. Morris Adelman, *The Genie out of the Bottle* (Boston, 1995), chapter 8; Bruce Podobnik, *Global Energy Shifts: Fostering Sustainability in a Turbulent Age* (Philadelphia, 2006), p. 140.
8. Dermot Gately, 'Lessons from the 1986 Oil Price Collapse', *Brookings Papers on Economic Activity* xvii/2 (1986), pp. 237–84; Robert Mabro (ed.), *OPEC and the World Oil Market: The Genesis of the 1986 Price Crisis* (Oxford, 1986); Id., *Netback Pricing and the Oil Price Collapse of 1986: Working Paper WPM 10* (Oxford, 1987); Ian Skeet, *Opec: Twenty-Five Years of Prices and Politics* (Cambridge, UK, 1988), chapter 10; Wilfrid Kohl (ed.), *After the Oil Price Collapse: OPEC, the United States, and the World Oil Market* (Baltimore, 1991); Daniel Yergin, *The Prize: The Epic Quest for Oil, Money and Power* (New York, 1991), pp. 720–63. More recent works include Francisco Parra, *Oil Politics* (London, 2004), pp. 276–92; and Maugeri, *The Age of Oil*, pp. 135–65.
9. Robert Skinner, 'A Comparative anatomy of oil price routs: a review of four price routs between 1985 and 2014', *SPP Research Papers* viii/39 (2015), pp. 1–36.
10. There is indeed an alternative interpretation, paradoxically dear to hard-line free-marketeers, according to which the counter-shock derived from a well-orchestrated US–Saudi diplomatic plot to bankrupt the Soviet Union. However, as Leonardo Maugeri has bluntly concluded, in the absence of any supporting evidence, such interpretation belongs to the realm of mythmaking rather than to historiography (Maugeri, *The Age of Oil*, p. 161).
11. See for example Salvatore Carollo, *Understanding Oil Prices* (New York, 2010), pp. 37–44; Clô, *Economia*, pp. 205–10.
12. See Fadhil Al-Chalabi, 'The world oil price collapse of 1986', in Kohl (ed.), *After the Oil Price*, pp. 1–27.
13. Maugeri, *The Age of Oil*, pp. 139–40.
14. The losses in revenues hit hardest the OPEC countries with higher costs of extraction. Saudi Arabia was among the least affected. A summary of the

various positions is in Alberto Clô, *Economia e politica del petrolio* (Bologna, 1997), pp. 209–10. On the symbolic value of OPEC's pricing policies in the context of the 'Third World"s struggle for economic independence, see Giuliano Garavini, *After Empires: European Integration, Decolonization, and the Challenge from the Global South 1957–1986* (Oxford, 2012), chapter 5.

15. Nigel Lawson, energy speech, 1982, quoted in Rupert Darwall, 'How to run a country. Energy policy and the return of the state', Reform Research Trust paper, November 2014. Available at http://www.reform.uk/wp-content/uploads/2014/11/Energy-Report_text_AW_WEB1.pdf (accessed 21 July 2017).
16. On the 'creation of free markets' the classic reference is Karl Polanyi, *The Great Transformation: The Political and Economic Origins of Our Time* (Boston, 2001) [*The Origins of Our Time: The Great Transformation* (New York, 1944)]. More recently: Mark Blyth, *Austerity: The History of a Dangerous Idea* (New York, 2013).
17. Clô, *Economia*, p. 68.

PART I

OIL PRICES IN CONTEXT

1

Price Regimes, Price Series and Price Trends: Oil Shocks and Counter-Shocks in Historical Perspective

Giovanni Favero and Angela Faloppa

Metrics and Meanings

The institutional means historically adopted to fix oil prices intertwine with the metrics adopted to produce price series, and the resulting trends exerting their effects on demand and investments. Only considering these three elements in their reciprocal interrelations in the long term, it becomes possible to understand the dynamics of the oil shocks and counter-shock of the 1970s and 1980s.

The methodological approach here adopted makes reference to the sociology of knowledge and in particular to the literature on the performativity of economic theory in the creation of markets, and on the constitutive effects of historical quantification processes.[1] In such a perspective, price metrics play in their turn the role of institutions, i.e. rules on which analysts and operators agree in order to quantify and make a complex mechanism understandable. Prices, as measured following these procedures, are then interpreted as a boundary object,

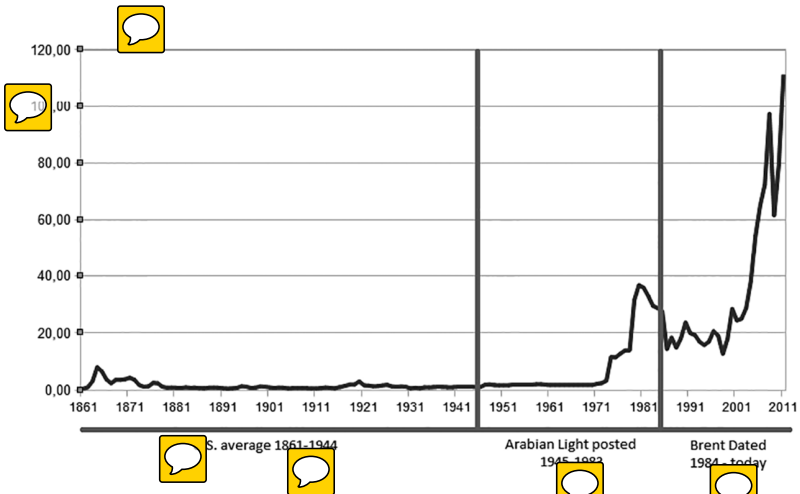

Figure 1.1 Crude oil price references, 1861–20[illegible] ($/bbl). Source: BP, *Statistical Review of World Energy* (London, 2016).

performing different functions and being at the same time the *result* of temporary agreements between sellers and buyers, the *material* of further statistical analysis and elaboration into series, and a *signal* to decision makers and/or market operators.

The meaning of long historical series of prices is one favourite subject of arguments and controversies between historians and social scientists. As the late Alain Desrosières put it, the conventions of equivalence that make data comparable become sometimes dubious, as not only metrics but also their objects change over time.[2]

As well known, the secular series of nominal crude oil prices are the result of a patchwork putting together very different data. In the BP series (Figure 1.1), an average of US posted prices (the price at which companies were buying or selling oil, in the absence of an official exchange) is used from 1869 to 1944, then the posted price of the benchmark crude Arabian Light Crude at Ras Tanura is used up to 1983, and since 1984 the international *market price* (the price per unit of a traded quality of oil in the international exchange market) of the benchmark crude Brent Dated is used. The historical data published by ENI or OPEC are very similar, even if

sometimes a different benchmark crude as West Texas Intermediate or others is used.

Such a statistical inconsistency is usually justified with regard to the economic and political relevance of the resulting assembled trend, whose meaningfulness is the outcome of the juxtaposition of non-comparable data. However, statistical problems concerning the source of price data do not exhaust the inconsistencies of long historical series of crude oil prices. It is the same meaning of the price of crude oil that changes over time.

In this perspective, it is possible to identify different price regimes, which do not correspond to the statistical periods identified above. From the interwar period until the 1950s, price formulas made reference to different geographical base points to add fictional transportation costs and protect the higher price of US crude from foreign competition. The reference to US domestic prices was maintained, yet the growing importance of crude oil production in the Middle East shifted the focus of price fixing on the calculation of royalties and taxes that the oil majors owed to the governments of the Middle East countries: posted prices in the Persian Gulf thus became the basis to calculate the tax paid cost. After the 1973 shock, OPEC maintained the same system, but excluded the majors from the negotiations. Such a situation lasted until the mid 1980s, when the OPEC pricing system was finally dismissed, in favour of prices directly defined on international exchange markets.

The details of this shift and the construction of a *market price* for oil will be discussed more in depth below. The literature on the performativity of economic theory suggests that models and algorithms have the ability to create markets.[3] Making reference to this debate from a conventionalist perspective, we aim here at demonstrating that market logic is only one of the many possible *raisons d'être Â;* of oil prices.[4] Suffice it for the moment to highlight that the fixing of the posted price of oil followed a very different logic in 1950 and in 1980. In the same way, the role of financial instruments in determining benchmark prices has changed radically from the 1970s to today. As a consequence, also the continuity of the statistical reference can hide important transformations

in its meaning, and statistical discontinuities may or may not reflect an actual change in price fixing practices.

Aiming at disentangling the metrics, the meaning and the political and economic impact of oil pricing in the long term, this chapter uses the specialised literature to reinterpret the evolution of the systems for fixing posted and correlate prices from the 1960s to the 1980s, then focuses on the emergence of a spot market for crude oil and of an interconnected futures market, concluding with some general considerations on how the interplay between the metrics in use made of the oil counter-shock the foundational moment of a new oil regime.

Posted Prices as Non-Market Prices

The pricing system for internationally traded oil before the 1970s has been defined as 'an economic logic that never corresponded to reality but which at first was close enough to be invested with a measure of plausibility'.[5] Since the late 1920s a series of oligopolistic agreements fixed prices using a fictional basing point: the Gulf Plus in the 1930s, and other Equalisation Points after World War II. Such a system allowed the majors, i.e. the largest multinational oil companies, to accumulate profits to finance their vertical and horizontal expansion.

After World War II the international trade of oil radically changed, as Venezuelan and Middle Eastern crudes finally replaced US oil exports to Europe and Asia. The protection of the US domestic oil production was then ensured by a system of mandatory import quotas becoming effective in 1959,[6] while the majors went on extracting oil all over the world according to the terms of the concessions. Such agreements were generating increasing revenues also for the governments of the host countries. Until 1950, their share was defined in terms of a fixed royalty per metric ton. This way, they had no relation at all with the prices at which the crude oil was sold, usually to downstream subsidiaries of the same company or following long-term contracts with buyers.

A first change happened in the early 1950s, with a gradual shift to posted prices as a basis for the calculation of *ad valorem* royalties and of income taxes. Posted prices at the time were unilaterally made public in a conventional way by the seller (the Western major) to give notice that it was prepared to accept a certain sum for a barrel of crude oil.[7] In October 1950, Mobil was the first oil company to post its price for the Iraqi Kirkuk crude, which was followed in November by a posting for Arabian Light Crude. The introduction of posted prices was mainly related to the spread in the Middle East of the so-called 50/50 agreement, including an ad hoc tax rate on the concessionaires' net income. The posted price was then used as a tax reference price to calculate the payments the majors owed to the hosting countries. Even if posted prices were not initially used in all the 50/50 deals (introduced first in Venezuela in 1948 and in 1950 in Saudi Arabia), by 1955 all concessions contained a 50/50 clause based on the posted prices. They emerged as the best solution to provide a transparent basis for the assessment of the majors' profits. Proper market transactions were in fact extremely rare at the time, and the majors preferred to maintain the secret about the terms of long period contracts with downstream buyers.[8] The only viable alternative reference were the internal transfer prices between subsidiaries of the same parent company, yet they were in their turn performing a different fiscal function, as the Western authorities required to report them to avoid tax evasion. So we may argue that the posted price emerged purposefully to assess the redistribution issues between the majors and the hosting countries without interference.

Historians of statistics know that whenever a quantitative indicator is used to automatically assess a bargained issue, or to depoliticise it, sooner or later the same indicator becomes the object of bargaining and political confrontation.[9] In the same way, 'prices used as numbers in fiscal formulas tend to become something other than prices'.[10] Indeed, as posted prices became the only basis for the assessment of the tax revenue of hosting countries, they were less and less influenced by the trends and levels of supply and demand.

In 1960 OPEC was created in reaction to the cuts to posted prices decided by the majors in 1959 and 1960. Taxes and royalties were a national interest to be protected, and the first task of the newly established international organisation was to avoid any further unilateral cut to posted prices. In 1964, OPEC was able to change the calculation of the majors' taxable profits. Starting from that year, royalties were no longer detracted ('credited') from profits before calculating the amount of taxes due to the hosting country, but 'expensed' apart. This way, the final government take resulted increased by half of the royalty rate in a 50/50 tax agreement.[11]

Such changes went together with an accelerated increase of the world demand for oil from 1965 to 1970, and with a parallel expansion of production, in particular by OPEC countries. Such expansion created concerns about the exhaustible nature of oil reserves in producing countries, exerting an influence on their production and pricing policies. The growing tensions on pricing issues for different crude oils took to the Tehran and Tripoli regional agreements in February and April of 1971. Following OPEC's threats to cut off production, income taxes were increased to 55 per cent, posted prices were also increased and their further annual increase was provided to compensate inflation. Such agreements had a scarce financial impact, yet signalled the establishment of a new power relationship between the majors and OPEC. They also included a plan for the administration of prices to last until 1975, irrespective of variations in supply and demand.[12] But the following events proved that a five-year span was too long for planning in turbulent times.

In August 1971, the oil producing countries perceived the cancellation of the US dollar's direct convertibility into gold and the increasing dollar inflation as a direct threat to their nominal incomes. In October 1972 OPEC countries asked then for a participation share in the upstream operations of their concessionaires, and so were endowed with a proportional quantity of crude oil they could sell back to the oil companies or to third party buyers.[13] The 1972 participation agreement opened a first crack in the vertically integrated structure of the industry,

paving the way to the future emergence of a proper market for crude oil. Yet its immediate consequence was the appearance of three different prices for a barrel of oil: the posted price, the government or official selling price to third parties, and the figurative buy-back price for the part of the government oil share that the majors were actually retaining.[14] In the absence of adequate market outlets and of transparency of information on oil transactions, the majors could enjoy windfall arbitrage profits.

In September 1973, the OPEC countries demanded a revision of the 1971 Agreements and a substantial increase in the posted price level. The outbreak of the Yom Kippur Arab–Israeli War, however, changed the terms of the matter, leading OPEC member countries to discuss among them the fixing of a new level for posted prices with reference to specific government take targets, and with the aim of preserving oil reserves.[15]

When finally fixing the price level at $11.75 per barrel in December 1973, almost four times the 1972 price, OPEC identified also for the first time a marker crude, namely the Arabian Light 34°API. Its posted price would be the benchmark to which all the official selling prices of member countries would be linked, discounting or adding differentials.[16] In the following decade, administering the differentials became a major issue inside of OPEC, leading to a two-tiered pricing system for the same Arabian Light Crude, as a benchmark reference for others, and as an actual commodity.[17]

The nationalisation of oil concessions in most OPEC countries during the 1970s made the situation even more unstable, disrupting the vertical integration between the upstream and the downstream sectors of the industry. This created the room for a proper pricing system useful to coordinate the growing volume of transactions concerning crude oil. At the same time, the oil companies found themselves crude-short and dependent on OPEC supplies, while OPEC members started fixing production ceilings in order to preserve their reserves.

The Iranian Revolution marked a turning point, reducing since late 1978 some Western companies' direct access to a large part of Middle

East oil. In the absence of any effective expansion of OPEC oil supply, these companies were then forced to resort to the narrow and volatile spot market, where prices boomed, driven by panic buying of the small amount of crude then available on the spot. The majors that still maintained long-term contracts with the producing countries were then able to make huge speculative profits on the differentials between posted prices and spot prices. By reaction, OPEC countries started to unilaterally adjust their official selling prices running after the spot market as if it reflected the actual conditions of supply and demand. OPEC itself followed, adjusting the deemed marker price from $12 per barrel in January 1979 to $28 per barrel in December, and then increasing it up to $34 per barrel in late 1981.

This way, OPEC was perceived as indirectly assigning credibility to the false signals arriving from the upward price trend in a 'market' that was mostly driven by speculative panic and very far from being representative of the relationship between the whole supply and demand.[18] In this regard, it is possible to argue that the economists' growing insistence during the 1970s and 1980s on the efficiency of market coordination, and the related emergence of new theoretical models, had a performative effect pushing the political actors in charge of fixing prices to take 'the market' as a reference.[19] However, the point we are making here concerns the interaction between the different functions that the oil price exerts as a market signal, a fiscal reference or a quality benchmark. Such interaction changes following the shift of the focus from one function to the other, creating inconsistencies and short-circuits that may foster and explain abrupt volatility. It is the case in the early 1980s with the gradual shift of the focus to the spot market price, the failure of OPEC's attempts to segment the different functions of the oil price, and the subsequent counter-shock.

In March 1982 OPEC finally fixed one single posted price for the marker oil at $34 per barrel and a cap on OPEC production, with Saudi Arabia acting as a swing producer in order to maintain price stability. Only in 1983 it allocated production quotas to single member countries.

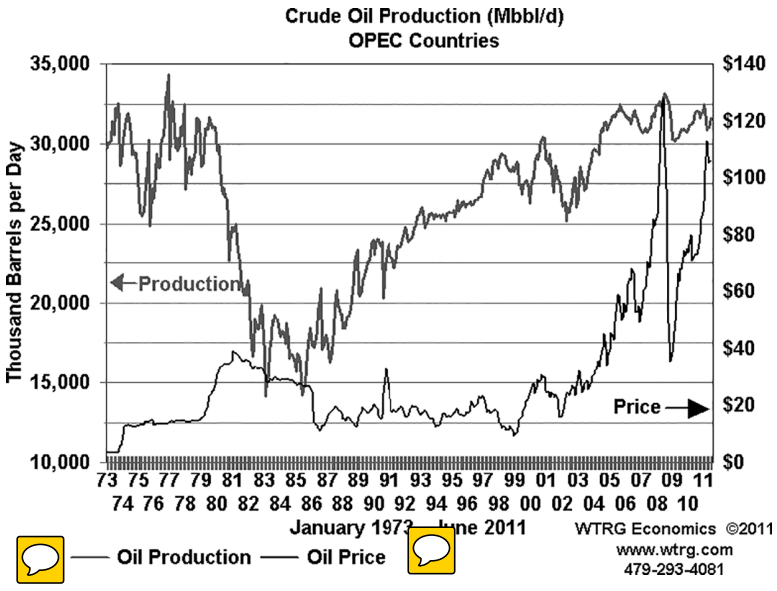

Figure 1.2 OPEC oil production and US price, 1973–2011.

Such a decision responded to the abrupt downward change of the price trend in the spot market. This resulted from the decline of world oil demand from 64 millions of barrels per day (mb/d) in 1979 to 58 mb/d in 1983, due both to the oil saving policies and to the economic recession of OECD countries.[20] At the same time, the development of deposits dismissed as prohibitive before 1973 caused a surge in the supply from non-OPEC regions (Alaska, the North Sea and Mexico) flowing into the spot market. The OPEC share of the world oil market fell from 51 per cent in 1979 to 28 per cent in 1985 as a result of this and of its own decision to limit production to support prices (Figures 1.2 and 1.3).[21]

While most OPEC countries could cheat on their quotas, Saudi Arabia suffered most the competition of the now cheaper non-OPEC crudes. Saudi oil sales at the agreed marker price declined from 10.2 mb/d in 1980 to 3.6 mb/d in 1985, in spite of a cut of the benchmark price to $29 per barrel in 1983. Such a decline was also the consequence of growing competition among OPEC countries for sales volume. Taking

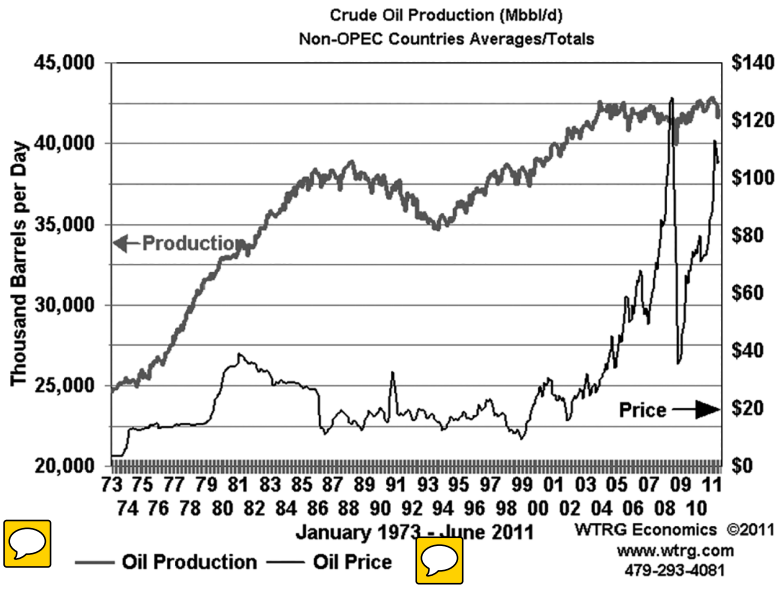

Figure 1.3 Non-OPEC oil production and US prices, 1973–2011.

notice of this, in 1985 Saudi Arabia finally abdicated to its role of swing producer, shifting from price support to volume support and abandoning the posted price for a net-back pricing formula.[22] Following a net-back contract, the buyers would pay a price per barrel depending on their final earnings minus refining and transportation costs. A unitary profit margin being included in the formula, buyers had a strong incentive to expand sale volumes regardless of price levels. Net-back pricing was then by definition very far from working as a proper market signal. Despite the volume cap imposed by Saudi Arabia on its net-back sales, such deals spread quickly in the industry.[23] This lead to an oversupply of tradable refined products, pushing down their price. And this finally affected back the price of crude oil on the spot market, pushing it to collapse from $26.69 per barrel in July 1985 to $9.15 per barrel one year later.[24]

The proper counter-shock was then the result of a policy adopted by the producers that explicitly made of the price a dependent variable. The

wrong assumption was that pricing systems could be segmented following their purpose. Even if the net-back formula was applied to specific transactions, it affected the volume of supply, triggering a reaction in the markets for related products and finally reverberating on the spot market for crude.

Trying to react to the catastrophic price collapse, in December 1986 OPEC restored a benchmark for official selling prices at $18 per barrel, resuming production quotas and assigning again to Saudi Arabia the role of swing supplier. Yet in January 1988, under threat from its Aramco customers, Saudi Arabia officially adopted prices related to the spot market, soon followed by other OPEC countries. By March 1988 the OPEC fixed price system had sunk, leaving the stage to what had emerged as 'the market' as the only 'administrator' of international oil pricing.[25]

The Spot Market and its Financial Layers

The oil counter-shock of the mid 1980s was deeply intertwined with the deterioration of the OPEC fixed price system and with the parallel emergence of an international exchange market for crude oil. This found its origin in the spot market, where arm's length deals were concluded at prices differing from the administered ones since the 1950s. From a quick and convenient way for the majors to correct minor planning errors in the produced volumes of crude, between the 1960s and 1970s the size and scope of the spot market considerably increased. Independent companies and refiners with no direct access to crude usually resorted to it as buyers, and since 1972 the exporting countries lacking the necessary outlets and downstream infrastructures to dispose of their newly acquired equity oil joined the spot market, usually selling it at a lower price than the official one.

The growing number of transactions certainly contributed to increasing the transparency of the spot market, but as Francisco Parra convincingly shows, it is difficult to assess how much oil was actually

traded during the 1970s.[26] Even price data are uncertain, as the spot price level reported by the trade press was actually based on the offers, bids and sales observed by traders and brokers. This 'market' was still very thin, not institutionalised, and there were no solid reference points. However it was already regarded as an indicator of the way the wind was blowing. The OPEC increase of the posted price in December 1973 did also take into account the high prices realised on the spot in the previous weeks.[27] At the end of the 1970s, the disruption of the vertically integrated structure of the oil industry, following the nationalisations and the Iranian crisis, finally shifted the focus to the spot market as a reference. Yet what pushed prices up on the spot in 1979 was panic buying.

OPEC was generally hostile towards the spot market as a source of speculative volatility, yet it maintained some ambiguity. It was in fact OPEC itself that compelled the majors to resort to the spot market by limiting their production quotas. At the same time, if Saudi Arabia, Algeria, and Venezuela abstained completely from spot crude sales, other OPEC member countries, such as Abu Dhabi and Kuwait, were not able to resist the temptation of reaping the difference between the spot prices and their official ones. And the upward trend of spot prices was put forward by OPEC as a justification to raise its own price floor, as discussed above.

In the early 1980s, it was the increase of non-OPEC oil supplies and their shift from long-term contracts to the spot market that pushed the expansion of the latter and reduced its volatility. One-off deals were replaced by serial transactions based on standardised contract terms, such as in the case of the Western Texas Intermediate (WTI) contract, providing for the delivery of a cargo at Cushion, Oklahoma, within an agreed time period and at a specified price, declared in dollars per barrel, or the Brent Dated for North Sea crudes delivered at the Sullom Voe terminal in Scotland.

Side by side with the spot market, also a variety of over-the-counter forward contracts emerged. An example is the 15-day Brent, which provided a minimum 15 days' notice between the deal and the loading

date of an oil cargo, to be paid at a fixed price up to three months later. However, such contracts became actually viable only when they were standardised into a regulated futures exchange market. This provided a daily 'marking to market' of the contract position, and secured it by requiring a deposit that covered eventual corrections. At first, futures were introduced for oil products, specifically for gasoil by the New York Mercantile Exchange (NYMEX) in 1978, followed by the ICE of London in 1981; then, crude futures followed, with the WTI contract launched by the NYMEX in December 1982, and the Brent Dated contract created by the International Petroleum Exchange (IPE) in London in 1983.[28]

The introduction of futures contracts was crucial to allow the final development of a proper *market* for crude oil. Single physical crudes as WTI or Brent may in fact still have a relatively low number of transactions on the spot market, but the development of a regulated financial market for their futures attracted such a volume of investments on 'paper barrels' to assure liquidity and allow price reporting agencies to collect transparent and accurate information. The financial mechanism of futures contracts assured also the convergence of futures and spot prices at the expiry date of the former even if the contract was settled in cash and not in 'wet barrels'.[29]

Therefore, in the mid 1980s a *market* for crude oil finally developed in the structured form it had lacked in the previous decade, without any direct contribution by OPEC, whose administered oil pricing system was in the meantime having its swan song. When administered prices collapsed in 1985 following the adoption of net-back pricing by most OPEC countries in competition among them, the attempt to maintain a separate pricing system proved decisive. The resulting oversupply finally affected also spot prices through the fall of related oil products, as explained above.

The results of net-back pricing left 'the market' as the only residual viable price reference after the counter-shock. The last missing step was the adoption of a price formula relating benchmark crudes to different oil qualities. In 1986, the WTI price on the spot market started being used as

a benchmark for formula pricing by PEMEX, the Mexican national oil company, who refused to adopt the net-back pricing system to avoid the possible corruption of its officials during the long negotiations with US buyers.[30] The Brent Dated soon became in its turn the main benchmark for European buyers. The role of benchmark crudes traded on the spot market was similar to the one the Arabian Light performed with reference to OPEC's official selling prices since 1973, with the only and significant difference that the price of the new markers was the direct result of demand and supply interaction on the international spot and futures exchange market.

As mentioned above, the failed attempt by OPEC to reestablish some sort of fixed-price regime in 1987 sanctioned the ultimate supremacy of the *market*-related system for oil pricing. Was it a matter of OPEC's loss of market power, or of its scarce cohesion? Both the elements were present in the late 1980s.

After the counter-shock, volatility became the rule, with alternate cycles of prices, marked by different events exerting their influence on the market. In such a context, OPEC continued to exert an influence on oil price levels as a 'residual' supplier, covering that part of demand which could not be satisfied by non-OPEC production (the so-called 'call on OPEC'). Its production quotas were set trying to anticipate the magnitude of such residual demand, and oil prices also fluctuated based on the accuracy of this assessment. Such a role emerged in 1990, when it was able to offset the loss in supplies following the burst of the Iraq–Kuwait conflict by expanding other member countries' production.[31] Following the same logic of price stabilisation, production quotas were instead reduced in 1998 in reaction to the collapse of oil demand following the Asian crisis.[32]

It is possible to argue that OPEC was able to act as a 'swing producer' whenever it pursued long-term stabilisation targets rather than short-term profits, as the latter approach stirred internal competition among member countries. A further point worth to be highlighted is the crucial role of OPEC's explanations of its measures. Not only the choice to curb

or expand production, but also its explicit justification affects market expectations, following a similar mechanism to central bank communication.[33]

A Regime Change

When considering the overall evolution of oil pricing systems, any interpretation of oil price concepts must be related to the characteristics of the surrounding institutional system. This is generally valid for prices, as for other quantitative indicators, whenever they perform different institutional purposes at the same time. From a conventionalist perspective, the (formal or informal) institutional arrangements reconciling the different functions of prices are subject to disruption and renegotiation following the dissatisfaction of one or more actors.[34] In the case of raw materials, trade-offs and incompatibilities have historically emerged between the role of price as taxation reference and market signal. This results clearly from the empirical studies on the matter, even if they adopt different economic perspectives.[35]

From this perspective, the study of price movements should allow to use changes in their assessment as a signal of a more general regime change. Yet assuming a mechanical relationship between pricing systems and price regimes would be very far from reality. It is true that, in the case of oil, the transition from one pricing system to another has occurred in correspondence to major shifts in the contemporary economic and political framework, endowing every price regime of great specificity and significance.[36]

But dating these shifts results much more difficult than expected, and a larger 'transition period' should be identified from the posted price to the market price, spanning from the 1970s all along the 1980s. The two oil shocks correspond to the beginning of a crisis of the 'posted price' system, as far as they are connected to the attempt of producing countries to re-appropriate their resources. The result of this attempt was in fact

the disruption of the complete vertical integration of the industry established by the majors, and the consequent gradual emergence of a proper *market* for crude oil. The proliferation of different pricing systems was in fact a signal of conflict and inconsistencies. These would be settled only by the end of the 1980s, when OPEC countries finally adopted spot prices as a reference for their sales.

Let us return to the graph of the secular oil price trend at Figure 1.1. If reported historical series of crude oil prices are observed, the contrast between the first long phase of posted prices, from the 1920s to the end of the 1960s, with the following OPEC administered pricing system and the final emergence of the open *market*, is quite outstanding. Even if prices rose slightly in the first two years of the 1970s, after the signing of the Tehran and Tripoli agreement, the first real jump can be observed in 1973, when the first oil shock took place. In 1973 OPEC became the new administrator of the oil pricing system, which would be based on the correlation of all the member countries' official selling prices to the posted price of an official marker crude, namely Saudi Arabia's Arabian Light. However, the task did not prove easy to manage. Negotiations within OPEC to establish the level for the posted price were difficult, due to the different position and interests of each member. In particular, the marker price, related to Arabian Light, implied two different concepts of sovereignty: that of OPEC, in charge of its administration, and that of Saudi Arabia, since the marker price was also the price of its more valuable national resource.[37]

In the late 1970s, a massive flow of non-OPEC oil supply became available, thus making the task of administering prices even more difficult, above all in presence of an expanding spot market were OPEC's official selling prices were heavily discounted. When such a trend was inverted following the Iranian Revolution, a widespread misunderstanding of the conditions for market efficiency turned the false signals coming from speculative panic prices in an illiquid 'market' into the reference for decisions about OPEC's administered prices. The 1979 price increase

heavily contributed to make possible to amortise and expand the huge technological investments needed to further develop non-OPEC production, which flooded the spot market pushing prices down and finally breaking the OPEC oligopoly.

The adoption of an OPEC quota system in the early 1980s was not sufficient to sustain prices, not least because most of the member countries were cheating, producing more than allowed by the ceilings, competing to expand their own share and volumes. The refusal of Saudi Arabia to continue to perform the role of swing producer and its introduction of the net-back deals in 1985 marked a return to full production and were the direct cause for the price collapse of 1985–86, and also for the final emergence of a *market* pricing system for crude oil as the only viable alternative.

The current oil pricing system has now survived for more than a quarter of a century, and apparently all the major players have no intention to 'rock the boat'. Concerns and arguments are related to price behaviour and to its impact on the macroeconomic level, not to the pricing structure itself, despite its many flaws.[38] As in the case of the previous oil pricing systems, the current one suits the vested interests of the actors involved.

Despite of the lack of an administrator other than the international exchange market itself, it is finally possible to highlight a new kind of institutional power regulating the current pricing system. The role of price rating agencies in the assessment of price levels is indeed crucial, as the metrics adopted imply a series of assumptions that can lead to different results, and such results in their turn heavily influence market trends. The agencies' reputation of integrity and efficiency hence plays a critical role in warranting the confidence of market operators. The growing financialisation of the oil futures market in the last decades emphasises such a role and makes the consequences of possible scandals or manipulations potentially disruptive. The decentralised governance of *markets* relies on the 'quiet power of indicators', whose 'thin description' becomes the most important tool allowing to 'govern by numbers'.[39]

In this context, manipulations become easier and frequent, leaving room for a radical criticism of 'funny numbers'.[40] An eventual regime change may be possible as far as new and old actors may find it useful to leverage on these potential cracks in the system.

Notes

1. On performativity, see Donald MacKenzie, Fabian Muniesa and Lucia Siu (eds), *Do Economists Make Markets? On the Performativity of Economics* (Princeton, 2007). On the constitutive effects of quantification, see Theodore Porter, *Trust in Numbers: The Pursuit of Objectivity in Science and Public Life* (Princeton, 1995).
2. Alain Desrosières, 'Séries longues et conventions d'équivalence', *Génèses* ix/1 (1992), pp. 92–7.
3. MacKenzie, Muniesa and Siu, *Do Economists Make Markets?*; Michel Callon, Yuval Millo and Fabian Muniesa (eds), *Market Devices* (Hoboken, 2007).
4. For a general introduction to conventionalist economics, see François Eymard-Duvernay (ed.), *L'économie des conventions, méthodes et résultats* (Paris, 2006). The main philosophical reference is David Lewis, *Convention: A Philosophical Study* (Cambridge, MA, 1969).
5. Francisco Parra, *Oil Politics: A Modern History of Petroleum* (London, 2010), p. 56.
6. Ibid., p. 46.
7. Robert Mabro, 'The international oil price regime: origins, rationale and assessment', *Journal of Energy Literature* xi/1 (2005), p. 5.
8. Parra, *Oil Politics*, pp. 62–3.
9. See the case of the consumer price index in the US in Thomas Stapeford, *The Cost of Living in America: A Political History of Economic Statistics* (Cambridge, UK, 2009).
10. Mabro, 'The international oil price regime', p. 6.
11. Ian Skeet, *OPEC: Twenty-Five Years of Prices and Politics* (Cambridge, UK, 1988), p. 27.
12. Parra, *Oil Politics*, pp. 130–6; Fadil Jafar al-Chalabi, *OPEC and the International Oil Industry: A Changing Structure* (Oxford, 1980), p. 82.
13. Parra, *Oil Politics*, p. 158.
14. Mabro, 'The international oil price regime', p. 18.
15. The Shah of Iran requested OPEC to set the price of oil at the level of more expensive alternative energy sources: Skeet, *OPEC*, p. 101.
16. Bassam Fattouh, *An Anatomy of the Crude Oil Pricing System: Working Paper WPM 40* (Oxford, 2011), p. 17.
17. Skeet, *OPEC*, pp. 135–6.
18. Parra, *Oil Politics*, pp. 229–32.

19. The most cited case study in the literature on performativity concerns the emergence of a market for financial derivatives following the elaboration of a theoretical option pricing model by Fischer Black, Myron Scholes and Robert Merton: Donald MacKenzie and Yuval Millo, 'Constructing a market, performing theory: the historical sociology of a financial derivatives exchange', *American Journal of Sociology* cix/1 (2003), pp. 107–45. However, other scholars have argued that the market for derivatives never worked as the theory prescribed, and that theories are performative only if they become an explicit convention as suggested by Lewis, *Convention*: see Nicolas Brisset, 'Economics is not always performative: some limits for performativity', *Journal of Economic Methodology* xxiii/2 (2016), pp. 160–84.
20. Leonardo Maugeri, *L'era del petrolio: mitologia, storia e futuro della più controversa risorsa del mondo* (Milano, 2006) [*The Age of Oil* (Westport, 2006)], p. 149.
21. For a detailed analysis of the events of this period focused on the strategic confrontation between OPEC and the majors, see Francesco Petrini's chapter in this same volume.
22. Robert Mabro, *Netback Pricing and the Oil Price Collapse of 1986: Working Paper WPM 10* (Oxford, 1987), pp. 46–52.
23. Daniel Yergin, *The Prize: The Epic Quest for Oil, Money and Power* (New York, 2012), p. 729.
24. Fattouh, *An Anatomy of the Crude Oil Pricing System*, p. 19.
25. Parra, *Oil Politics*, p. 321.
26. Ibid., p. 210.
27. Ibid., *Oil Politics*, p. 183.
28. Ibid., *Oil Politics*, pp. 219–20.
29. Fattouh, *An Anatomy of the Crude Oil Pricing System*, pp. 74–5.
30. Mabro, 'The international oil price regime', p. 8.
31. Parra, *Oil Politics*, p. 305.
32. Wilfrid Kohl, 'OPEC behavior, 1998–2001', *The Quarterly Review of Economics and Finance* xlii/2 (2002), pp. 209–33.
33. For a survey of the debate on central bank communication, and its ability to enhance the effectiveness of monetary policy incentives, see Michael Kramer, Hal Brill, Christopher Peck, Jim Cummings and David-Jan Jansen, 'Central bank communication and monetary policy: a survey of theory and evidence', *Journal of Economic Literature* xlvi/4 (2008), pp. 910–45.
34. Michael Piore, 'Stability and flexibility in the economy: reason and interpretation in economic behavior', Paper presented at the workshop *Conventions et Institutions: Approfondissements Theoriques et Contributions au Debat Politique*, Paris, La Défense, 11–12 December 2003.
35. One example is the study by Marion Radetzki, 'Long run price prospects for aluminium and copper', *Natural Resources Forum* vii/1 (1983), pp. 23–36. While assuming that prices converge toward the market 'incentive price', Radetzki explains historical price variations by focusing on the different

pricing systems adopted in the two metal markets, and on institutional changes.

36. Fattouh, *An Anatomy of the Crude Oil Pricing System*, p. 14.
37. Mabro, 'The international oil price regime', p. 28.
38. Fattouh, *An Anatomy of the Crude Oil Pricing System*, p. 10.
39. Sally Engle Merry, Kevin E. Davis and Benedict Kingsbury (eds), *The Quiet Power of Indicators: Measuring Governance, Corruption, and Rule of Law* (Cambridge, UK, 2015); Theodore Porter, 'Thin description: surface and depth in science and science studies', in R. Kohler and K. Olesko (eds), *Clio Meets Science: The Challenge of History*, special issue of *Osiris* 17 (2012), pp. 209–26.
40. See Theodore Porter, 'Funny numbers', *Culture Unbound: Journal of Current Cultural Research* iv/4 (2013), pp. 585–98.

2

The Role of the Dollar and the Justificatory Discourse of Neoliberalism

David E. Spiro

Introduction

In November 1985 the price of West Texas Intermediate (WTI) crude oil was $30.81 per barrel, and then the price began to fall. By March 1986 the price was $12.86 per barrel. Much attention is given to the price shocks of the 1970s, when oil suddenly became more expensive. Not nearly as much attention has been paid to price drops.

Why did the price fall? And since the US dollar was both the denominator and the means of exchange in oil markets, what role did the dollar play in this counter-shock? In this chapter I summarise the price behaviour of oil during the counter-shock, and suggest possible explanations. Then I review how the dollar came to be a denominator and means of exchange in oil markets, and I examine the role of the dollar in the counter-shock. I conclude that any purposive policies to make the dollar a denominator and means of exchange had little to do with the counter-shock. The consequences of the role of the dollar were unintentional. These unintentional effects are typical of American hegemony and US policy in general, and they help

us to better understand the workings of the international political economy.

But more importantly, the counter-shock of 1986 gives us a window on the evolution of social purpose in the global political economy, and on the rise of neoliberalism. It is my argument that by the time of the counter-shock, American officials had gone from using neoliberalism in order to justify unilateral uncooperative policies to actually believing in the efficacy of market forces. Market forces are rarely a coherent intellectual explanation for price swings. So the ideology of neoliberalism meant, in effect, that policymakers justified whatever happened in terms of markets working, even when what happened was the result of state power.

Oil markets provide a window on the global political economy, given their 'far-reaching social, cultural and economic consequences', as William Glenn Gray notes.[1] The political economy of oil is a case study from which scholars can come to slightly different conclusions though they agree on the evidence.[2] This chapter looks at oil prices less in terms of cause and effect, and more as a representative picture of the changes in social purpose of neoliberalism. The political economy of oil exposed neoliberalism as a justification for power and, at times, for chaotic swings in fortune.

Why did the Price Fall?

As Figure 2.1 shows, oil prices fell rapidly in 1986, and in real terms the price dropped to levels not seen since the first oil shock in 1973. After 30 years of unchanging prices, largely due to the oligopsony of the 'seven sisters', oil prices had risen in 1974, and then again after the Iranian revolution in 1979. In real dollars (that is, 2015 dollars, with past prices adjusted to reflect the inflation in the interim), prices spiked to almost $120 per barrel after 1979, and then gradually fell to under $70. In nominal terms, the prices peaked at $40, and gradually fell to $30.[3] In the fall of 1985 and spring of 1986, the price collapsed. It fell by 60 per cent in four months. What could the explanation for this drop be?

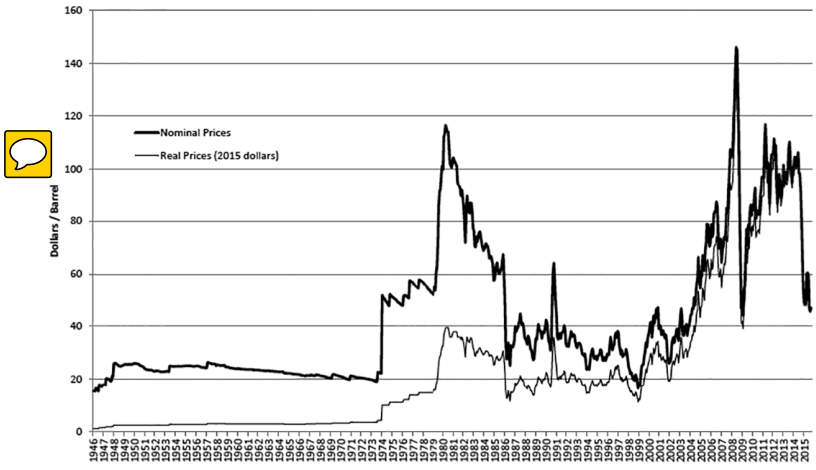

Figure 2.1 Nominal and real prices of WTI (2015 US$). Source: US Energy Information Agency (EIA) of the Department of Energy, www.eia.gov.

First, it is important to remember that spot prices of West Texas Intermediate are only indicators of oil prices.[4] Most purchasers had long-term contracts and the prices of those contracts were far more stable than the spot market in Rotterdam. Indeed, the spot market was in some ways a distress market. Buyers went there to make up shortfalls. So when there was a sudden surge in demand for oil, the spot market faced exponentially higher demand than the overall market, which was subject to long-term contracts. And conversely, the spot market faced an extreme glut when there was no residual demand. Sudden rises and drops in the spot price did not necessarily mean that the average price of oil transacted in any given month rose or fell so markedly.

Figure 2.2 shows that, if anything, there was a slightly downward trend in prices from the 1970s to March 2003. The regression line has an adjusted R squared of only 6 per cent, which means that it does not account for much of the variance in oil prices. But it is suggestive of what can be gleaned by simply looking at the graph of prices in real dollars. If there was some sort of equilibrium in the 1970s, it was above the artificially low price set by major oil corporations before the first oil

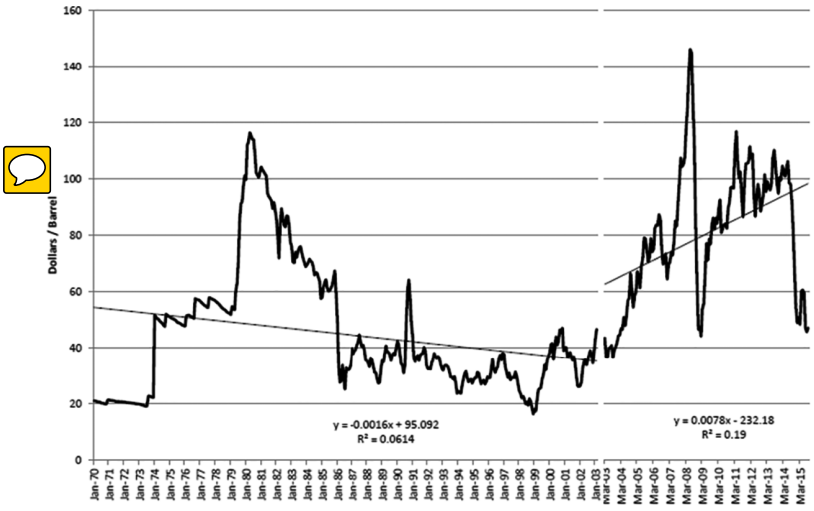

Figure 2.2 Real price of WTI (2015 US$): OLS regression. Source: US Energy Information Agency (EIA) of the Department of Energy, www.eia.gov.

shock. That imaginary equilibrium price was also below the prices reached after the Iranian revolution. And though the price reached in 1986 was perhaps lower than a general equilibrium, it was more reflective of prices for the following 17 years.[5]

Supply and demand are supposed to determine prices in free markets, and they do explain the very rough contours of oil price movements. Oil prices had not risen at all before 1973, while demand was increasing with global economic growth and industrialisation. The demand for fossil fuels, though increasing, did not change abruptly; and neither did supply, so it is unlikely that they explain specific price movements. We should expect that oil prices be higher than they were before 1973. The prices toward 1980, however, reflect panic in world markets, as well as the residual nature of spot market pricing.

There was no change in supply and demand to explain such large and abrupt price movements, especially in 1986, but there was a change in the cartel behaviour of OPEC. In order to be effective, a cartel must limit production. An example of a successful commodity cartel is De Beers,

which limits the global supply of diamonds (no matter how many raw diamonds are mined each year), and keeps prices high. OPEC created the perception of cartel behaviour when several of its Arab members embargoed the United States and much of Western Europe in 1973–4. Besides, OPEC nations were able to break the stronghold of the seven major oil companies, and those nations renegotiated the royalties they received.[6]

To maintain a cartel, each member nation must restrict its production. Revenue maximisers are tempted to cheat on production quotas. When every member save for one cheater restricts production, the price stays high and the cheating member enjoys increased exports at higher prices. But what is rational for the cheater is rational for everyone. And when everyone cheats, the price falls and none benefit. The choice between restricting production and raising it forms the payoff structure of a 'prisoners' dilemma', in which the Nash Equilibrium of raising production is sub-Pareto optimal.

Hegemonic Stability Theory is a common explanation for how the players in a prisoners' dilemma achieve cooperation (or in this case restriction of production). Saudi Arabia served as the dominant leader in the OPEC cartel. It is characterised as a swing producer, who restricts production when others over-produce, and who increases production when there is more scarcity than moderately high prices justify.[7]

In the beginning of the 1980s, both Iranian and Iraqi oil production decreased while they fought a war with each other. But world consumption also decreased gradually, responding to the price hike in 1979. Energy conservation is not an immediate response to high oil prices – it takes time to insulate homes, buy smaller automobiles, and install more efficient energy devices. Once that investment is made, the conservation continues even if the price of oil declines again. The decrease in demand for crude oil was greater than the decrease in production by Iran and Iraq. And that decreased demand was not temporary.

Saudi Arabia lowered its production by 75 per cent between 1981 and 1985, and even so the price of oil fell by 25 per cent. By the end of 1985

Saudi Arabia made it clear that it was no longer willing to serve as the swing producer. It began to ramp up production in 1986, and if there was one event that is clearly linked to the counter-shock of that year, it is when Saudi Arabia abandoned its role as swing producer.[8]

The other event that may partly explain the severity of the price drop in 1986 is the so-called 'Plaza Accord' to devalue the US dollar. Against major currencies, the dollar had nearly doubled in value between 1980 and 1986. The finance officials of America's trading partners felt that the dollar was overvalued. The US was running a very large trade deficit – large even by historical standards. Other members of the G7 felt that a depreciation of the dollar would help to bring the US trade account into balance.[9]

This may have reflected a misunderstanding of changes in the nature of the balance of payments after the end of the dollar's convertibility into gold. Traditionally, the trade account is thought to be balanced by capital inflows and outflows. But since the end of Bretton Woods, the US capital account may be driving the trade account. The United States specialises in exporting financial instruments, and especially government debt to fund its deficits. The global demand for American financial instruments may be the element of 'trade' that determines the deficit in goods and services.

Though there were some academicians who held this view, it was not shared by the finance officials of the G7. They urged the United States to join in market intervention to bring down the value of the dollar. At the time, President Ronald Reagan's administration held a laissez faire ideology, and objected to market intervention. But they agreed to cooperate, and this agreement was codified in the Plaza Accord of 22 September 1985.

In early 1985, the US dollar had peaked at ¥263 and DM3.5. After the negotiations and the Plaza meeting, Japan and West Germany lowered their discount rates, G7 members announced their intention to lower the value of the dollar, and they began ostentatious intervention in currency markets. The currencies that later became the ECU appreciated by 43 per cent against the dollar in the next year. The dollar fell by more

than 50 per cent vis-à-vis the Deutschemark and Yen. Oil was priced in dollars. So the less valuable dollar exacerbated the fall in the nominal price of oil as measured in the currencies of other major economies. The price drop was severe in dollars, but it was even more severe in European and Japanese currencies.

Some of the price drop might also be attributable to a general recovery of confidence in fiat currency. The price of oil, after all, is the relative price between two commodities: oil and the specialised commodity we know as money. Increased confidence in money is reflected by lower prices. As others in this volume point out, the lower buying power of the dollar emphasised the loss of revenue by oil producers. This made it more likely the producers would fail to limit output, and without limits on output OPEC could not function as a cartel that maintained set prices.

A final explanation is the general irrationality of markets, and it is this explanation that I credit the most. Efficient market proponents believe that prices take a 'random walk' as they incorporate constantly changing information. But this random walk does not explain the severe fluctuations in the price of oil. It is more likely that mass psychology, or the 'popular delusions of crowds', is what has caused markets to constantly overshoot the equilibria that would be predicted by supply and demand, and by changes in information driving expectations of the future.[10] Oil has had very steep rises and drops. In 1973 and 1979 the price rose very rapidly. In 1986 it fell sharply. In 1990 it dramatically rose and fell again. It did so again in 2008. There may be underlying forces that explain the price changes, but these underlying forces do not explain the severity of the fluctuations. It would be a mistake to impose intellectual explanations on this situation of randomness and anarchy.

In this chapter I differentiate between market forces and market-based explanation, and between market actors and authoritative actors. Although I argue that market-based explanations (supply and demand, income maximising behaviour, etc) do not explain price movements, when private actors are allowed to set prices I call it a market outcome.

Of course, all market outcomes are heavily influenced by state actions and by the political security of laws and property rights. And the fact that we study *international* economic outcomes is a product of the nation-state system, and the possibility of political barriers to economic flows across borders.

The Role of the Dollar

The dollar is a denominator of exchange for oil. Oil is priced in dollars, though any currency can be to conduct exchange. Until the late 1990s, the benchmark for oil prices was West Texas Intermediate crude. More recently, oil from the North Sea (Brent) has been traded as a benchmark, in part because it is more common on the spot market in Rotterdam, and in part because of a widening price differential between WTI and Brent, and in part because of the declining importance of WTI deposits (many of which are actually in Oklahoma) in the supply of world petroleum.

WTI was set as a standard in 1928 in the Achnacarry Agreement, a collusive production agreement made in secret by the heads of Standard Oil of New Jersey (Exxon), Shell, and Anglo-Persian (later BP). Later modifications referred to prices paid to host countries for crude, and that price agreement established WTI as a benchmark (with other crudes to be priced at WTI plus the imputed cost of transportation from Texas). WTI was priced in dollars, so the benchmark for crude became a dollar price.

Under the Bretton Woods system, almost all commodities were priced in dollars, and that included oil. By the 1950s five of the seven sisters were controlled by American shareholders. Oil was mostly priced in dollars because of the hegemonic role of the United States in the international monetary system. And it was also priced in dollars because international markets were controlled by a small number of corporations owned by Americans.[11]

The closing of the gold window in 1971, and the loss of control over the oil market by the seven sisters in 1973, led to the possibility that oil

could be priced in some other currency. In 1973, the leader of Libya nationalised foreign oil company assets, and refused to accept dollars as payment for oil.[12] His efforts to defy the oligopsony of the seven sisters met with success, but no matter what currency Libya accepted as payment, its oil was still priced in dollars.

After the first oil shock in 1973, policymakers in the United States government worried about how the capital surplus held by oil exporters would be recycled to deficit countries. The trade surplus of oil exporters was structural and expected to endure. Many, such as Saudi Arabia, could not import enough to balance the trade account. And because oil is an exhaustible resource, they did not want to balance the trade account. They wanted to save for future investment.

In a world with efficient markets, it would not matter what currency oil is priced in, or what currency is used to purchase it. But of course, in this hypothetical world, the existence of national economies with national currencies is a rather arbitrary concession to reality. (It is arbitrary to assume the 'inefficiencies' of national economies, while holding to the efficiency of market exchange between those economies.) Though oil might be priced in dollars, it could just as well be priced in Japanese Yen and for each currency the price could be calculated on a moment-by-moment basis for exchange rates. The denominator of exchange, which means the currency used in a particular transaction, would be of equal unimportance because it could be changed into another currency rapidly in liquid foreign exchange markets. Imagine a transaction between Bolivia and Saudi Arabia. Bolivia would use foreign reserves to buy oil using US dollars, which Saudi Arabia could then invest. But the Saudis need not invest in dollar assets. They can change the dollars for any other currency used to transact investments. Alternatively, Bolivians might use Sucres to purchase oil (if the Saudis accepted them) and then the Saudis would need to exchange the Sucres for dollars or whatever currency they wished to use for investments. From this standpoint of efficient currency markets, it does not make a difference what currency the transaction uses, except that when dollars

are used in oil markets the costs of foreign exchange transactions are shifted to the buyer, and when investment assets are in other than dollars, the cost of foreign exchange transactions are the responsibility of the oil surplus state that is investing.

But in the real world, the primacy of the dollar was important to US policymakers, so dollar pricing and dollars as the means of exchange was also important. Some of this concern was rooted in a general desire to maintain dollar hegemony after the closing of the gold window and the shift to a floating rate regime. And much of the concern stemmed from worries about how recycling would be accomplished, and to whose benefit.

When oil was priced in dollars, and when the OPEC surplus was invested in dollar assets (which the US government sought quite actively), the US economy enjoyed a double loan.[13] The first part of the loan was for the purchase of oil. The United States was able to print dollars to buy oil, and so long as the sellers of oil did not trade those dollars for goods and services, the oil was for the time being without cost. The second part of the loan was from the rest of the world, which needed dollars to buy oil (and could not print dollars). Those countries sold goods and services to the United States in return for pieces of green paper with pictures of George Washington and Alexander Hamilton smirking.

In practice, of course, the US Treasury did not simply print dollars. The federal government ran a budget deficit (especially after 1980, with the introduction of Ronald Reagan's changes to the tax code). It sold Treasury obligations for dollars, which removed them from the money supply. And that meant that the printed dollars were bound up in the Treasury obligations held by foreign governments, especially OPEC governments.

Many economies have attempted to print currencies to buy goods, and it has often resulted in hyperinflation. Using seigniorage in the production of money dates back to at least the fourth century, when Rome increased the bronze content and decreased the silver in coinage. It was a prominent feature of the twentieth century, with

hyperinflation in Central Europe and the Weimar Republic before World War II, and with the continual changes in Brazilian and Argentine national currencies.

The United States has been the only government and national economy that has been able to run a long-term balance of payments deficit, which enabled it to print currency without the immediate consequence of hyperinflation. It has run a balance of payments deficit since the founding of the Bretton Woods system. Some of this deficit funded world economic growth by providing dollars for reserve assets.[14] At times it has seemed an 'exorbitant privilege', as French minister Valéry Giscard d'Estaing called it when the US ran a deficit to pay for attempting to resolve the colonial mess that the French had made in Vietnam. It was certainly a privilege for the United States to run deficits in this manner during the 1980s, and also for the invasions of Iraq and Afghanistan during the administration of George W. Bush in the early 2000s.

In the late 1970s, the onus of funding US deficits fell to oil surplus states, and there was talk of changing oil pricing and oil transactions to another currency. In June 1975, according to congressional testimony, OPEC reached a consensus to peg the price of oil to IMF SDRs (Special Drawing Rights), which were a basket of widely traded currencies. As the dollar depreciated throughout 1975–9 and the nominal price of oil rose, it would have been in the interest of most oil exporters to peg the price of their exports to a basket rather than the dollar.

Shortly after that agreement in 1975 the dollar began to rise again, and the decision seems to have been forgotten. OPEC has never made public these discussions, but they were known to the staff of the US Treasury. From internal Treasury memos dated October 1978, it appears that OPEC considered three options. One was called a 'Geneva II basket', which was composed of the G-10 (Bank of International Settlements members) currencies plus Switzerland and Austria. A 'strong currency basket' was the second option – oil would be priced in whatever currency was appreciating in value the most. And SDRs was the third option, and the one taken most seriously.[15]

Certainly the price of oil would have been more stable if it were priced in SDRs, as the price drop in 1986 demonstrates. In the ten months leading to US–Saudi discussions in October 1978, the relative purchasing power of OPEC dollars had fallen by 40 per cent. OPEC had involuntarily lowered the effective price of oil by four tenths. Its dollar investments were also hurt. The US Treasury estimated that Saudi Arabia would have been better off using a currency basket for almost all of the time since the first oil shock in 1973.[16]

By 1978, Saudi Arabia had a great majority of the dollar reserves held by OPEC, and it stood to lose the most if international confidence in the dollar as a reserve currency was hurt. And that confidence would have been hurt by a shift to basket-based oil prices. Dollars constituted 90 per cent of Saudi government revenues by the end of the 1970s, and 83 per cent of reserves were in dollars. So the choice was between stabilising the value of current revenues, or stabilising the worth of past revenues (which were being saved in dollars).[17]

Even if Saudi Arabia, and other oil exporters, did not shift pricing and transactions away from dollars, they could diversify their dollar holdings. SAMA (Saudi Arabian Monetary Agency) began a fairly aggressive shift to Deutschemarks and Yen in 1978. The finance minister of Kuwait visited Washington and renewed suggestions of moving to a currency basket (accompanied by a price hike).[18]

At the time, Michael Blumenthal was Secretary of the Treasury. He went to Saudi Arabia with several arguments for maintaining dollar pricing. His first was that the dollar was going to appreciate.[19] This was not an official stance to the rest of the world, as the government was not intervening in currency markets to change the value of the dollar. It did indeed appreciate over the next few years, partially in response to the unanticipated rise in interest rates when Paul Volcker began to target the money supply at the end of the 1970s.

Of the most interest to Saudi Arabia, though not necessarily to the rest of OPEC, was an increased role in the IMF. Although it was supposed to be the international institution responsible for financing

balance of payments adjustment, and therefore it should have been the primary focus of petrodollar recycling, the IMF played a fairly marginal role in recycling. It did put together a Supplementary Financing Facility (known as the Witteveen facility) in 1978, and that was funded by Saudi contributions.

At issue in increasing Saudi quotas in the IMF was declining US voting power. A nation's voting share in the IMF is determined by its quota. At the founding of the IMF, the United States had a 30 per cent quota. It fell to 25 per cent in 1959, and by 1978 it was less than 20 per cent. This allowed the United States an automatic veto on votes that would fundamentally change the balance of power in that international institution. A 'high majority' of 80 per cent was required while the United States had 25 per cent of the votes, and that requirement was increased to 85 per cent when the US share dropped again in 1978.

Until the high majority was changed, the United States was reluctant to see its voting share fall, and that meant it did not want to allow increased contributions from Saudi Arabia. The Saudis, on the other hand were willing to keep oil priced in dollars (rather than SDRs), if it was allowed to appoint a director on a long-term basis. Saudi Arabia was permitted to appoint a director for a term of two years in 1978, based on its lending to the Witteveen facility, but to appoint the director for a longer term, the United States had to allow Saudi Arabia an increase in voting shares.

A compromise between the United States and Saudi Arabia was linked to the role of the dollar. In what was called the 'Seventh Review' of quotas, the United States agreed that Saudi Arabia's quota would increase by 350 per cent, so long as they dropped the idea of pegging oil to SDRs and kept the prices in dollars. Saudi Arabia became the sixth largest member of the IMF. Mainland China was also given a more significant position. The United States, though its share of the global economy had diminished, was allocated an increased quota so that its vote was just under 20 per cent. It maintained its veto power.[20]

The intent of US policymakers was to maintain the general role of the dollar. It is most likely that their efforts have continued since the

late 1970s, but no researcher has found evidence to prove it. Although the press reports periodic threats to decouple oil prices from the dollar (by Iran, by Libya, and by Saddam Hussein in Iraq), there is no research showing that the United States has been active in preventing those attempts.[21]

Stories about the role of the dollar have expanded over time. For example, Marin Katusa writes that Richard Nixon 'asked King Faisal of Saudi Arabia to accept only US dollars as payment for oil and to invest any excess profits in US Treasury bonds, notes, and bills. In exchange, Nixon pledged to protect Saudi Arabian oil fields from the Soviet Union and other interested nations, such as Iran and Iraq.'[22] His sole source seems to be my work, though I made much more moderate claims. Most work on the subject is deductive. One journalist noted that the Saudis enjoyed the capacity 'to affect US interest rates and the strength of the dollar on foreign exchange markets in the unlikely event they should choose to do so'.[23] It was clear that the United States was vulnerable to hostile Saudi policy, as it is vulnerable to any government with which it has close economic and financial relations. And just as observers posit very general motivations for US policy, the policymakers themselves were likely driven by a very general desire to maintain the dollar as a powerful international currency.

The Role of the Dollar and the Justificatory Discourse of Neoliberalism

The denomination of oil prices was not much of a factor in explaining the counter-shock, but it represented an important symbol in the exercise of American power.[24] At the start of the first oil shock in the 1970s, policymakers in industrialised countries had agreed not to compete for Arab petrodollars. Insuring that oil was priced in dollars was part of a general US strategy to do just that. The United States cut secret deals with Saudi Arabia to sell it Treasury obligations and to attract the lion's share of the Saudi surplus.[25]

In the 1970s the policy response that had political legitimacy was multilateral cooperation, not unilateral competition for capital.[26] The social purpose of the global political economy was still characterised by what political scientist John Ruggie has called 'embedded liberalism'.[27] Policymakers did not trust the unfettered working of market forces. Officials of the US government and the Federal Reserve system did not think that capital markets could handle petrodollar recycling.[28]

But in an attempt to calm markets, bankers and officials at Treasury and the Fed made public statements saying that markets were working. And officials such as Treasury Secretary William Simon attempted to justify unilateral policies by saying that the US government was letting markets work, while 'government-to-government channels have increasingly been opened'. He vowed, however, that the 'US Government offers no special subsidies or inducements to attract capital', which was quite simply a falsehood.[29] Thus, a part of the reason for the emergence of neoliberalism was as justificatory discourse. It meshed well with the emerging 'Washington Consensus' of the IMF, World Bank, and US Treasury in their structural adjustment conditionalities in the developing world.[30] But at least in the case of oil and petrodollar markets, US policymakers were appealing to shared norms (that market forces were legitimate) more than describing what they thought was actually happening (that markets were recycling petrodollars).[31]

By the 1980s, under the administration of Ronald Reagan, Washington had completed its turn to neoliberalism and free market ideology. But more than a decade after the institution of floating exchange rates, policymakers had a very poor conception of what it meant for the dollar to be the bulwark of global capitalism, or how the role of the dollar could be used in the pursuit of American interests. Outcomes that were left to market actors generally favoured the United States, and there were few pressures on Washington to intervene or even regulate markets (the Plaza Accord was an important exception). Policymakers insisted on the free functioning of markets, even when it

violated previous understandings of legitimate hegemony and the appropriate boundaries for authoritative allocation. In this sense, the imposition of free markets on the rest of the world was political and should be viewed as a power outcome.

The counter-shock of 1986 shows us that after a decade of neoliberalism as justificatory discourse, policymakers began to believe in the free functioning of markets. Many in the US government wanted to see the price of oil decline, but in a foreshadowing of opinion regarding the 2016 drop in oil prices, some thought that prices were actually too low. While the drop in oil prices was good for all energy consuming economies, it hurt oil producing states in the United States, such as Texas. That was the home of then Vice President George H.W. Bush. He was preparing to run for President in 1986 (the election was in November 1988), and depended upon oil wealth in Texas for support. In April 1986 he visited Saudi Arabia, and expressed concern about low oil prices. Cheap oil was a 'two-edged sword', he told reporters, and he considered the effects of the price collapse on domestic producers to be 'a threat to national security'. Bush said publicly that 'We recognise that, as we talk about national security interests, [a low price] comes in conflict at some point – and I don't know where that is – with the totally free-market concept that we basically favor [...] I feel that, and I know the President of the United States feels that.'[32]

President Reagan clarified that lower prices would hurt national security by encouraging further US dependence on foreign oil, but confusingly he also said that his Vice President had 'been saying pretty much what I've just been trying to say here now – that the free market is the one, the answer to this'.[33] Bush in a radio interview suggested that prices need to rise to the point where 'markets could work'.[34]

None of this suggests a very nuanced or sophisticated understanding of how markets work, or of the implications of letting markets work freely. Indeed, the comments smack of wanting certain outcomes while at the same time justifying any action taken to achieve those

outcomes as letting markets work. Economic analyst Philip Verleger called the price drop 'a $400 billion tax cut for the free world'.[35] Commentator Charles Krauthammer called Bush's desire to stabilise prices 'so absurd and perverse that it borders on the unbelievable'.[36] Apart from the effects of oil prices on the domestic economy, this period is characterised by fundamental misunderstandings of how the dollar functioned and how budget and trade deficits were funded. If markets were to work freely, the dollar would remain strong. Its value was determined by exports of Treasury obligations, not by imports of oil. And the free market for oil would not have been based on collusion to restrict production by OPEC, or hegemonic leadership by Saudi Arabia as a swing producer.

This unenlightened view of markets, the imposition of markets as a power outcome, and state intervention to 'make markets work', are the cornerstones of neoliberalism in practice. The counter-shock of 1986 was not caused directly or intentionally by US policy, but the US reaction to it was emblematic of the working of neoliberalism as an ideology. And more importantly, the shock was not caused by economic fundamentals or the market forces of supply and demand resulting in a price at which oil was neither over- nor under-supplied. A price decline in 1986 can be explained. A price collapse is simply the irrational over-reaction that is typical of free markets.

In the 1970s to mid-1980s, government officials in developed nations agreed on the legitimacy of policy coordination, and intervention in markets. Yet economic outcomes such as oil prices were left in large part to private actors. Markets were free, so long as they produced outcomes favourable to the US government. A study of the policy pronouncements by US government officials shows that when they sought to justify behaviour that might have been inconsistent with the legitimate goals of policy coordination, they resorted to neoliberal language of 'letting markets work'.

To impose intellectual constructs of explanation, other than mass psychology and economic culture, is itself a form of political action that

is a part and parcel of neoliberal ideology. As T.S. Eliot once wrote, 'The worlds revolve like ancient women / Gathering fuel in vacant lots.' Politicians justify those movements as letting market forces work. Objective observers should recognise the forces of irrationality, anarchy, and politically motivated self-justification.

Notes

1. William Glenn Gray, 'Learning to "Recycle": Petrodollars and the West, 1973–5', in E. Bini, G. Garavini and F. Romero (eds), *Oil Shock: The 1973 Crisis and its Economic Legacy* (London, 2016), chapter 7, p. 172.
2. Duccio Basosi points specifically to varying views of imperial and expansionist policies in his excellent work 'Oil, Dollars and Power. Petrodollars Revisited', paper for the conference *Oil Imperialism*, Sorbonne University, Paris, 4–5 November 2016.
3. Data for WTI prices (at Cushing, Oklahoma) are collected by the US Energy Information Agency (EIA) of the Department of Energy, www.eia.gov. Real prices are adjusted for inflation using the headline Consumer Price Index (CPI) provided by the US Bureau of Labor Statistics. Price histories since 1986 are available for download. EIA data for previous years were downloaded from www.macrotrends.net.
4. West Texas Intermediate is used here for price histories because data for it is collected by the US Department of Energy. It is the benchmark traded in financial markets in New York. London markets trade Brent, which is a similar crude. Rotterdam, which is a reference point for the physical delivery of spot oil, is a market for all grades of crude. Since the early 1990s Brent is the dominant reference price, and at the time of the counter-shock in 1986 WTI was the benchmark traded in Rotterdam.
5. Though not the topic of this study, it is interesting to note that the trend in oil prices reversed in March 2003, when the United States invaded Iraq. From that point on, oil prices trended upward, reflecting the instability created by the war. Some justified the invasion from the standpoint of securing the supply of oil. But it is clear that the invasion had the unintended (but foreseeable) consequence of doing just the opposite.
6. Nearly all basic texts on oil markets explain cartel behaviour. For an example of a classic work, see Peter F. Cowhey, *The Problems of Plenty: Energy Policy and International Politics* (Berkeley, 1985). On the diamond cartel, see Debora L. Spar, 'Markets: Continuity and Change in the International Diamond Market', *Journal of Economic Perspectives* xx/3 (2006), pp. 195–208.
7. Theodore Moran, 'Managing an Oligopoly of Would-Be Sovereigns: The Dynamics of Joint Control and Self-Control in the International Oil

Industry Past, Present, and Future', *International Organization* xvi/4 (1987), pp. 575–607.

8. James D. Hamilton, 'Historical Oil Shocks', in R.E. Parker and R.M. Whaples (eds), *Handbook of Major Events in Economic History* (New York, 2013), pp. 239–65.
9. Yoichi Funabashi, *Managing the Dollar: From the Plaza to the Louvre* (Washington, DC, 1989).
10. I am referring to the classic nineteenth-century text Charles Mackay, *Memoirs of Extraordinary Popular Delusions* (London, 1841), which financier Bernard Baruch had reprinted just before the market crash of 1929.
11. When Anglo-Persian first explored for oil to supply the British navy with fuel, oil was priced in pounds sterling. By 1974 all oil was priced in dollars. See Daniel Yergin, *The Prize: The Epic Quest for Oil, Money, and Power* (New York, 1991).
12. David Ottaway, 'Saudi Threat to Cut Oil Flow Million Barrels Daily Reported', *Los Angeles Times*, 5 September 1973.
13. The active efforts of the US to attract OPEC investments is a primary subject in my past work: see David E. Spiro, *The Hidden Hand of American Hegemony: Petrodollar Recycling and International Markets* (Ithaca, 1999).
14. This is the basic thesis of Benjamin J. Cohen, *Organizing the Worlds Money: The Political Economy of International Monetary Relations* (New York, 1977); and is discussed in the excellent work of Robert Triffin, *Gold and the Dollar Crisis: The Future of Convertibility* (New Haven, 1961) and Barry Eichengreen, *Exorbitant Privilege*: *The Rise and Fall of the Dollar and the Future of the International Monetary System* (New York, 2010).
15. This memo has never been published, but I summarise both it and published congressional testimony in Spiro, *Hidden Hand of American Hegemony*, p. 122.
16. US Treasury Department, 'Movements in the Relative Purchasing Power of OPEC Dollar Denominated Assets', mimeo, 23 October 1978.
17. Spiro, *Hidden Hand of American Hegemony*, pp. 122–3.
18. Ibid., p. 123.
19. Ibid., p. 124.
20. This history is based largely on interviews with IMF officials I conducted while researching *The Hidden Hand*. See pp. 103–5.
21. The work I did to show the politics of maintaining the role of the dollar in the 1970s involved many months of interviews in four different continents. I was able to examine boxes of documents for the US Treasury because they had been supplied to a congressional subcommittee, which then lent the documents to me. Perhaps no other researcher has devoted the time and effort to find similar stories from more recent decades.
22. Marin Katusa, 'Tehran Pushes to Ditch the US Dollar', *Casey Daily Dispatch* online, 24 January 2012. Available at http://www.caseyresearch.com/articles/demise-petrodollar (accessed 3 February 2017). Another study that relies on

my work, but exaggerates what actually happened, is Vivek Kaul, *Easy Money: Evolution of the Global Financial System to the Great Bubble Burst* (Los Angeles, 2014).

23. Jim Hoagland and J.P. Smith, '"Coincidence of Objectives" Ties Saudis, US', *Washington Post*, 20 December 1977, quoted in Andrew Scott Cooper, *The Oil Kings* (New York, 2011), kindle edition locations 11902–11903.
24. For an excellent elaboration, see Basosi, 'Oil, Dollars and Power. Petrodollars Revisited'.
25. This is the central argument of my work *Hidden Hand of American Hegemony*.
26. Gray, 'Learning to "Recycle"', describes the Witteveen Facility at the IMF, the European Community Loan Program, a solidarity fund in the OECD, and south–south recycling. He writes in a footnote that my 'arguments do not hold up well in light of newly available archival evidence', but his excellent archival research seems to support my views without exception. These recycling schemes represented the legitimate multilateral response, and it was against the backdrop of American agreement to these schemes that the secret unilateral competition for capital took place.
27. John Gerard Ruggie, 'International Regimes, Transactions, and Change: Embedded Liberalism in the Postwar Economic Order', *International Organization* xxx/2 (1982), pp. 379–415.
28. Spiro, *Hidden Hand of American Hegemony*, pp. 32–7.
29. Statement of Treasury Secretary Simon before the Boards of Governors of the International Monetary Fund and the International Bank for Reconstruction and Development, Washington, DC, 1 October 1974, reprinted in US Department of State, *Bulletin* lxxi/1844 (1974), p. 576.
30. Mark Blyth, *Austerity: The History of a Dangerous Idea* (New York, 2013). Blyth gives a rich and detailed history of the rise of neoliberalism, but the justifications of policymakers regarding recycling are not part of his thesis.
31. Perhaps because of this discourse, many economic histories have claimed that banks and other private markets did indeed recycle petrodollars. The evidence suggests otherwise. See, for example, Carlo Edoardo Altamura, *European Banks and the Rise of International Finance: The Post-Bretton Woods Era* (London, 2016), chapter 3.
32. Bush's comments were reported widely in US newspapers. One was Timothy J. McNulty, 'Bush Sees Oil Glut Undermining US', *Chicago Tribune*, 7 April 1986.
33. Leonard Silk, 'Economic Scene; Reagan, Bush And Oil Prices', *New York Times*, 11 April 1986.
34. See Victor McFarland's chapter in this volume.
35. US Congress, Joint Economic Committee, Subcommittee on Trade, Productivity, and Economic Growth, *The Economic Impact of the Oil Price Collapse* (Washington, DC, 1986).
36. Charles Krauthammer, 'He's Doing What? Bush Is Trying To Restore High Oil Prices', *Washington Post*, 8 April 1986.

3

The Oil Market and Global Finance in the 1980s

Catherine R. Schenk

The 1980s was a turbulent time in global financial markets due to a range of economic and political factors, including a surge in financial innovation and the liberalisation of national capital markets. New monetary policy tools sought to choke inflationary pressure that had persisted from the 1970s through aggressive (but not always consistent) monetary contraction that resulted in high and volatile global interest rates. The outcome was a series of gyrations in international capital markets through the decade that interacted with innovations in oil markets and shifts in the global business cycle. This chapter addresses how the three structural breaks in the oil price in 1974, 1979 and 1986 created challenges for global energy markets and prompted market innovation to manage these new risks. In order to understand the financialisation of the global oil market in the 1980s the next section reviews the changes in the structure of the oil price in the decade before the Saudi price counter-shock in 1985–6. The following section examines the uneven process of innovation in futures markets in the United States and London. The

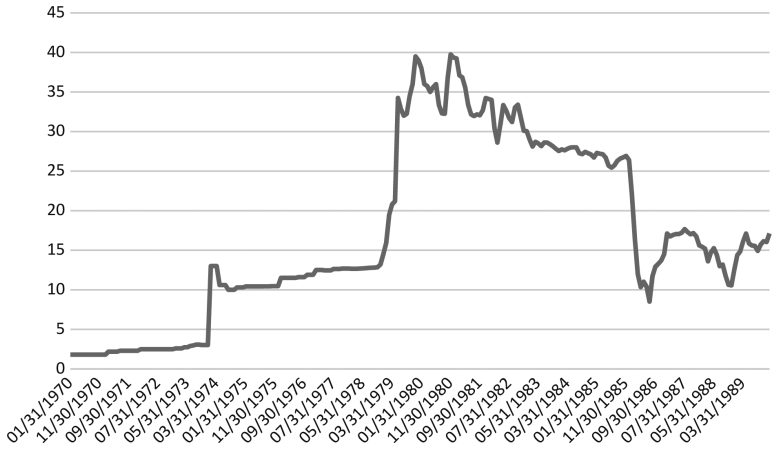

Figure 3.1 Monthly Dubai Arab Crude price. Source: Global Financial Database IMF.

third section focuses on the turning point of the counter-shock and a final section concludes.

Innovations in the Structure of the Oil Price

The structure of the oil market is especially complicated due to the diversity (both political and geographic) of crude suppliers, the range in the quality of the raw material depending on its density and sulphur content (characterised as 'light', 'heavy', 'sweet') that determines the yield after refining, and the diversity of refined products sold to the final consumer. The long distances that crude oil is shipped and the time required for refining and re-shipping finished products to their final market adds another layer of uncertainty over pricing – what might seem an appropriate price at the start of any transaction might seem hopelessly out of line with prices prevailing at the time of delivery. In the 1980s it could take up to 45 days for crude oil to reach markets in North America or Japan from Gulf producers.[1] A final complication is that from the late 1970s the oil trade was almost exclusively denominated in US dollars and this introduced exchange risk for consumers and traders

outside the United States. In the first half of 1974 about 40 per cent of Nigeria's and Kuwait's oil revenues and 18 per cent of Saudi oil was denominated in sterling because this was the currency used in the contracts with the oil companies, both British companies and other multinationals.[2] By the end of 1974, however, the share of revenues in sterling had declined sharply and the dollar was dominant.

Up until the 1970s, in order to deal with these market complexities, a small number of major multinationals, known as the 'seven sisters', internalised their supply chains to control the supply and therefore the price of crude oil. This also suited the state suppliers since their royalties and revenues were secured in long-term contracts. Instead of open market prices, contracts between the oil companies and the supplying governments were based on a posted price that was negotiated between the two parties rather than by market demand and supply.[3] Any surplus oil was traded between the major companies at administered prices rather than through an open market. Until the first oil crisis in 1973–4, therefore, the price of oil was mainly set by the major oil companies with little competition from smaller independent companies. There was no generalised open market for crude oil or oil products and prices were controlled through administrative arrangements. These arrangements only began to crumble in the early 1970s as demand increased (thereby creating a sellers' market), oil fields were nationalised, term contract pricing changed and prices became more responsive to market conditions.

On 16 October 1973, in the wake of three years of rising global demand for oil and the refusal of the major multinational oil companies to increase the contract price, the OPEC nations unilaterally increased the price of Arabian Light Crude from $3.65 to $5.119 per barrel. Three days later the Arab oil exporters announced a 5 per cent reduction in production until the Israeli occupation of Arab territory was reversed. This marked a seismic shift in the post-war oil industry and launched the global economy into a new era. Nationalisation of oil fields followed as producing states broke their traditional relationships with the major oil companies to reap more of

the revenues from their newly discovered price setting power. In the process of increasing their equity shares of production, OPEC countries gained control of crude oil supplies that they could sell either on an open market or at 'buy-back' prices to the multinational oil companies, prompting a complicated price structure of Official Selling Price, buy-back price and posted prices. By 1975, the system was simplified as OPEC countries set a reference price for Arabian Light 34° API and then set their Official Selling Prices for other crudes around this reference product according to the relative quality of the oil. But this process was not without its challenges and Saudi Arabia emerged as an important disruptive force in the 1970s since it tended to lose market share when the official OPEC price increased. In 1976 and again in 1980 Saudi Arabia broke ranks and posted a lower marker price for its crude than other OPEC members.[4]

As the major multinational oil companies lost control of crude supplies, there was a rapid increase in the number of competing customers for nationalised oil producers so that by 1982 Robert Mabro, Director of the Oxford Institute for Energy Studies, estimated that 'a typical OPEC country has between twenty and forty customers including previous concessionaires, US independents, European and Japanese companies, Third World companies, refiners, traders and governments'.[5] Although it was still not a fully open and competitive market, there was a widely disseminated spot price published in the financial press that applied to the fringe companies and other minor actors in the market. But these prices in the spot market still did not reflect the bulk of the crude oil trade. Until the late 1970s, the IMF estimated that almost 90 per cent of the world's oil was 'sold under long term contracts based on prices set by the major oil producers, and the other 10 per cent was bought and sold informally between the international oil companies' but by 1984 about 90 per cent of the world's oil was available through the spot market.[6] J.E. Hartshorn suggests such high estimates for the proportion of crude oil traded in spot markets in the early 1980s is exaggerated, noting that 'it is impossible to verify them

because in open markets the same crude is often sold several times over'.[7] This emphasises the lack of transparency in the market.

The second major oil price shock arising from the Iranian Revolution in 1979 prompted a further transformation of oil pricing. From mid-1978 oil prices began to rise sharply in response to rapid industrial growth. Superimposed on this cyclical increase in demand was precautionary demand due to political instability in Iran that seemed to threaten future supplies.[8] This left the Official Selling Price (earned by OPEC producers) well behind the spot price that could be earned by the oil companies selling to consumers, refiners or other oil companies which did not have direct access to suppliers. The gap between the spot price, the reference price and the official selling prices eventually prompted state producers to abandon their term contracts and instead to sell directly to a more competitive market. An exception was Saudi Arabia, which retained its long-term contracts with the Aramco companies (Exxon, Chevron, Texaco and Mobil).[9] In the end, the oil price spike of 1979 was short-lived, partly due to the decline in precautionary demand as new suppliers such as Mexico entered the market and non-OPEC, non-Middle East production increased its global share. As the spot price fell below the OPEC reference prices, more consumers were drawn to the spot market. The trend to more arms-length trading between producers and various consumers created space for new independent companies, enhanced the importance of the spot market and increased the volume of trade channelled through this more transparent price setting mechanism.

In turn, OPEC producers were forced to react to the falling spot price. On 14 March 1983, for example, members of OPEC met to set production quotas and to reassess the benchmark crude oil price, which was then $34 per barrel when the spot price for Dubai Light Crude was $29 per barrel. At their March meeting they agreed to reduce the benchmark price to $29 per barrel and this reduced volatility in the market, but the gap between administered and spot prices continued. As the Managing Director of the IMF noted in 1991, 'from the mid-1980s onwards, it appeared less and less appropriate to try to post official prices

that were at odds with spot and futures prices prevailing elsewhere in the world and to maintain them for contracts'.[10]

In summary, the key factors affecting the structure of the price of oil in the decade or so before the 1985–6 oil price collapse were:

1. the separation between producers and the major oil supplying companies that produced a spot market rather than longer-term contracts;
2. the disintegration of the oil companies' control of the supply so that they no longer internalised price fluctuations between products and producers and also no longer could rely on a long-term supply of crude oil;
3. the uncertainty about the OPEC group's ability to manage prices through controlling supply, especially when the price of oil was falling and supply from outside OPEC increased.

Overlying these structural changes was the advent of high (and volatile) real interest rates in the 1970s and early 1980s. Inconsistent efforts to contain inflation through monetary policy in the late 1970s and then the more deliberate policy of Paul Volcker as Chairman of the Federal Reserve in 1979–80 meant real interest rates rose sharply. This had two effects on oil markets. Monetary contraction slowed growth in the United States and other advanced economies, leading to a relaxation in the pressure of global demand for oil and a systemic decline in both the real and nominal oil price. At the same time, higher interest rates increased the cost of storing oil for consumers and made the futures market a more attractive way to hedge risk compared to building up inventories.[11]

Innovations in Spot and Futures Markets

As the oil price moved gradually toward a market price, it became more volatile. In the mid-1970s, refiners buying crude from OPEC countries were much more affected by fluctuations in prices, which created a demand for 'stabilisers' in the market such as futures and swaps.[12] New

entrants and new suppliers (outside OPEC) meant the market became more differentiated by the location and quality of oil. Finally, the unstable cartel, with its competing interests among the member states, introduced an over-arching level of uncertainty about whether they would be able to control the price movements collectively, or if supply shocks (either increases or decreases) were possible at any moment.

Table 3.1 shows the development of energy futures markets in crude and various refined products from the autumn of 1974. Three aspects emerge. First, as noted above, not all innovations were successful. Most of the early experiments were dormant by 2000. Secondly, there was a range of delivery forms and size of contract depending on the product and location of the exchange. Thirdly, the markets became global, spreading from New York to London and then to Singapore. Along with the extension of the location of markets across time zones and a range of delivery options in the United States, Europe (and eventually Singapore) shown in Table 3.1, the maturity of the contracts available also increased. In the first years, most futures contracts were less than three months, but by 1989 trading was extended to 12 months. However, it was only in the 1990s that much longer contracts for up to three years ahead became available.[13]

The oil crisis of 1973–4 prompted the first futures markets in New York in September and October 1974, but they did not survive. In 1974, a sugar futures trader, Emmett Whitlock, persuaded NYMEX to develop gas oil and Bunker C oil futures with delivery in Rotterdam, followed by the New York Cotton Exchange opening crude oil futures, also with delivery in Rotterdam.[14] But these experiments were not successful because of the distant delivery centre and the rush for current supplies. Trading was too thin, prices were too stable and the market was not liquid enough to be a useful hedge. In November 1978 these contracts were converted to deliver in New York Harbor and the No 2 heating oil futures contract began to gain traction, with its first delivery of over 250 million barrels in March 1979. This innovation was helped by the appetite of smaller firms that had no access to the spot

Table 3.1 Evolution of forward contracts in oil and oil products, 1974–90

Contract	Exchange	Start of Trading	Status as of 2000	Size	Delivery Method
Crude Oil (Rotterdam)	NYCE	Sept 1974	Dormant	5,000bbl	Physical
Gas Oil (Rotterdam)	NYMEX	Oct 1974	Dormant	100 metric tons	Physical
Bunker C Oil (Rotterdam)	NYMEX	Oct 1974	Dormant	100 metric tons	Physical
No2 Heating Oil (NY Harbor)	NYMEX	Nov 1978	Active	42,000 gal	Physical
No 6 Fuel Oil (NY Harbour)	NYMEX	Nov 1978	Dormant	42,000 gal	Physical
Gas Oil (ARA)	IPE	April 1981	Active	100 metric tons	Physical
No 2 Heating Oil (Gulf Coast)	NYMEX	August 1981	Dormant	42,000 gal	Physical
Leaded Gasoline (NY Harbor)	NYMEX	Oct 1981	Dormant	42,000 gal	Physical
Leaded Gasoline (Gulf Coast)	NYMEX	Dec 1981	Dormant	42,000 gal	Physical
Propane (Mont Belvieu, TX)	NYCE	Dec 1981	Dormant	42,000 gal	Shipping Certificate
Unleaded Regular Gasoline (Gulf Coast)	CBOT	Dec 1982	Dormant	42,000 gal	Depository Receipts
Crude Oil (Cushing OK)	NYMEX	Dec 1982	Active	1,000 bbl	Physical
Crude Oil (St James, LA)	CBOT	March 1983	Dormant	1,000 bbl	Depository Receipts
No 2 Heating Oil (Gulf Coast)	CBOT	Mar 1983	Dormant	42,000 gal	Depository Receipts
Crude Oil (Brent)	IPE	Nov 1983	Active	1,000 bbl	Physicals (1983) Cash Settlement (1985) Cash Settlement/ EFP (1988)
Leaded Gasoline (Gulf Coast)	CME	Mar 1984	Dormant	42,000 gal	Physicals

No 2 Heating Oil (Gulf Coast)	CME	Mar 1984	Dormant	42,000 gal	Physicals
Unleaded Gasoline (NY Harbor)	NYMEX	Dec 1984	Active	42,000 gal	Physicals
Heavy Fuel Oil (ARA)	IPE	Oct 1986	Dormant	100 metric tons	Physicals
Propane (Mont Belvieu LA)	NYMEX	August 1987	Active	42,000 gal	Physicals
High Sulfur Fuel Oil (Singapore)	SIMEX	Feb 1989	Dormant	100 metric tons	Physicals
Residual Fuel Oil (NY Harbor)	NYMEX	October 1989	Dormant	42,000 gal	Physicals
Natural Gas (Henry Hub)	NYMEX	April 1990	Active	10,000MMBtu	Physicals
Crude Oil (Dubai)	SIMEX	June 1990	Dormant	1,000 bbl	Cash Settlement
Crude Oil (Dubai)	IPE	July 1990	Dormant	1,000 bbl	Cash Settlement

ARA = Amsterdam, Rotterdam, Antwerp area. IPE = International Petroleum Exchange London. NYMEX = New York Mercantile Exchange; CME = Chicago Mercantile Exchange; CBOT = Chicago Board of Trade.
Source: Steven Errera and Stewart Brown, *Fundamentals of Trading Energy Futures & Options* (Tulsa, 2002), pp. 150–2.

market in heating oil (which was controlled by the major oil multinationals) and by the rise in the price of heating oil in the United States at the start of 1979. In April 1979 President Carter announced that he intended to decontrol the domestic oil market from June 1979.[15] The market was also supported by institutional structures such as the Commodity Futures Trading Commission Act of 1974, which established the CFTC (Commodity Futures Trading Commission) to govern the market as a successor to the Commodity Exchange Authority (which had been an agency of the Department of Agriculture, and covered a limited range of commodities).

Nevertheless, the gas and heating oil futures markets were slow to develop. The major oil companies shunned the market.[16] In 1983 only five of the seven sisters used the New York futures market 'intermittently' while Standard Oil and Exxon were 'still reluctant to be involved'. [17] By mid-1986 Exxon was the only major oil company still not participating in the market; Exxon's President, Lawrence G. Rawl commented that 'since the company deals in wet (physical) barrels, futures are not very useful for our operation'.[18] Moreover, there was little arbitrage possible between national futures markets since the marker crude in New York was West Texas Intermediate which could not be exported and did not maintain a constant price differential with Brent crude, which was the European marker crude.

In London, gas oil futures were launched in April 1981 for delivery in Amsterdam, Rotterdam and Antwerp to service the European market. The International Petroleum Exchange (IPE) was originally established as a mutual society among energy companies and financial firms. Thirty-one floor traders traded contracts in morning and afternoon sessions in lots of 100 tons with a value of about $30,000 at the time. The contracts allowed a hedge for up to nine months ahead of delivery. Gas oil was chosen since it had a larger proportion of trading on the open market across a wide range of sectors compared to crude oil.[19]

The first crude oil futures markets were launched in Chicago and New York in March 1983 for delivery in St James Louisiana and

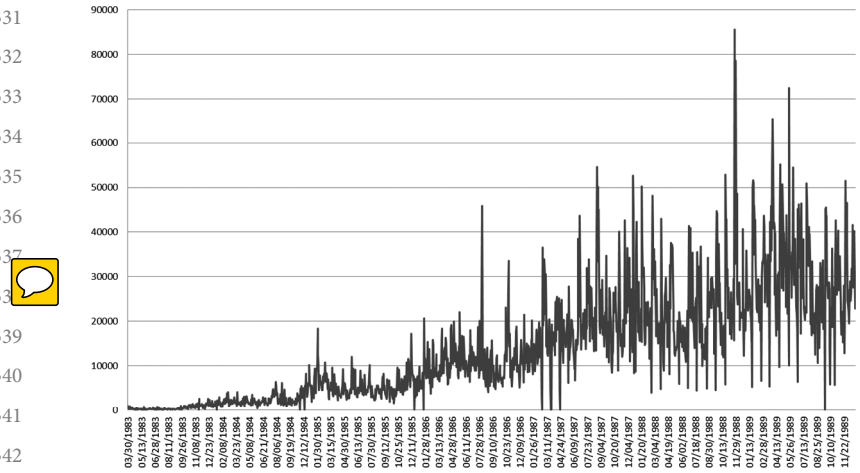

Figure 3.2 NYMEX crude oil futures contracts daily volume of trading, 1983–9. Source: Global Financial Data.

Cushing Oklahoma respectively. Contracts in each case were for 1,000 barrels of domestic crude. The Chicago Board of Trade was the world's largest commodity market but, in the long run, the New York exchange was more successful, reaching a daily turnover of over 2,000 lots on average with open interest (unfulfilled delivery commitments) of about 12,000 per day within six months, compared with open interest of only 1,400 lots in Chicago.[20] At the time, the *Financial Times* attributed New York's success to their closer links to the oil industry, which meant that about 70 per cent of the turnover was directly related in the oil business with only about 30 per cent due to financial speculators. [21] Moreover, Chicago's delivery and payments systems were more complex and New York benefited by having more capacity in energy trading because of their earlier refined products futures markets.[22] Figure 3.2 shows that volume of turnover in futures contracts in New York increased in the first quarter of 1985 and again in the first quarter of 1986 with a spike in trading at the end of July.

London's IPE launched its first attempt at crude oil futures in November 1983. On opening day, 224 lots of 1,000 barrels were traded, but

the market never took off. The contracts for 1,000 barrel lots were too small to be viable since Brent crude was usually delivered in cargoes of at least 500,000 barrels. In April 1984, the existing contracts were withdrawn since there was no active trading. It took over a year to design and launch a new contract in November 1985 with cash settlement in oil index futures rather than physical delivery.[23] The new contract was based on a daily price index of 15-day forward cargoes of Brent blend at Sullom Voe in Scotland rather than the original contract involving a physical delivery option at Rotterdam.[24] However, success was still elusive and only two or three cargoes were traded daily during the first few months of 1986. Trading dried up by the middle of the 1986 after prices fell.[25] The IPE's second attempt to initiate a crude oil futures market had failed.

An important problem was that a rival unregulated market in 15-day Brent forward contracts had already emerged in 1981.[26] British tax arrangements with companies operating in the North Sea Oil fields required some price discovery to establish tax liabilities, and the majors used a 15-day forward market in 500,000 barrel cargoes to establish this price. But the market operated without the safety net of a clearing house or institutional backing. In February 1986 some traders were caught out by falling prices, leading to defaults along the 'daisy chain' of sold and re-sold contracts and some of the majors were forced to bail out weaker traders after defaults on contracts. Another aspect was that in New York there were more 'local' or independent traders in the market rather than just the industrial suppliers and users of crude and this increased turnover and liquidity. In London, the IPE restricted entry to its own members and relied more on the participation of the major oil multinationals, who were still reluctant participants.

In August 1986, in the wake of the Saudi price counter-shock, the IPE appointed a special advisory committee, including representatives of the major oil companies, to consider how to establish a crude oil futures market to recapture this market into a more regulated and transparent institution.[27] The losses earlier in the year in the unregulated forward market made a formal exchange more attractive to the majors, but it took almost two years

to launch the third attempt at a Brent crude futures market. The new contract launched in June 1988 was much more successful. Prices were still volatile and Brent Crude had become more important as a benchmark for many Middle Eastern crude oil, making it a useful hedge. The IPE contract was only 1,000 barrels, making the risk much more manageable for smaller traders than the unregulated 15-day market with its minimum of 500,000 barrels. The value of a seat on the IPE increased from £8000 in 1985 to over £75,000 in early 1989 and £170,000 by October 1989. In 1989 the traditional lunch break was scrapped to allow the exchange to be operational before New York opened.[28] London's success was reinforced by the narrowness of the NYMEX which was limited to WTI crude, which responded mainly to local market factors in the United States rather than global oil market developments. London finally had a competitive futures market in crude oil five years after New York.

In summary, the early futures markets launched in New York and London were not immediately successful and it took some time to design useful contracts and to attract a robust volume of business. The first experiments in the 1970s were plagued by a lack of sufficient volatility in the spot price and thin trading, which undermined their effectiveness both as a hedge and as aiding price discovery. Well-functioning futures markets required the structural changes to the oil trade described in Section I to become viable. While trading increased in 1978, it was the 1979 price shock that prompted an expansion of the demand for futures contracts. Even by 1982, however, Mabro predicted that 'dealings in futures may soon become an interesting (though not very significant) feature of the world petroleum market'.[29] The prospects looked unpromising until the collapse in oil prices introduced new volatility in 1985–6 that drew hedgers into the futures markets.[30]

Oil Markets and the 1985–6 Counter-Shock

The 1985–6 oil price counter-shock appeared as a confluence of events and bore out the vulnerabilities in the market introduced in the 1970s.

OPEC set an official price to try to influence global spot prices but their effectiveness eroded by the end of 1984 and the benchmark crude price was reduced from $29 to $28 per barrel in January 1985. OPEC suppliers were known to be offering discounts on the official price to some customers, and there were complex barter agreements and misalignments of official prices between different types of crude oil.[31] At the end of 1985 Saudi Arabia abandoned its support and the spot price fell sharply, due both to increased supply and the reduction in precautionary demand as it became clear that OPEC was unable to contain supply. In July 1986 the Saudi government began to price its oil in relation to the prices of refined products rather than the marker crude price. The 'net back' crude price worked back from the price of the ultimate refined product less the costs of transport and processing. The result was a collapse in the crude oil price.

Figure 3.3 shows that dramatic change in the one-month and three-month futures contracts traded on the NYMEX for WTI delivery at Cushing Oklahoma. Clearly the futures prices closely tracked the spot price through the 1985–6 oil price counter-shock.

Figure 3.4 shows that the margin between three-month and one-month futures increased sharply in 1985 and also increased in volatility while the oil price actually rose.

The rising discount reflected loss of confidence in the summer of 1985 in the ability of Saudi Arabia to constrain supply and to hold OPEC together.[32] Nevertheless, the nominal future and spot prices continued to rise until 20 November 1985, due to uncertainties about supply arising from the Iran–Iraq war and the temporary suspension of Soviet supplies. In the first quarter of 1986, three month prices exceeded the one-month price, but this was reversed in the second quarter. When the Saudi government abandoned the reference price in the second half of 1985 and embarked on net-back pricing, the discount on three months compared to one-month contracts increased again. Figure 3.5 shows, however, that the margin between one- and three-month futures prices then stabilised during the Iran–Iraq war, only increasing in volatility in 1989 in the wake of fresh conflict in the Middle East.

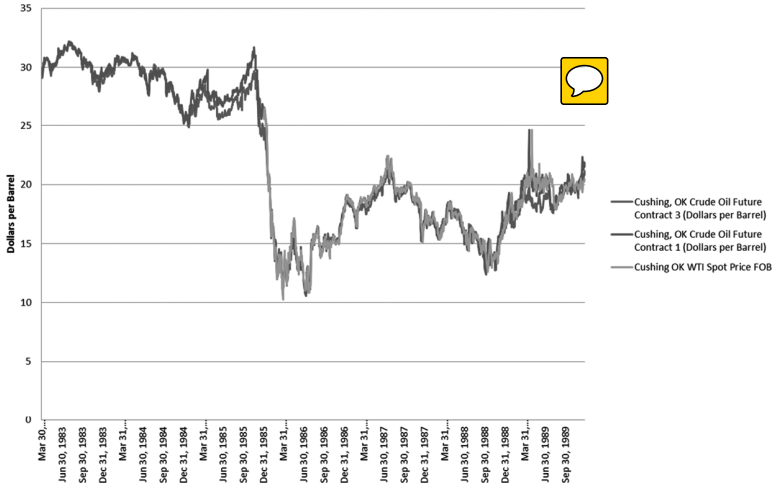

Figure 3.3 NYMEX WTI Crude oil at Cushing, Oklahoma, futures contracts and spot price ($/bbl). Source: Global Financial Data.

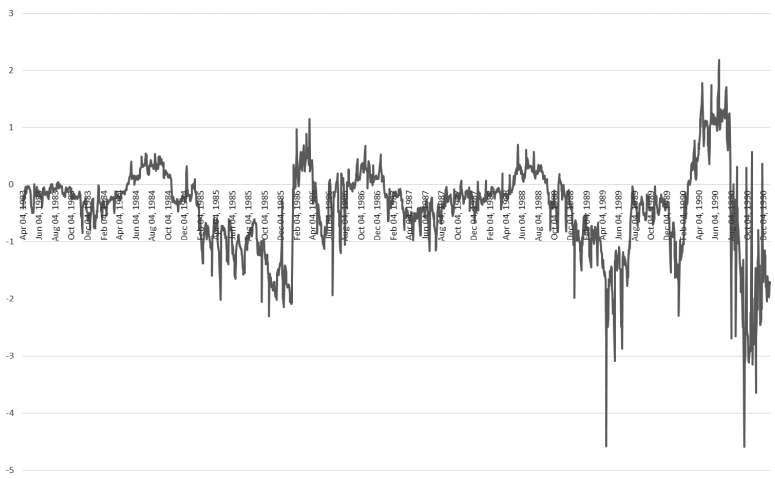

Figure 3.4 Margin between three-month and one-month crude futures contracts ($/bbl). Source: US Energy Information Administration (underlying data).

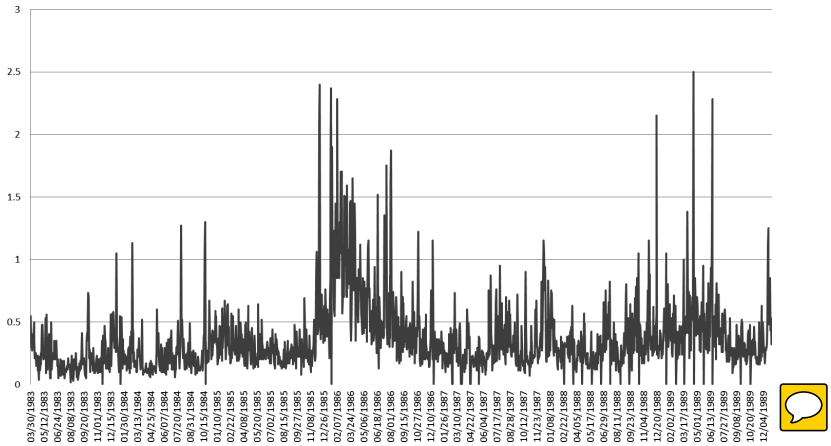

Figure 3.5 NYMEX crude futures contracts: spread between high and low prices, 1983–9. Source: Global Financial Data: NYMEX Crude Oil Futures.

Figure 3.5 shows that the daily volatility in high and low prices tended to remain around 0.5 per cent of the closing price on average until November 1985, and it peaked at the end of July 1986 at almost 16 per cent when the Saudis allowed the price to fall. Thereafter, volatility was still on average higher than in the early years of the 1980s before the Saudi price counter-shock.

The effectiveness of futures markets in predicting oil prices has been widely debated in economics literature. In 1993, the IEA noted that 'the timely price information conveyed by the futures market helped prices to efficiently and expeditiously balance oil supply and production'.[33] But the relationship between futures prices and spot prices continues to be debated.[34] The price discovery function of futures markets depends on the faster and more efficient response to information in futures markets because of lower transactions costs and the facilities for short-selling in response to news.[35] When futures markets help to clarify prices, they support transparency and efficiency in markets and therefore play a positive role in the allocation of resources rather than just being an outlet for destabilising speculation. But empirically, different methodologies

across different oil markets produce different results in testing these effects. It is also important to recognise that expectations about the future are expressed through spot prices as well as futures markets.

There is also debate about whether demand or supply factors are the primary determinant of spot price fluctuations since the 1970s. Christiane Baumeister and Lutz Kilian relate price movement to shifts in underlying demand due to fluctuations in the global business cycle.[36] But there are also effects from shifts in stocks or inventories arising from uncertainty about future price changes due to geopolitical tensions or expectations about the future global business cycle. Kilian and Daniel Murphy, for example, find that about one-third of the rise in the spot price of oil in 1979 was due to inventory demand in anticipation of future oil shortages due both to geopolitical and to global business cycle factors.[37] On the other hand, J.D. Hamilton finds a greater role for supply side shocks both within and beyond OPEC.[38]

The surge in the price of oil in 2003–8 prompted claims that the financialisation of the oil market contributed to rises in the spot price, a phenomenon known as the Master's Thesis after testimony before the US Congress by Michael Masters, an Atlanta-based investment adviser.[39] Masters argued that the futures prices were in practice used to benchmark spot prices in a range of food and energy markets including WTI crude oil as well as heating oil, gasoline and natural gas. The logic was that a rush of new entrants to the market (so-called index speculators unrelated to the oil or other commodities industry) increased speculative demand for contracts that drove up the oil futures price. This in turn signalled to other market participants that there should be a rise in the spot price and also encouraged the accumulation of inventories that caused actual rises in the spot price. There are robust empirical studies that show that the futures prices are closely correlated to the spot price, but the causality and the link between financialisation, speculation and price inflation is less clear.[40] In particular, it is difficult to separate the speculative effects from the underlying changes in the demand for oil due to the global business cycle, including increased demand in fast-growing

economies in Asia. Thus, Bassam Fattouh, Lutz Kilian and Lavan Mahadeva found that crude oil prices correlated very closely to non-financialised commodity markets, suggesting that the financialisation of the oil market itself was not a major determinant of price movements.[41]

Conclusion

Oil's importance to the modern industrial world has prompted extensive consideration of the impact of oil price gyrations in the 1970s and 1980s on national economic performance, but less attention has been paid to the impact on global financial markets. The structure of oil prices continues to be a complex issue that reflects the complicated and prolonged supply chain for this essential commodity. Lack of transparency continues to be a challenge since prices are not fully visible to the market. Instead, benchmark prices continue to be important and private sector price reporting agencies such as Platts, Argus Media, Asia Petroleum Price Index and ICIS London Oil Report provide the market with essential information, but not always in a consistent way.[42] In May 2013, the European Commission launched an investigation into potential market rigging by manipulating oil benchmarks, raiding the offices of Shell, BP and Statoil. Even though the investigation was dropped in December 2015, this episode emphasises the persistent challenges to transparency in oil price setting.

In 1973, on the eve of the first oil crisis, prices were administered among a small number of major multinational companies and producers. In 1974, and again in 1979, the structure of the oil price was transformed by supply and demand shocks that disrupted the established framework. New entrants were drawn into both the supply and demand sides of the market and the internalised pricing structure of the oil industry was eroded. The gyrations in the oil price during the 1980s need to be viewed in the context of this changing market structure. In turn, the market responded to increased arm's length trading and greater volatility by establishing forward and futures markets to hedge

risk. But the process was not smooth and many initiatives were unsuccessful before these markets were accepted by the industry. The size of shipments, reluctance of major oil companies to participate and illiquidity plagued many early efforts until after the structural change in the oil market in the mid-1980s. This chapter has drawn on contemporary accounts of the developments in New York and London to demonstrate the challenges faced by those that sought to enhance the financialisation of the oil market.

Several characteristics emerge. The innovations were supply driven rather than demand driven, i.e. the futures markets were launched by exchanges in New York and London seeking an opportunity to increase the range of services they could offer. The markets were initially not viewed with enthusiasm by customers until the oil price became more volatile and market oriented and the contract details and terms adapted to the needs of a range of customers. Even after successful futures in refined products, the establishment of future markets in crude oil prices proved particularly challenging because of the lack of engagement from the major oil multinationals. Once established in the late 1980s, the futures markets remained uncontroversial through to the early 2000s. However, the surge of new entrants into these markets as investors sought yield in the low interest environment of the Great Moderation attracted criticism once oil prices began a long period of increase. In 2010, for example, the G20 questioned whether financialisation destabilised commodity markets including oil, although the economic evidence for this effect is difficult to discern. What is not in doubt is that the mid-1980s oil price counter-shock had lasting effects on the structure of the oil market and its pricing system.

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4

Counter-Shocked? The Oil Majors and the Price Slump of the 1980s

Francesco Petrini

> *There was nothing natural about* laissez faire*; free markets could never have come into being merely by allowing things to take their course.*
>
> Karl Polanyi

What role did the oil majors play in the collapse of oil prices in the 1980s?

In the literature the origins of the counter-shock are usually attributed to the 'clumsy cartel' (to borrow an expression from Morris Adelman),[1] that is to OPEC's incapacity of responding to the change that the new market-dominated era brought into the oil business. In effect, there is a good amount of truth in this assertion. The producing countries were unable to cope with the increasing imbalance, surfaced since the early 1980s, between supply and a shrinking demand.

The specter of an oil glut, with the consequent price slump, has always been at the heart of the oil industry's preoccupations. After the disastrous experience of the 1930s, a system of pro-rationing of crude

production was instituted in the United States, the largest oil producer in the world, managed by the Texas Railroad Commission. At the international level the oil majors, the 'seven sisters', assured the balancing of supply and demand through their system of vertically integrated operations and the web of joint ventures by which they controlled the oil output of the Middle East. In the 1940s and 1950s this system worked quite well, thanks also to the elimination of part of the potential surplus by various political vicissitudes, mainly the Iranian nationalisation in 1951, the Suez crisis in 1956 and all over the period the penalisation of Iraqi production which became more stringent after the nationalisation law of 1961. The entry into the markets of the independent companies produced the first creaks in the system and induced the majors to reduce the posted price, thus causing the birth of OPEC.

With the momentous events of the late 1960s to early 1970s, the OPEC countries wrested from the majors the role of market regulators, but, as far as the prevailing view goes, with the second oil shock in 1979, they fixed a too high price, which, in due time, brought about a fall in demand. Faced with this development and with the increasing 'marketisation' of the oil trade – characterised by the flourishing of the spot and futures markets – OPEC turned out incapable of responding effectively. In the early 1980s the organisation tried to set up a concerted defence of the position of supremacy that it had conquered at the beginning of the 1970s, but failed. In March 1982 OPEC sought to establish a system of quotas, but the attempt soon aborted due to recalcitrance of some key members to respect the assigned level of output. A year later, for the first time in its history, OPEC declared a price cut, from $34 to $29 a barrel for the Arabian light, and established new production quotas among its members.[2] Again, these were not respected and the market remained slack. In light of these dismal results, the cohesion of the organisation of oil producing countries was undermined by internecine struggles and by the fundamental divergence of interests among some of its key members. Saudi Arabia, which until then had operated as the swing producer that ultimately balanced the

market and in so doing had to cut drastically its production levels, made a U-turn opting for an aggressive production policy that led to the price slump of 1986.

In this interpretation, which stresses OPEC's inability to act as a coherent entity, there is virtually no room for the oil companies as actors playing a significant role in determining the conditions of the price plunge.[3] In effect, during the 1970s the major oil companies were forced to cede to the OPEC countries the absolute control they had enjoyed in the previous years over the oil markets. During the so-called 'Golden Age of Oil', that is the decades after World War II up to the late 1960s, the oil majors, the so-called 'seven sisters',[4] with their vertically integrated structure, from the well to the gasoline pump, had been dominating the production and marketing of international petroleum, that is of the petroleum exchanged outside the US market.[5]

Then came the 'oil price revolution'[6] and the industry changed drastically. The majors lost the power to decide the price, and, with the nationalisation of their assets in the producing countries, they also lost control on reserves and production in the 'centre of gravity' of the oil industry, the Middle East. As shown in Table 4.1, the amount of oil they directly produced and owned, 'equity oil', or the crude they bought from the producers on preferential terms, 'buy-back' oil, decreased quite dramatically during the 1970s.

However, at the beginning of the 1980s the big oil companies remained among the most significant players on the world scene. As Lord Kearton, former chairman and chief executive of the British National Oil Corporation, put it: 'These huge conglomerations of influence and power and potential will remain. [. . .] While they no longer deal with governments as masters, they still do as equals, and it is an equality now clothed in respectability.'[7] In 1983 six oil companies – the five US-based majors and Standard Oil of Indiana – were in the top 10 of US industrial firms in terms of revenues. In terms of profit, in 1972 the five US majors had made $3.8 billion, by and large

Table 4.1 Seven majors' control over oil (production and buy-back oil, mb/d)

	1972	1982
Exxon	5.0	3.1
Royal Dutch-Shell	4.0	3.8
British Petroleum	4.8	2.4
Texaco	3.2	2.0
Standard of California	3.2	1.9
Mobil	1.9	1.7
Gulf	3.2	1.0
Total major companies	*25.3*	*15.9*
World production	*41.3*	*38.5*

Source: Michael Tanzer and Stephen Zorn, 'OPEC's Decade: Has It Made a Difference?', *MERIP Reports* xiv/120 (1984), pp. 8–11: 9.

one-seventh of all the profits of *Fortune 500*. By 1982 the same companies accounted for $9.1 billion in profits, still about one-seventh of the *Fortune* group.[8] This impressive concentration of wealth and power cannot be dismissed as a passive bystander of such a pivotal event as the counter-shock. My thesis is that in the 1980s the companies tried to regain a degree of control over the working of the industry, snatching it away from OPEC and national oil companies. They did so mainly in two ways: by increasing production in areas outside the OPEC domain, thus undermining OPEC's centrality as a global production centre, and by fostering a new, wholly unprecedented (at least for international oil) way of determining the price of crude and products: the market. As evidenced by Karl Polanyi, the constitution of a 'free' market implies a high degree of artificiality.[9] In the case of the oil industry, the triumph of the market during the 1980s, in consonance with the more general 'neo-liberal' (counter-)revolution, was only partially related to a spontaneous unleashing of entrepreneurial animal spirits. It was also a means for the Western companies to displace the producing countries from the commanding heights of the international oil trade.

Spatial Restructuring

Since the early 1960s the majors had been alimenting a huge wave of investments in politically safe areas inside the capitalist world, in regions like the North Sea and Alaska. These investments became productive during the 1970s, especially after mid-decade. Even though at the time they accounted for only around 10 per cent of the world oil reserves, Western Europe and the United States soon supplied 27 per cent of total oil output.[10] The United Kingdom became the fifth producer in the world.[11] Despite the high costs of development, the companies operating these fields realised very good level of profit, thanks to the prevailing high prices and weak taxation. Though made more stringent after the 1973–4 price rise, the fiscal regulations in the North Sea fell short from assuring a government take above the 80 per cent threshold, the desired objective of the Norwegian and UK governments at the time. As calculated by Øystein Noreng, Norway's government take in 1980 was in the order of 57–66 per cent. The UK's was not much higher.[12] The neoliberal turn and the ascent of supply-side economics further relaxed the fiscal constraints on companies: in 1983 the Thatcher administration proceeded to abolish the Supplementary Petroleum Duty, established five years earlier, and the royalty on fields developed after April 1982.[13]

Overall, in Noreng's words: 'North Sea oil attracts some of the highest prices in the market, and company profits per barrel produced are several times higher than company profits on oil bought from OPEC's countries state oil companies'.[14] As indicated by Michael Renner, in the early 1980s the companies made between $1 and $3 profit per barrel in the underdeveloped countries as opposed to a $5 to $10 margin in the industrial centres.[15] Thus production in the capitalist world soared (as did Soviet exports) and OPEC's share of total production decreased.

This expansion of non-OPEC output took place in a moment of receding demand, consequence of various factors, mainly the effects of the energy saving conversion of the advanced economies engendered by the high price of oil.[16]

Table 4.2 Crude oil production by world's ten leading producers in 1984

	1973 (mb/d)	1979	1984	Change 1979–84
Soviet Union	8.7	11.9	12.4	+4%
United States	11.0	10.1	10.4	+3%
Saudi Arabia	7.4	9.6	4.7	−51%
Mexico	0.6	1.6	3.0	+88%
Iran	5.9	3.2	2.5	−22%
United Kingdom	0.0	1.7	2.6	+53%
China	1.1	2.1	2.3	+10%
Venezuela	3.5	2.4	1.9	−21%
Canada	2.1	1.8	1.6	−11%
Indonesia	1.3	1.6	1.4	−13%
Opec	*30.8*	*26.9* [a]	*17.9*	*− 33%*

[a] Data from 1980.

Source: Christopher Flavin, 'World Oil: Coping With the Dangers of Success', *Worldwatch Paper* 66 (July 1985), pp. 5–66: 14 and 17.

In this situation the private oil companies and the majors among them acted as the independents did in the 1950s and 1960s, playing as free riders and leaving the task of balancing the market conditions to OPEC which on its part was not up to the task. As pointed out by the former OPEC Secretary General Fadhil Chalabi in his memoirs published in 2010, OPEC never acted as a cartel in the proper sense.

Table 4.3 OPEC and non-OPEC crude oil production (% of capitalist world total)

	1973	1976	1979	1980	1981	1982
United States	19.9	17.8	17.4	18.8	20.5	24.7
North Sea	0.1	1.1	3.9	4.5	5.3	6.3
Mexico	1.0	1.8	3.0	4.2	5.5	7.3
Total non-OPEC	33.0	32.6	37.1	41.0	45.9	55.4
OPEC	67.0	67.4	62.9	59.0	54.1	44.6
Total (mb/d)	*48.3*	*47.5*	*51.3*	*48.0*	*44.4*	*41.3*

Source: Michael Renner, 'Restructuring the World Energy Industry', MERIP *Reports* xiv/120 (1984), pp. 12–17 and p. 25: 15.

In fact, a cartel, and especially one like OPEC enjoying the lowest cost of production in the industry, would have operated with a view of defending its market share, crowding out the most dangerous competitors from the market through an aggressive price policy. OPEC never did so, at least not in a systematic and coherent way. This was for a variety of reasons, not least because OPEC was born with the precise task of defending the price level and was thus consubstantially averse to price reductions. In any case, this produced a paradoxical situation, as Chalabi defines it, in which the OPEC low-cost producers were forced to cut their output while the high-cost producers of the North increased theirs. Thus OPEC's production – 31 mb/d in 1979 – was soon reduced, 'because of its production and pricing policies' – as stated by Chalabi – to 15.5 mb/d in 1985 while the output of extra OPEC areas (excluding the United States and Soviet Union) kept on rising, jumping from 8.2 mb/d in 1975 to 17.1 mb/d in 1985.[17]

In all evidence OPEC had lost control over production levels and its share of the world oil production was shrinking to the benefit of producing regions controlled by Western companies.[18] What is more, OPEC was losing control of price too.

The Commoditisation of Oil

In the Atlantic region, North Sea oil – whose production was 40 per cent in the hands of three majors: BP, Shell and Exxon[19] – entered in direct competition with the oil coming from the African members of OPEC (Algeria, Libya and, most of all, Nigeria). As observed by *Petroleum Intelligence Weekly* (*PIW*) – one of the most complete sources of information on the oil trade – OPEC's crude oil price structure was coming under stronger pressure from without rather than from within. Price leadership was in the hands of US and North Sea crude sellers – 'and their solution to a shrinking market is to reduce prices rather than lose volumes'.[20] In this condition, OPEC's only logical option was to cut production to back up the official price at $34 a barrel.

In the Spring of 1983, when OPEC was forced to cut the price, the *Petroleum Economist* – an 'industry mouthpiece' as Francisco Parra defined it[21] – wrote: 'For the African light crude producers the principal competition comes from the North Sea, and particularly from the UK.'[22] The preceding year North Sea production had reached 2.7 mb/d, while Nigeria, Libya and Algeria had produced respectively 1.3, 1.1 and 0.7 mb/d. Particularly relevant in this context was the role of the British National Oil Corporation (BNOC), the state-owned company, created by the Labour government in 1975, that marketed 51 per cent of the North Sea crude. In the early 1980s BNOC came to represent a 'thorn in OPEC's side' – as *PIW* wrote[23] – since it was 'firmly tied to its major oil company customers' and its pricing policy remained 'highly sensitive to market forces'. At the beginning of 1983, BNOC, unable to dispose of all its oil at the official prices – $33.50 for Forties – proposed cutting its price to $30.50 effective 1 February. Nigeria, with falling production, a huge population and dire external debt obligations, was particularly sensitive to the price policy pursued by the British company and it felt compelled to follow, reducing its Bonny 37° by as much as $5.50 to $30 per barrel, while corresponding prices for Algerian and Libyan oil were fixed at $30.50.

> This – wrote *Petroleum Economist* – effectively destroyed Saudi Arabia's plan to unify the price structure by lowering the marker to $30, the marker being traditionally $1.50 below Bonny. It also prompted protests from some of BNOC's customers that North Sea oil was now over-priced and should be further reduced to $ 1/bl. This rekindled fears of a cut-throat price war [. . .].[24]

Together with the ascent of new sources of crude, OPEC's centrality was undermined by the 'commoditisation' of oil, that is the increasing role of the market mechanisms in the oil pricing. This, as strange as it may sound, was big news for the industry. In fact, in the halcyon days of the seven sisters in practice there was no such thing as a market price for

crude oil. The reference price, the 'posted price', was determined quite arbitrarily by the companies and was used mainly to establish the level of payments to producers and to transfer the crude within the vertically integrated structure of the majors. Each company had its own source of crude supply as well as the capacity to refine it. Only a tiny fraction of crude was sold outside the majors' circuit.[25] The matter was partially different for product trade, where there was a wider margin for arm's length sales, but all in all the volume of spot trade remained limited to a small percentage of the total oil trade, while the bulk of it, 95 per cent or so, was based on contracts specifying prices and quantities over long periods of time.[26] The spot markets played a residual role, as a 'necessary evil' for absorbing short-term supply imbalances.[27]

During the 1960s, when the majors' grip on the oil trade began to loosen, the spot markets gained increasing attention. They were alimented by independent firms looking for markets for newly discovered crude (from Libya for instance) and by emerging national oil companies in search of autonomy from the majors. When the majors lost control over oil in the producing countries, the spot trade, alimented by the increasing quantities now in the hands of the producing governments, shifted from a residual to a marginal role, that is it became an indicator of overall market conditions.[28] This was particularly evident during the second oil shock in 1979, when spot transactions were the driving force behind the price rise. However, despite its significance to the industry's planning and pricing policies, the volume of the spot trade remained relatively small until 1981–2 when it began to grow at a very rapid pace, turning into a 'major market'.[29] Several factors contributed to this development. Basically, the oil glut that had emerged soon after the oil shock of 1979–80 pushed the producers to the spot markets where they tried to get rid of some crude. Furthermore, as OPEC members began to lose their market share, they increasingly engaged in spot trade as a good channel to try to recapture lost sales.[30] In a weak and slack market, the refiners were forced to use the most economical way of procuring oil. This brought about a shift from term-contract

arrangements at fixed price to spot purchasing of crude to take advantage of the declining spot prices. Moreover, independently from market conditions, in the North Sea the growth of the spot market was facilitated by the tax system. As explained by the Select Energy Committee of the UK Parliament, in a situation in which the selling of crude between producing and refining affiliates of a company was taxed at the official price there was a clear incentive for the affiliates to sell and buy on the spot markets, where the price was lower.[31]

In the beginning the spot sales were the domain of traders and brokers but increasingly the big oil companies found it necessary to adopt more of a trading stance themselves, and they quickly became inextricably committed to the spot market as a major source of supply. According to *Petroleum Economist* of November 1983 between 20 per cent and 50 per cent of the crude oil supplies of the larger companies came from the spot markets, compared to 5–15 per cent prior to the Iranian revolution and perhaps only 1–2 per cent (if that) during the days of unhindered integration. As explained by Frank Niering, *Petroleum Economist*'s chief commentator about market trends: 'The key factor in this expanding involvement of the oil industry in the spot market has been the loss of control over pricing of crude oil.'[32]

Soon the spot markets were joined by another new source of oil pricing, the futures market which developed as a way to hedge against the instability of oil pricing. The first futures contracts on petroleum products were introduced in 1974 on the New York Mercantile Exchange but, in a period of price stability such as that prevailing between 1974 and 1978, they attracted scarce attention and faded into obscurity. As the price of international oil became more volatile and the US authorities removed price controls on the US market (in 1976, 40 US states removed price regulation of fuel oil; in February 1981 the Reagan administration completely liberalised petroleum pricing), the second generation of futures, starting with the introduction of heating oil and heavy fuel contracts on NYMEX in November 1978, had greater luck. On 30 March 1983 crude oil futures contracts began trading at NYMEX and the

Chicago Board of Trade. The new contracts quickly turned out to be a great success. They were put together under the guidance of a Crude Oil Advisory Committee chaired by John M. Lichtblau, President of the Petroleum Industry Research Foundation, and composed by representatives of oil companies, brokers and traders.[33]

These developments brought about a sensational increase of oil trading. As commented by PIW, in February 1986, in the midst of the price slump: 'For oil markets, this is definitely the era of the speculator.'[34] In fact, in 1985 the volume of crude trading had soared 100 per cent in a year in the 'paper barrel' markets of the North Sea and NYMEX. In that year, in both of those highly visible, trend-setting markets, seven or more 'paper barrels' changed hands for each 'wet barrel' of physical production.[35] In New York the equivalent of 11 mb/d of Western Texas Intermediate crude was traded in 1985, up 116 per cent on 1984. Actual production of the WTI was only about 1.4 mb/d and total US output was 8.9 mb/d.

Undoubtedly OPEC was the main loser in this development, not only because in the end it was compelled to accept price levels much lower than those it had tried to defend between 1980 and 1985, but most importantly because it lost the power of setting the price to the supposedly impersonal working of the market: 'As long as producers are unable to enforce a structured price system by limiting output, they have little choice but to accept direction from spot prices.'[36]

On the other hand the companies were, at least in the immediate, the main beneficiaries from the ascendance of the market. There was an evident economic advantage as the majors, after having been cut off from the equity oil of their concessions, were now crude short, so they had everything to gain by going to a buyers' market which the oil trade had turned into soon after the shock of 1979.

On a more structural plane, as a consequence of the forced downsizing of their oil reserves, the companies had inverted the tendency towards vertical integration and went through a process of 'de-integration', that put emphasis on the autonomy and profitability of

the downstream sector.[37] This made them much more market oriented than in the past and as such better equipped to take advantage of a regime of price flexibility. Their counterpart on the crude market, the producing governments, were instead much more averse to crude price instability, preferring to fix an official selling price, 'a carbon copy of the old "posted price" system used by the majors since the early 1950s'.[38] As indicated by one of the most penetrating observers of the oil industry, Jack Hartshorn, 'the yearning for "price administration" by cartel organization or other means, tends to align OPEC interests as sellers against the new forces form the buyers' and traders' side that are now tending to open up the crude market'.[39]

Most importantly, the shift to market-oriented crude pricing naturally curtailed the space of manoeuvre for state-to-state deals, which by their nature marginalised the companies' role and were therefore seen with hostility by them.[40]

Ultimately, the stake on the table was the control of the oil industry. John E. Treat, the president of NYMEX, declared that the crude contracts would become a major pricing indicator for world oil markets, replacing OPEC as the ultimate price setter: 'The true value of crude oil will increasingly be determined by "open outcry" rather than behind OPEC's closed doors.'[41] Of course this raises the question: how much neutral were those markets? I do not intend to affirm that the 'commoditisation of oil', that is the increasing role of the market in the crude trade, was the result of a plot orchestrated by the companies to the detriment of OPEC countries. This development was largely a consequence of the 'oil revolution' of the preceding decade and in particular of the new configuration of the production sector and the consequent 'de-integration' of the majors. In the majors' eyes it represented a way to access cheaper supplies of crude.

However, behind the ascendance of the market there was not only objective conditions, but also the subjective expectations that it would represent a means to reduce OPEC's influence on the oil pricing. The companies knew from experience that they could manipulate the quotations in an allegedly free market. In the 1970s the investigations

carried out by the *Bundskartellamt* and by the *Statens pris- och kartellnämnd* – respectively the German and Swedish anti-trust authorities – had showed that the quotations on the spot market in Rotterdam – the world most important spot market at the time – were heavily influenced, through various means, by the majors.[42] Ten years later, it was an acknowledged fact that even the more sophisticated futures markets allowed the traders, especially the biggest ones with access to information precluded to other operators, a substantial degree of influence on pricing (market power in the academic jargon).[43] It is perfectly reasonable to hypothesise that it was in the majors' expectations that the market would turn out to be more malleable than the stubborn OPEC countries.

In Defence of Volatile Markets

To substantiate this affirmation we can refer to some indirect evidence of companies' interest in promoting the rise of the spot markets. In 1979, the price storm unleashed by one of the recurrent 'oil fright campaigns'[44] and buying panics that had characterised the industry's history, induced some consuming governments to ponder the establishment of some kind of regulatory scheme for spot markets.[45] The steep rise of the price of crude and products registered on these markets in fact seemed to put in jeopardy the mechanisms of price control existing in most of the Western European countries (the only relevant exceptions being West Germany and Switzerland where the price of petroleum products was left free from State interference).[46] In response to these worries, in March 1979 the EEC Council of energy ministers asked for the immediate implementation of a mechanism of monitoring of the various oil-free markets, 'notably Rotterdam', and invited 150 companies to a meeting in Brussels to ask them to participate in an analysis of the Northwest European and Mediterranean spot markets.[47] France in particular, backed by Italy, Belgium, Denmark and Ireland, demanded the institution of controls on Rotterdam operations, with the establishment of a price ceiling for spot transactions on products (not of crude, to avoid

a clash with OPEC), feeling that 'the price influence of the small oil volume traded in Rotterdam was unacceptable'.[48] These projects were vehemently opposed by oilmen that defined them 'Impracticable, unworkable, and probably undesirable.' According to a survey conducted by *PIW*, the prevailing opinion in the industry was that: 'To control spot oil sales somehow would likely destroy the vital function they perform in smoothing supply and demand imbalances among world refining areas, individual countries, independent segments of the oil industry and even the far-flung operations within each major integrated oil company.'[49] The chairman of Shell Transport and Trading, C.C. Pocock, declared that allowing the price mechanism to work freely was the key to restore the supply–demand balance on oil markets: 'Consuming governments must allow higher prices to flow through to the market and thus do their job in regulating demand. [...] Nothing else – no controls on imports, no allocation system, no sticks, no carrots – can take the place of the price mechanism.'[50] With a more explicit reference to projects of regulation of spot markets, Exxon chairman, C.C. Garvin, bluntly stated: 'the only way you regulate a spot market is by not buying'.[51]

Due to the opposition of the industry, the contrariety of some leading EEC members, Germany and Britain in particular, and the calming down of the spot markets, the French ideas were soon shelved. What is significant in this story is the oil companies' defence of the spot markets, an element that has to be seen in conjunction with a wider shift of the companies towards more flexibility in their operations and less commitments in regard both to consuming and producing countries. In this same period the majors drastically curtailed, or, as Exxon did, deleted altogether their commitments to third-party sales based on long-term contracts.[52] This move, dictated by the necessity of having sufficient crude to feed the affiliates, at first was interpreted as having the effect of pushing the third-party buyers towards deals with OPEC members. Actually, especially after the official OPEC price began to be undercut by the declining spot prices, it represented a powerful boost to the development of spot transactions as an alternative to trade with OPEC.[53]

Thus, after nearly doubling between 1977 and 1980, the volume of crude sold through state-to-state deals by nine Middle East and African OPEC members fell by a sharp 1.6 mb/d in the first half of 1981. After reaching a peak at 7.6 mb/d in 1980, the government-to-government trade receded to 6 million in 1981 and to 5.5 million in 1982.[54] The companies' strategy of containment of direct deals between producing and consuming countries seemed to be working.

Significantly, after the bubble burst in 1981–2, with demand continuing to drop and the prices beginning to decrease, the industry's support for the spot markets did not seem to lessen. In effect, while in 1979 the majors were in favour of higher prices because they had still access to equity and buy-back oil at prices lower than those prevailing on the spot markets, and therefore they got a competitive edge against the independents, when the market slackened around early 1982 and petroleum prices started to plunge on the spot markets, they fostered the fall by heavily spot-selling the huge stocks they had amassed in the preceding years. In light of the majors' high level of destocking, Saudi Arabian Oil minister Ahmed Zaki Yamani accused them and the International Energy Agency of conspiring against the smaller companies and OPEC:

> The oil companies do not have an immediate interest in lowering the price of oil because this would immediately devalue their asset. However, take the majors – these huge giant entities – and compare them to the small independent companies. Some of those small companies have already gone bankrupt. If we reduce the price to something like $28, immediately many more will go bankrupt, and they will be swallowed by the sharks. [The majors] will take and gain something while they are losing something on the other side.[55]

Actually, in the first phase of the price decline, when the fall was gradual and sufficiently slow, the majors did quite well, the falling prices cutting more into producer states' revenues than companies' profits.[56] The reasons of this development were explained by the prominent oil analyst Paul Frankel:

> The loss of profitability 'upstream' [i.e. in the production of crude] resulting from low (and lowering) crude oil prices is to some extent balanced by better margins 'downstream', in refining and marketing. Although product prices have to follow downwards those of crude oil, they tend not to do so fully and there is an inevitable time lag which tends to overcompensate the book losses on stocks of crude oil acquired at higher prices.[57]

Furthermore, as pointed out also by Yamani, the price slump made it possible for some of the largest and cash-rich companies to acquire on favourable terms the assets, and the market share, of smaller, awkwardly positioned competitors. And in effect the 1980s had been an era of mergers and acquisitions in an unprecedented scale for the oil industry.[58] As concluded by Frankel: 'The leaders of the stronger companies may thus find it possible to consider current drawbacks as being acceptable since they believe, perhaps rightly, that in the next round a smaller competitive field, consisting of fewer and leaner companies, may herald the return to a more manageable situation.'[59] Furthermore, this new world of leaner and meaner companies took a very different look at price fluctuations than the one prevailing in the industry's past, when price instability was seen as the utmost danger. Now, as evidenced by the *Petroleum Economist*, 'the modern trading-oriented oil company may well argue that volatile markets are an opportunity for the smart trader to make money, and the old long-term planning bases are a hopelessly out-of-date concept'.[60]

When, in early 1986, the oil price nose-dived, dangerously nearing the $10 level, the outlook changed for the majors. A too depressed price level would have put in jeopardy the long-term profitability of the high-cost operations of the North Sea and Alaska.[61] The new gloves-off policy followed by the Saudis, determined to recover their market share by pricing away competitors, was too hard to sustain for the companies. These worries explain the mission of Vice President Bush to Saudi Arabia, in April 1986, much more than an improbable insubordination

of the until then rather anonymous vice president against the free market stance of the administration.[62]

In conclusion, the counter-shock, far from being merely the result of the avidity of the OPEC countries and of their incapacity to cope with the new realities of the oil markets, has to be viewed in the context of an ongoing struggle for the control of the oil trade between OPEC and the big oil companies. In early 1988 OPEC oil sales at official prices had virtually disappeared, accounting for barely 300,000 b/d of a total of 13.7 mb/d of exports. All the other sales were made at prices related to the market quotation of Brent, for Europe, and of WTI for the United States.[63] The ascendance of a market-driven oil trade had effectively shattered OPEC's role as a price setter.[64] In this perspective, the price collapse can be seen as the Frankenstein's creature of the companies' efforts of establishing an alternative to OPEC power through the market: the game went out of control. But in retrospect, the price was worth paying: the oil price plunge marked the end of the OPEC decade.

Notes

1. Morris Adelman, 'The Clumsy Cartel', *The Energy Journal* i/1 (1980), pp. 43–53.
2. Ian Skeet, *OPEC: Twenty-Five Years of Price and Politics* (Cambridge, UK, 1988), pp. 191–3.
3. The clearest example of this narrative can be found in Daniel Yergin, *The Prize: The Epic Quest for Oil, Money, and Power* (New York, 1991), chapter 35, entitled 'Just Another Commodity?'. Here the big oil companies are presented as spectators of a show carried out by the OPEC countries and impersonal market forces.
4. Five were American: Exxon (formerly Standard Oil of New Jersey), Standard Oil of California (Chevron), Mobil (formerly Standard Oil of New York), Gulf and Texaco; one was British, British Petroleum, and one Anglo-Dutch, Royal-Dutch-Shell. The best primer to the history of the seven sisters and of the international oil industry till the 1970s is Anthony Sampson, *The Seven Sisters* (Seven Oaks, 1975).
5. The most insightful analysis of the basic features of the oil industry under the majors' dominance can be found in Edith T. Penrose, *The Large International Firm in Developing Countries* (London, 1968).
6. The expression is taken from Steven A. Schneider, *The Oil Price Revolution* (Baltimore, 1983).

7. Frank Kearton, 'The Oil Industry. Some Personal Recollections and Opinions', in D. Hawdon (ed.), *The Changing Structure of Oil Industry* (Beckenham, 1985), pp. 1–17: 16 and 17.
8. Michael Tanzer and Stephen Zorn, 'OPEC's Decade: Has It Made a Difference?', *MERIP Reports* xiv/120 (1984), pp. 8–11: 9.
9. Karl Polanyi, *The Great Transformation*: *The Political and Economic Origins of Our Time* (Boston, 2001) [*The Origins of Our Time: The Great Transformation* (New York, 1944)], p. 145 and ff.
10. Michael Renner, 'Restructuring the World Energy Industry', *MERIP Reports* xiv/120 (1984), pp. 12–17 and 25: 14.
11. 'Non-OPEC Output Plays Still Bigger World Supply Role', *Petroleum Intelligence Weekly* (*PIW*), 7 January 1985, p. 7.
12. Øystein Noreng, *The Oil Industry and Government Strategy in the North Sea* (London, 1980), p. 176. The government take in the Persian Gulf was beyond 80 per cent already in 1970. See Morris Adelman, *Genie Out of the Bottle. World Oil Since 1970* (Boston, 1995), p. 56.
13. Carole Nakhle, *Petroleum Taxation. Sharing the Oil Wealth: A Study of Petroleum Taxation Yesterday, Today and Tomorrow* (London, 2008), p. 55.
14. Noreng, *The Oil Industry*, p. 24.
15. Renner, 'Restructuring', p. 15.
16. Leonardo Maugeri, *The Age of Oil* (Westport, 2006), pp. 133–4.
17. Data from Fadhil Chalabi, *Oil Policies, Oil Myths. Observations of an OPEC Insider* (London, 2010), p. 242.
18. Donald O. Croll, 'OPEC's share continues to Decline', *Petroleum Economist* (PE) (September 1982), pp. 357–8.
19. Renner, 'Restructuring', p. 14.
20. 'US and North Sea Prices Squeeze OPEC $34 Base', *PIW*, 15 February 1982, pp. 3–4.
21. Francisco Parra, *Oil Politics. A Modern History of Petroleum* (London, 2004), p. 116.
22. 'Is There a Future for OPEC?', *Petroleum Economist* (January 1983), p. 118.
23. 'UK Price Rise Would Give Immediate Support', *PIW*, 31 May 1982, pp. 1–2.
24. 'Is There a Future for OPEC?', *Petroleum Economist* (April 1983), p. 118.
25. On the structure of the oil industry at the middle of the 20th century Jack E. Hartshorn, *Oil Companies and Governments: An Account of the International Oil Industry in its Political Environment* (London, 1962) remains unsurpassed: on crude pricing see pp. 130–51. For a pithy and clear overview of the evolution of the oil pricing: Salvatore Carollo, *Understanding Oil Prices* (Chichester, 2012), pp. 29–44.
26. Hossein Razavi and Fereidun Fesharaki, *Fundamentals of Petroleum Trading* (Santa Barbara,1991), p. 6.
27. 'Oil Markets Reconsidered – 1984 and Beyond', *PIW*, Special Supplement, 22 April 1985, pp. 1–12.
28. Razavi and Fesharaki, *Fundamentals of Petroleum Trading*, p. 6.

29. Ibid., p. 7.
30. 'Rethinking Britain's Role in World Oil Markets', *PIW*, 18 March 1985, pp. 7–8.
31. Ibid.
32. Frank Niering Jr, 'Market Trends', *Petroleum Economist* (October 1983), pp. 443–4.
33. Special *Petroleum Economist* Report, *Oil Futures Trading*, *Petroleum Economist* (June 1983), pp. 223–30: 226. In November 1983 another futures market (the International Petroleum Exchange) opened in London.
34. 'Oil Firms Hedging More Trades With "Paper Barrels"', *PIW*, 3 February 1986, p. 2.
35. Ibid.
36. 'Market Barometers Gain Importance As Official Prices Falter', *PIW*, 6 January 1986, p. 3.
37. T.D. Ross, 'The Status and Strategies of the International Oil Corporations', in J. Rees and P. Odell (eds), *The International Oil Industry* (Basingstoke, 1987), pp. 67–75. Ross was a former executive of Shell International. The companies' strategy changed drastically in the economic and political climate of the 1990s: Joseph Stanislaw and Daniel Yergin, 'The Reintegration Impulse: The Oil Industry in the 1990s', Cambridge Energy Research Associates Report (1987).
38. Parra, *Oil Politics*, p. 318.
39. Jack E. Hartshorn, *Government Sellers in a Re-Structured Crude Oil Market*, in Hawdon (ed.), *Changing Structure*, pp. 59–69: 67.
40. See, for example, David Steel's (the chairman of BP) critique of the 'rigidity' and 'inefficiency' of government-to-government deals in his 'Address to International Association of Energy Economists', 23 June 1980.
41. Special *Petroleum Economist* Report, *Oil Futures Trading*, p. 226.
42. Memorandum by C. Gõsta Malmstrõm (Statens pris- och kartellnämnd), 'The Rotterdam Quotations for Oil Products' (1974), Library of the Oxford Institute for Energy Studies, Oxford.
43. Ronald Anderson, 'The Industrial Organization of Futures Markets: A Survey', in R. Anderson (ed.), *The Industrial Organization of Futures Markets* (Lanham, 1984), pp. 1–33.
44. Robert Sherill, *The Oil Follies of 1970–1980: How the Petroleum Industry Stole the Show (and Much More Besides)* (New York, 1983).
45. 'Rise in Spot Prices in Europe Draws Growing Criticism', *PIW*, 12 February 1979, p. 4.
46. 'Steep Spot Prices Not Recoverable in Most of Europe', *PIW*, 19 February 1979, pp. 6–7.
47. 'EEC Invites Wide Participation in Market Price Check', *PIW*, 23 April 1989, p. 7.
48. 'Spot Markets Effects Worry Members of IEA and Euromart', *PIW*, 14 May 1979, p. 3; 'France Will Press for EEC Control of Rotterdam Market', *PIW*, 28 May 1979, p. 7; 'Total Commitment by Consumers Seen Key to Price Lid',

PIW, 11 June 1979, pp. 3–4; 'EEC Seeks Accord Among Members on Spot Price Issue', *PIW*, 18 June 1979, pp. 3–4.

49. 'Oilmen See Control of Spot Trading as Counterproductive', *PIW*, 28 May 1979, p. 8.
50. 'Price is sole Key to Supply–Demand Balance, Shell Says', *PIW*, 25 June 1979, p. 5.
51. 'Don't Buy is How to Regulate Spot Markets, Says Exxon', *PIW*, 25 June 1979, p. 6.
52. 'Decline Accelerates in Majors' Role as World Oil Sellers', *PIW*, 19 March 1979, pp. 1–3.
53. 'Swing Away from Term Oil Contracts Gains Momentum', *PIW*, 5 April 1982, pp. 1 and 7–8.
54. 'State-to State Deals Lose Appeal as Oil Glut Grows', *PIW*, 8 February 1982, pp. 3–4.
55. Special Supplement, 'Yamani Explains Saudi and OPEC Output Strategy', *PIW*, 29 March 1982, pp. 2–3.
56. For example, the data on US majors' profitability in 1984 and 1985 showed that, with the exception of Texaco, their net earnings were in retreat, but in many instances this was the consequence of occasional circumstances: for instance Exxon suffered the adverse consequences of a lawsuit that condemned it to pay more than $2 billion to the Department of Energy, but 'In fact Exxon's operating earnings from oil and gas were higher both at home and abroad'. Mobil's earnings were heavily affected by the cost of restructuring its Montgomery Ward department store chain, yet, for Mobil too the earnings from oil and gas were higher than previous years. Furthermore, in the fourth quarter of 1985, when prices started to plunge vertically, companies' earnings registered a sharp recovery. Colder weather boosted demand, product margins improved, and increased production volumes more than offset the effect of lower crude prices. Exxon was reported to say that its downstream operation enjoyed one of the best quarters for years. See Donald Croll, 'US Oil Companies – Earnings Down Again Last Year', *Petroleum Economist* (March 1986), pp. 81–2; Donald Croll, 'Oil Companies – The Majors Adjust to Price Cuts', *Petroleum Economist* (June 1986), pp. 201–2.
57. Paul H. Frankel, 'Where We Are Going', *Topical Problems* (Mid July 1986), p. v. Since the late 1970s the companies had been thoroughly restructuring their downstream operations, by shutting down or selling out unprofitable plants, especially in Europe, and by redesigning the production process in order to get in the final output a greater proportion of light products, traditionally more profitable and whose demand was still holding. See Martin Quinlan, 'World Survey – Refineries – Gathering Pace of Plant Closures', *Petroleum Economist* (October 1983), pp. 373–6.
58. In this regard, the major event was in May 1984 the acquisition of Gulf, one of the seven sisters, by another major, Chevron for $13 billion. Many other

instances can be cited. For example, in 1979, Shell acquired Belridge, a California oil producer, paying a total of $3.6 billion, in what was the largest corporate acquisition up to that point. In 1981 Conoco was acquired by DuPont for $7.5 billion. In 1984 Mobil, after having tried in vain to buy Marathon Oil, acquired Superior Oil for $5.5 billion. In the meantime Marathon went to US Steel for $6.2 billion. Cities Service and Occidental combined at $4.1 billion. In December 1985 Petrofina acquired Charterhouse Petroleum. In the North Sea, after the price slump of 1982, several of the smaller independents were absorbed by the larger firms. See Dillard Spriggs, 'The Restructuring of the US Oil Industry', *Energy Papers*, SAIS-Johns Hopkins University (July 1985), p. 1; Yergin, *The Prize*, p. 729; Donald Croll, 'London Mixed, New York up in 1985', *Petroleum Economist* (February 1986), pp. 43–4.

59. Frankel, 'Where We Are Going'. According to a study by First Boston Corporation the top 25 oil companies that existed in 1980 shrunk to 14 by 1988, as some nine companies were swallowed up by acquisitions. Smaller firms had a rate of attrition even greater: the number of large independent oil companies dwindled from 62 in 1979 to 19 in 1988 (Cyrus Tahmassebi, 'Structural Change, Market Concentration and Vertical Integration: Would They Lead to More Stable Markets?', paper presented at the *8th International Symposium on Petroleum Economics*, Quebec, 13–15 September 1989, pp. 3–4).
60. Peter Lymbery, 'Market Trends', *Petroleum Economist* (June 1986), pp. 235–6.
61. Industry sources indicated that economic hardships on operating companies would become intolerable at prices below $15 a barrel ('Price War Vulnerability: Who Feels First Pinch', *PIW*, 10 February 1986, p. 6). As a consequence of the fall of price, the companies operating in the North Sea started to forcefully demand a revision of the tax system, particularly a sharp cut in UK Petroleum Revenue Tax; the abolition of royalties; the easing of the 'ring fence' rules that limited the possibilities of charging expenditures against field revenue. See Martin Quinlan, 'Companies Press for Urgent Action', *Petroleum Economist* (June 1986), pp. 205–7; Alexander Kemp, 'Scope for Tax Changes', *Petroleum Economist* (August 1986), pp. 289–90.
62. This is, for instance, the interpretation by Eric Laurent, *La face cachée du pétrole* (Paris, 2006), pp. 215–21.
63. 'New Techniques Now dominates OPEC Crude Pricing', *PIW*, 4 April 1988, p. 4.
64. As commented by Carollo, maybe with a degree of hyperbole, in 1988 OPEC 'committed suicide' (Carollo, *Understanding*, p. 42). For a different interpretation, stressing OPEC'S maintenance of a 'very real' degree of influence on the pricing of crude: Parra, *Oil Politics*, pp. 321–2.

PART II

THE PRODUCERS: OPEC

5

Saudi Arabia and the Counter-Shock of 1986

Majid Al-Moneef

Introduction

The oil price collapse of 1986 could well be considered as the third most important event is the history of OPEC and the oil market, the other two being its foundation in 1960 and its assumption of the role of price setting in 1974. It also marked a major turning point in oil market management from a fixed oil price regime which characterised a good part of the twentieth century to a market determined price that lasted until the end of the twentieth century and beyond. It further demonstrated OPEC's resilience and ability to adapt to new market realities and to redefine its role, thus contributing to its endurance. Furthermore, the few years leading to the price counter-shock of 1986, the conduct of the price war during that year and its aftermath signalled a new pattern of relationship between Saudi Arabia and OPEC.

Needless to say, oil markets and prices are usually characterised by repeated demand and supply shocks, due to the resource characteristics, the structure of its industry and the economic and geopolitical relations surrounding its production and commercialisation. However, the oil

price shock of 1973–4 and the counter-shock of 1986 resulted in new dynamics leading new equilibrium, new relations and political as well as economic adjustments by the industry, the governments and the marketplace. These two price episodes, unlike numerous others emanating from frequent supply surges or interruptions or demand dynamics, led to dramatic market transformation, new political and development choices of many producing countries, and changes in the geopolitical scene especially in the Middle East.

It was the culmination of the post-World War II oil demand and supply relations and the rise of nationalism over resources in the producing countries which contributed to the price shock of 1973–4 and to OPEC's market power. The market organisation of the international oil majors came under pressures from within and from the new forces of nationalism and the emerging independent oil producers. By keeping prices depressed at $1.8 per barrel in nominal terms and $15 per barrel in real terms for an extended period of three decades after World War II amid rising global demand and producing governments dissatisfaction with the fiscal and pricing arrangements of the original concession agreements, the market organisation seemed unsustainable. Likewise, it was the culmination of the supply and demand responses to the oil price shock of the seventies, OPEC's market management and disarray during its ascendance and the geopolitical and global economic relations of the eighties that led to the price counter-shock of 1986.

Prelude to the Counter-Shock

The 1973–4 price shock resulted in new oil price levels and new control arrangements over supply. OPEC member countries seized control of the production decisions from the operating international oil companies, and OPEC opted to set a fixed price for its marker which was Saudi Arabia's Arabian Light, and fix differentials for all its other traded crudes against the marker price. The decisions on production volumes were left to OPEC in order to clear the market. The level of the marker price as

well as its differentials vis-à-vis the other Official Selling Prices (OSPs) turned out to be contentious issues within OPEC throughout the seventies and into the eighties. Saudi Arabia's views on these issues were critical since it was the largest producer entrusted with defending the marker price itself, and was itself producing and exporting to the different markets different types of crudes besides its marker crude. OPEC's price setting role from the outset was perceived as a bargain between what came to be known as the price hawks led by Iran under the Shah (often aligned with Algeria and others) and price moderates led by Saudi Arabia (often aligned with the other Gulf members of the organisations, except Iraq).

However, the magnitude of the price increase of the seventies (fourfold) and the accompanying supply arrangements, led to global structural demand and supply changes. First there was the expected consumer demand reaction to the price change and the resulting economic slowdown. Then, more profoundly was the OECD government responses, partially driven by resentment to the notion that governments from developing countries rather than the companies from the industrialised countries were entrusted with supplying more than half of the oil needs of the advanced world. This was manifested in different directions, ranging from policies and programmes to promote and enforce efficiency measures, diversifying energy sources and oil supplies, building strategic petroleum stocks, establishing the IEA to rival OPEC and host of other responses.[1] This ultimately led to a declining OECD oil intensity (and with it energy intensity), measured as oil per unit of GDP, from an average two barrels during the seventies to 1.3 barrel per 1,000 dollar GDP (in constant terms) in 1985. The long positive relation between GDP and oil demand growth rates were decoupled in most OECD countries' economies, the first growing by an average 2 per cent for the group and the latter decelerating by an average 3 per cent annually between 1979 and 1985. Globally, oil demand was declining by an annual average of 0.8 per cent from 64 mb/d to 59 mb/d in these two years, a good part of which was demand destruction in the

power sector, permanently displacing fuel oil for gas, nuclear and coal. On the supply side, non-OPEC supply increased by 6 mb/d, half of which from Mexico and the United Kingdom. This ultimately resulted in a decline of OPEC production by more than 10 mb/d absorbing the demand drop and non-OPEC production increases during the period.[2]

While it was clear that the demand and supply responses starting in the mid-seventies were structural in nature and long in duration, OPEC seemed over confident in its market power, either not realising the impact of the new price on demand and supply, or not being able to separate the economic and the political needs for high prices on the one hand and the sustainability of such prices and the market responses to them on the other. In its price setting role mentioned earlier, it opted to incorporate into its price structure the crisis-driven prices resulting from panic buying mostly for commercial and strategic stocking during the few months leading to the Iranian revolution in early 1979 and the supply interruptions of the Iran–Iraq war a year later.

The end of the supply crises of 1979–80 and the ample commercial and strategic stocks built during the crisis, coincided with accelerated demand decline in response either to prices or to the maturation of the efficiency measures and programmes. Within the OECD oil demand declined from an average 40 mb/d during 1973–9 to an average 34 mb/d in 1985, and the forward demand cover of the combined commercial and strategic stocks increased from 73 to 101 days of consumption. In such environment, OPEC continued to defend the high prices in face of fierce competition from the new production of the North Sea, Mexico and elsewhere, that was not bound by OPEC set price levels or differentials. The early eighties saw increasing spot sales at favourable prices for the short-haul crude (i.e. closer to the consuming markets) versus the predominantly term sales at higher OSPs of relatively long-haul supplies from OPEC, especially its Middle East members. In this 'buyer's market', spot sales grew from less than 2 per cent of globally traded oil to more than 30 per cent in the mid-1980s, and this was not confined to non-OPEC producers. Some OPEC member countries entered the fray, most

notably the African members and Venezuela, responding to the competition from the North Sea in Europe for the former and from Mexico in the United States for the latter, as well as from Iran to increase its market share.

The role of Saudi Arabia during this period was critical. Although by definition OPEC was the 'residual oil producer' providing the difference between world oil demand and non-OPEC supply, Saudi Arabia acted during 1982–5 as the 'swing producer' of the group, that is of providing the difference between world oil demand on the one hand and non-OPEC supply as well as the rest of OPEC supply on the other. In a period of declining OPEC production, the swing producer would absorb the brunt of OPEC's supply adjustment, which amounted to two-thirds of OPEC's production decline, compared to Saudi Arabia's share of OPEC's production of one-third at the end of 1985. To put this in perspective: OPEC's production declined by 42 per cent from 26 mb/d in 1980 to 15 mb/d in 1985, while that of Saudi Arabia declined by 68 per cent, from 10 mb/d to 3.2 mb/d during the period, reaching a low of 2.8 mb/d in July 1985. The decline in oil revenues was as asymmetrical: OPEC's declining by 48 per cent while Saudi Arabia's by 75 per cent between the two years. The contribution of Saudi Arabia to OPEC's production and revenue decline of 8.8 and 16 per cent during the five-year period were 70 and 60 per cent respectively. The Saudi production decline (and to a lesser extent the other Gulf members of OPEC) was due to the adherence to the fixed official prices, prompting buyers to turn to discounted crude from elsewhere reserving the Saudi crude (and generally that of the Gulf) to balance their supply requirements.[3]

It is unclear why Saudi Arabia willingly accepted to shoulder such burden and consequently losing market share and leverage in OPEC. One explanation is its long-standing opposition to production 'programming' envisioned and championed by Venezuela since OPEC's inception in 1960. When OPEC was forced in 1982 to consider pro-rationing amid the market glut, it adopted during its extraordinary meeting on March 20 of that year for the first time a 17.5 mb/d ceiling

and production quotas, maintaining the fixed official price of $34 per barrel. Saudi Arabia refused to be assigned a quota in the overall ceiling on the ground that production is a sovereign decision. Instead it announced unilaterally its self-imposed production of 7 mb/d, lower than the calculated quota of 7.5 mb/d. It reiterated this further at the March 1983 OPEC meeting, when no quota was assigned to it under the same ceiling (but a lower marker price was established at $29 per barrel), implicitly agreeing to balance the 'market requirements' for OPEC crude. However, such requirements were at the time lower than the ceiling, meaning that its production would be less than both the self-imposed 7 mb/d and the later quota of 5 mb/d. Production would actually be 4.5, 4.1 and 3.2 mb/d respectively in the 1983 – 5 period.[4]

The other reason of Saudi Arabia's behaviour might have been its conviction that the demand and non-OPEC production changes and the pressures on the fixed price regime of the early eighties were of short-term nature and the market might soon be reversed in the medium to long term. Saudi Oil minister Ahmed Zaki Yamani kept on asserting during 1982 – 5 that all it would take to balance the market was to rein in production in order to soak up the accumulated stock overhang, keeping the price structure intact.[5] Despite his assertions, OPEC's ceiling and production continued to decline, and so did the perceived 'future call on OPEC oil' putting further pressure on the official oil prices, forcing OPEC to adjust it downward by $6 during the period. This price decline did not impact the pattern of declining demand especially in OECD nor the increasing non-OPEC supply, the first actually declining by 1.7 per cent annually and the second increasing by 2.5 per cent annually during 1980 – 5.

As it turned out, the oil demand and supply changes where structural in nature and the fixed price regime was inappropriate in face of the diversified supply. Not only non-OPEC production was sold at discount to the official OPEC prices, but the latter was compromised by OPEC members as well, who opted to grant discounts of all kinds off the official prices. Saudi Arabia, being the home of the OPEC agreed marker price

felt obliged to stick to it and accept the declining demand for its oil, at the time when the others did not abide by the agreed differentials vis-à-vis the marker nor by the agreed quotas. Moreover, the ongoing Iran – Iraq war, the tense political relations between Saudi Arabia and Iran and the intensity of the competition between the North Sea and Nigerian oil, made the prospects of reaching any meaningful compromise within OPEC the more difficult. One would argue that OPEC cartel behaviour was facing external as well as internal pressures, that ultimately undermined its ability to manage the market in times of glut.

The Price War of 1986

The market pressures were immense, OPEC had lost its commanding share in the market, its obituaries were common and Saudi Arabia's balancing act could not effectively keep the organisation's role, nor its influence within it. By August 1985, Saudi Arabia's production at 2.2 mb/d and exports at 1.4 mb/d had reached their 1960s levels, so had those of OPEC's production and exports. The declining Saudi production impacted its leverage in OPEC, as well as its revenues and growth potentials. The situation was so critical that the future of the petrochemical sector, considered then the backbone of the Saudi industrialisation strategy and relying mainly on the associated gas from the production of crude, became questionable. All this brought home the consequences of an otherwise international aspect of the petroleum policy of Saudi Arabia that remained uncontested locally for some 25 years under the leadership of a technocrat who enjoyed until then the political backing of three kings.

The mounting domestic pressures, and the seemingly ineffective production and pricing policies, prompted Saudi Arabia to change its market strategy and relation with OPEC. The instrument chosen to regain its market share from fellow OPEC members as well as non-OPEC was 'netback' pricing. The intention was to induce buyers to prefer Saudi crude by linking the FOB (free on board) prices of its crude types to their

CIF (cost insurance and freight) product price realisation, thus abandoning the defence of official prices. This enabled the transfer of the price risk from the buyer to the seller, who absorbs the risks associated with product price movements, transportation and the time dimension between selling and refining the crude and marketing its products. Historically, the netback pricing was used as form of transfer pricing in transactions between the affiliates of integrated oil companies and among them prior to OPEC's taking control of pricing at the end of 1973. For example, in 1950, Gulf and Shell entered into netback arrangement which lasted for 25 years for half of Gulf's Kuwait production. Netbacks were used then as an accounting or tax reference or evading mechanism to the companies and affiliates as well as an analytical tool to academics and experts.

By contrast, Saudi Arabia resorted to it as a means to market its crude in times of glut, by linking the price of a barrel of its crude exports of different qualities to the gross product worth of the refined products from each crude weighted by its refining yield in a typical refinery minus the transportation cost to the refining centre as well as the costs of refining it and an agreed margin to the refinery. Unlike the netbacks within the company affiliates or the inter-company transactions, this pricing mechanism is executed through arm's length contracts negotiated between the agency (or company) of the producing country and the buyer, involving all the parameters above, i.e. transportation and refining costs, yields, the time lag between the loading of the crude and its refining and its ultimate marketing in order to turn long-haul crude into short-haul, the products price reference (usually platts), the payment arrangements as well as the refining margin.[6]

The negotiation on each parameter involved many tradeoffs for both the buyer and the seller as well as expectation of their realised values. The main thrust of the seller is to market the crude by assuming all the risks associated with the transfer of the barrel of crude to the refining centre for its ultimate sale as products, plus guaranteeing a margin to the buyer. This meant that the risk of price fluctuation is shifted from the buyer to

the seller who would dispose of the crude not knowing the price that it might fetch while the buyer is guaranteed an agreed margin whatever the crude price resulting from the formula negotiated; or even higher actual margin if the deemed values of the parameters ended up more favourable than those agreed in the contract.[7]

Aside from the technical features of netback pricing, its main aim was to make the Saudi crude, until then sold at officially set fixed prices, more attractive in those distant markets in which it had lost its share in Europe and North America, where short-haul crude was available at lower spot or discounted prices from within (Mexico, Alaska and the North Sea) or from nearby producing areas (west and north Africa). Because it was the first to initiate this approach, Saudi Arabia was able to regain its market share and almost double its production in a few months, getting a $27.7 price from its Arabian Light Crude in the second half of 1985, which was slightly lower than the $28 official price then. When other OPEC producers entered into the competitive fray using similar netback pricing methods, the buyers had the upper hand when negotiating such deals, thus undermining the competitive edge of netback pricing. And when OPEC took a decision upon the Saudi urging and earlier market positioning, in its December 1985 meeting, to 'secure and defend for OPEC a fair share in the world oil market consistent with the necessary income for Member Countries' development', the market took that as clear sign of an upcoming intensive competition for market share not only between OPEC and non-OPEC but also within OPEC. While the decision of Saudi Arabia was meant to discipline other members and ultimately get the ceiling, production quotas and the marker price at more sustainable and equitable levels, OPEC's decision in December 1985 meant an abandonment of its role as a residual supplier, in short ending its market management role. In spite of the apparent contradiction in the decision between defending a fair market share and the necessary income for member countries development, the lack of clarity as to the level of 'fair' and 'consistent' contributed further to the negative market perception. The competition for market share among

OPEC members after its decision led to a decline in the price of the marker crude from $27.8 per barrel in December, to $23.8 per barrel in January 1986. The oil prices continued their declining trend from then on, reaching its monthly lowest at $8.5 per barrel in July of that year, averaging $13.7 per barrel for the whole year, around half of its 1985 average. The then President of Aramco and future Saudi Oil Minister later recounted that one Saudi cargo of two million barrels destined for Brazil fetched $3.25 per barrel in that month.[8]

Judging from the price outcome of the early netback contracts, and in the aftermath of the December decision, it seemed that overproduction contributed more to the price decline while netback pricing was a result, or the reason for the extent of the fall. It was observed that prices have to fall a long way and price expectations have to remain depressed for a long time for a significant improvement of the market share of those who launch an oil price war. While netback pricing was viewed then as the cause of the sudden price collapse. It was only a convenient tool with which the market-share strategy of Saudi Arabia (later adopted by OPEC) could be prosecuted. Producers, in their search for market share, have contributed to the downward price spiral without necessarily resorting to netbacks. Although it was reported that Yamani had claimed that 'Saudi Arabia had engineered the glut' it seemed from the subsequent events that Saudi Arabia did not foresee such price collapse, which indicate lack of market foresight and unpreparedness for the worst outcome.[9] The few months of early 1986 had shown signs of both disarray in Saudi Arabia's marketing policies (that is in the continued use of an already controversial netback pricing) and in OPEC's ability to come together and arrest the price decline. The mistrust between OPEC members that had been building up since 1981 and the inability of Saudi Arabia to exercise effectively its leadership in time of crisis both contributed to its severity and longevity.

The pattern of selling crude in the spot market or at discount from the official prices or in the form of processing deals had been common in the early eighties, when Saudi Arabia (along with some

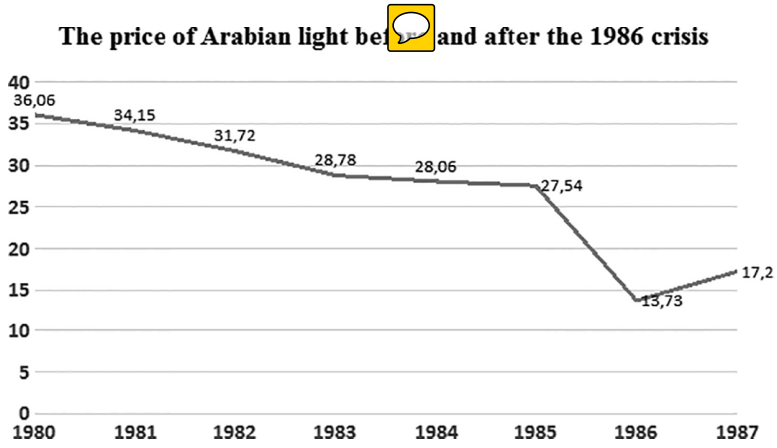

Figure 5.1 Price of Arabian Light before and after the 1986 crisis.

other producers) chose to stick to official pricing, sacrificing market share. When Saudi Arabia decided to abandon the defence of official prices, it favoured netback to the other forms of 'flexible pricing' exercised at the time, in order to quickly capture the lost share and make its long-haul oil more competitive with short-haul crude, beside accommodating the industry, which then favoured netback pricing. The Saudi success in regaining market share and revenue gains through such approach was due to the fact that it was its initiator and had the excess capacity. One OPEC veteran quipped 'it was there first with the most' while others lagged behind or could not match the Saudi volume offers.[10]

But when other producers adopted a similar approach, the tool was used as a means to further discount prices, forcing Saudi Arabia to modify the terms of its earlier contracts to keep its volume gains. As such, netback pricing per se might not be the main cause of the price decline, since the increasing crude supply impacted refined products supplies and their prices, and consequently the crude oil netbacks. However, netback contract, being an imperfect tool in an imperfect market, with all its pros and cons was associated in a way or another with the oil price collapse of 1986.[11]

Although it was clear that the price level and its administration by OPEC since 1974, and more so after the supply interruptions of the Iranian revolution and the Iraq–Iran war during 1979–80, was unsustainable, OPEC (led by Saudi Arabia) either defended that price regime or undermined it by the lack of discipline in the pricing and production throughout the period leading to the collapse. Market dynamics continued to pressure OPEC to lower the ceiling and the marker price, its members to circumvent the fixed price regime, and Saudi Arabia to defend the marker price through production cuts in excess of OPEC's or the member countries' cuts. When Saudi Arabia felt that its volume sacrifices resulted in revenue losses and declining domestic deliveries of gas and that policy had negatively impacted its commanding role in OPEC it decided to follow the other producers by resorting to market related pricing choosing the netback pricing instrument to regain its market share.

However, other political factors besides this purely economic and oil-related rationale of Saudi Arabia's abandonment of the fixed price regime and of its swing role in OPEC, were given then. The most common is the notion that Saudi Arabia in collusion with the US government intentionally sought a price collapse to deny two other producers, Iran and then the Soviet Union, the financial resources that had enabled the first to continue its war with Iraq and the second its war in Afghanistan. Although the subsequent Saudi response to the price collapse within OPEC invalidates this 'conspiratorial' theory, it had its adherents especially in the international media. One does not need proof that while Saudi Arabia regained volume during the course of the price decline, it suffered 52 per cent oil revenue losses, prompting it for the first time in its recent history to roll back its fiscal budget and impose austerity measures detrimental to its very security and stability. Needless to say, political factors did play a role in the price collapse, but not in the framework suggested above. The polarisation resulting from the Iran–Iraq war made it difficult for OPEC to reach meaningful consensus to deal with the market impasse resulting from the structural changes. The

lack of trust among its members aggravated the situation that led ultimately to each country seeking its self-interest independent of the common objectives of the organisation.[12]

Saudi Response to the Crisis

It was apparent to Saudi Arabia and to many market watchers at the time that the post 1973 oil price regime could not be sustained amid the structural market changes impacting demand and non-OPEC supply, and consequently undermining OPEC's self-proclaimed price administration role. It took a price counter-shock to realise this and set in motion a process that led by mid-1987 to the adoption of flexible oil prices while continuing to set production ceiling and quotas, thus abandoning the anomaly of fixing both volume and prices. The process started during the first half of 1986 when OPEC met three times, realising that the cut-throat competition among producers was not a zero-sum game, but had led to extremely low prices, intolerable to the producers, consumers, the industry and the long-run market stability. However, after the dismissal of Yamani, the symbol of the market share strategy, the stage was set for a change in Saudi oil policy. Although in line with Saudi Arabia's political tradition, no official reason was given for Yamani's dismissal. In his semi-authorised biography, Yamani indicated that the reason for his dismissal was his differing view with King Fahd in the midst of crisis to return to a fixed oil price and higher Saudi quota, which he thought were contradictory. Others reasoned that Yamani did not have with King Fahd the same rapport he had with the previous two kings, Faisal and Khalid. The process of weakening Petromin, groomed by Yamani to be the national oil company to take over from Aramco once the government owned the latter's assets, was initiated during Fahd's rein. This started with stripping Petromin from its petrochemical functions and assigning them in 1977 to Saudi Basic Industries Company (Sabic) under the auspices of a different ministry, as well as assigning the operation of the Petromin-built East–West Pipeline – running from the Arabian Gulf to

the Red Sea – to Aramco in 1984, ultimately leading to Petromin's demise a decade after Yamani's dismissal.[13]

The apparent change in Saudi Arabia's policy towards OPEC made a compromise within the organisation possible in October 1986, reaffirmed in December of that year.

This involved abandoning the Arabian light marker crude in favour of a basket of six OPEC crudes including Arabian light and one non-OPEC crude (Mexican Isthmus), a return to a lower fixed oil price for the basket at $18 per barrel compared to the pre-crisis level of $28 per barrel, a new 15 mb/d ceiling, quotas and the phasing out of all netback price arrangements. The agreement signalled Saudi Arabia's abandonment of its swing role in OPEC, but delayed for a short while the eventual adoption of market-related prices. The latter was introduced by Saudi Arabia in mid-1987 by means of selling its diverse crude types to the different markets through monthly price formulas, linking the sale prices of its crudes to the prices of other traded crudes either in established commodity exchanges in London (Brent) and New York (WTI) – for sales in Europe and North America respectively – and to the spot quotations of Dubai crude for sales to Asia, with adjustments accounting for crude quality, transportation and seasonality variations. This approach was soon adopted by most OPEC members and ~~survived until today~~. The reference crudes for the formulas changed over the years reflecting changes in their liquidity and characteristics in each market. In essence, the formula pricing method is a variant of netback pricing, but more transparent, balancing the needs of and risks to both the seller and buyer.

The end of the price war and the return to the ceiling and quota could well be understood from the tolls that the price collapse had on the revenues, economic growth and socio-political stability of all OPEC countries, on the relevance of the organisation and on market stability, thus necessitating the agreed compromise in late 1986. However, at that time when oil matters were highly politicised, some analysts reintroduced the political factor to explain OPEC's return to its market

management versus the short-lived free-for-all episode. This line of political reasoning inferred that the US government had intervened with Saudi Arabia during the visit to the Kingdom of the then vice president George Bush in late 1986, urging it to end the price war on the grounds that independent US producers in Texas, the home state of the vice president, were deeply hurt by the oil price collapse.[14]

While this line of reasoning is contradictory to the notion that the oil price collapse itself had been engineered by the United States – that is through the perceived Saudi–US alliance to lower prices to hurt Iran and the Soviet Union – it is also contrary to the fact that the US consumers and economy were enjoying lower prices. However, it seemed that the US oil industry as well as its policymaking establishment were viewing such prices as unsustainable, jeopardising among other things the energy conservation programmes, and undermining the stability of its allies from oil producing countries. On the other hand, the crisis in the Saudi economy and its development potentials were impacting the socio-economic contract and required action. One can argue that the interests of the producers and consumers converged towards a more sustainable oil pricing, investment and supply security regime. Political factors might have played a role in OPEC's abandonment of the market share strategy but not in the framework suggested above. The severe hardships on Saudi Arabia caused by the price collapse could well be a major factor for Yamani's dismissal, and the similar hardships on the other producers facilitated the OPEC agreement which was more or less along with what Saudi Arabia had wanted, an agreement that would not have been possible before the crisis.

The counter-shock and the flexible oil price regime also coincided with a change in demand patterns the most notable of which was the emergence of new demand growth centres in Asia and Latin America, outside the OECD, which had traditionally dominated world oil demand. While demand grew by less than 0.5 per cent annually in OECD since 1987, it was growing by close to 3 per cent in those emerging economies led by China, fuelled by rapid industrialisation and urbanisation. The

developing countries share of global oil consumption increased from 37 to 52 per cent between 1987 and 2015, contributing 80 per cent to the global growth in oil demand. This, along with the slowdown in the growth of non-OPEC production and even the decline in the production of the North Sea and the United States, led to an increase of 17 mb/d in OPEC production, commanding some 64 per cent of the global crude oil production increases over the period.

The competitive drive for market share lasted almost one year, followed by flexible oil pricing and frequent ceiling and quota adjustments by OPEC, which despite the pitfalls and imperfection of the formula pricing and the production management, have contributed to the continuity of OPEC's role and its market relevance. The lessons of the oil price episode of 1986 came to the fore 30 years later when OPEC decided in November 2014 not to act in response to the growth of US shale oil, effectively abandoning its production management role. This ultimately led to a price collapse of 58 per cent (from an average $96.3 per barrel. in 2014 to $40.8 per barrel in 2016) compared to the 50 per cent decline during the 1986 episode (from $27 per barrel in 1985 to $13.5 per barrel in 1986) However, in 1985, OPEC's spare capacity was much higher than the 2015–16 crisis – it was estimated at 20 and 4 per cent of world demand respectively. Moreover, the patterns and financing of developing shale oil production in the 2015–16 crisis were different than the development of the North Sea oil during the 1986 crisis. In addition, compared to non-OPEC oil of the 1986 crisis there was considerable room for cost-cutting for the shale industry in 2015–16, enabling resilient production and therefore prolonging the crash.

The response from OPEC this time around to reverse such approach and return to the ceiling and quota system took longer. In both episodes, Saudi Arabia's role in the price decline and in OPEC's return was instrumental. However, the market environment in which the price collapsed in the two episodes is different, although the actors remain more or less the same: OPEC and Saudi Arabia on the one hand and the United States on the other (through its longstanding anti-OPEC stance

preceding the first, and the impact of its shale oil revolution preceding the second). This time around Russia, leading non-OPEC, played a role in the return to production management to balance the market at new equilibrium. This was evident through the oil diplomacy involving Qatar, Saudi Arabia, Venezuela and Russia during April–November of 2016 and the willingness of Russia to enter into temporary arrangement with OPEC and non-OPEC countries to cut production. However, the 2015–16 oil price collapse had initiated debate as to whether it had resulted from structural market changes as the 1986 price collapse that required a transition to a new price regime besides production management, or whether it is a combination of transitory and structural factors, that does not necessitate such a transition.[15]

Notes

1. In the height of the Arab–Israeli war of October 1973 and the accompanying 'Arab Oil Embargo' against the United States, OPEC unilaterally increased the 'posted' price of the barrel of Arabian light from $3.01 to $5.119, followed by an increase to $11.65 in January 1974. The supply shortage resulting from the production cutback by Saudi Arabia and Kuwait and the embargo further politicised the shock and added to the US public and media stereotypes about oil and Arabs which are still prevalent until today. However, others have analysed the crisis in its proper market and political context. See John Blair, *The Control of Oil* (New York, 1976); Dermot Gately, 'Lessons from the 1986 Oil Price Collapse', *Brookings Papers on Economic Activity* xvii/2 (1986), pp. 237–84; and Raymond Vernon (ed.), *The Oil Crisis* (New York, 1976).
2. The power sector's use of fuel oil in the OECD declined from 9.6 mb/d to 4.7 mb/d between 1978 and 1985, which was never recovered.
3. Data from BP and OPEC's databases.
4. On these developments see Francisco Parra, *Oil Politics: A Modern History of Petroleum* (London, 2004), pp. 276–9; and Pierre Terzian, *OPEC: The Inside Story* (New York, 1985), pp. 308–19.
5. On Yamani's and Saudi Arabia's views on the market at the time, see Yamani's address at the Oxford Energy Seminar published in R. Mabro (ed.), *OPEC and the World Oil Market: The Genesis of the 1986 Price Crisis* (Oxford, 1987) and the coverage in *Petroleum Intelligence Weekly* throughout 1982. It was even reported that Yamani had actually said in a 'meet the press interview' in 1981 that 'the glut was anticipated by Saudi Arabia and almost done by Saudi Arabia'. See 'Saudi Arabian Oil Minister

562 Skeikh Ahmed Zaki Yamani said . . .', *United Press International*, 19 April
563 1981. Available at http://www.upi.com/Archives/1981/04/19/Saudi-Arabian-
564 Oil-Minister-Skeikh-Ahmed-Zaki-Yamani-said/9643505404605/ (accessed
21 February 2017).

565 6. In its simplest form netback price takes the following format NB t= (Σ W i P i)
566 t+1 – (C+T+M), where NB t stands for the netback price at the time of
567 lading, Wi Pi stands for the price of product i weighted by its share Wi in the
568 refined barrel at the t+1 time. C stands for the cost of refining, T the
569 transportation cost to the refining center and M is the agreed margin. See
Robert Mabro, *Netback Pricing and the Oil Price Collapse of 1986* (Oxford,
1987).

570 7. For a full technical analysis of netback pricing, see Mabro, *Netback pricing*;
571 and for the different stakeholders' views on that pricing see *The Pros and*
572 *Cons of Netback Pricing*, Special Supplement to *Petroleum Intelligence*
Weekly, 11 August 1986.

573 8. See the memoirs of Ali Al-Naimi of the events leading and the response to
574 the crisis in Ali Al-Naimi, *Out of the Desert: My Journey from Nomadic*
Beduin to the Heart of Global Oil (London, 2016), pp. 125–45.

575 9. Also see note 5 above.

576 10. See Parra, *Oil Politics*.

577 11. See Mabro, *Netback pricing*, p. 34; and Parra, *Oil Politics*, p. 284.

578 12. When the government announced the budgetary roll back, its oil revenues
579 had shown a decline from 88.4 to 42.5 billion Saudi Riyals between 1985 and
1986. See Saudi Arabia Monetary Agency, *Annual Report* (1986).

580 13. For the evolution of the Government–Petromin relation, see Steffen Hertog
581 'Petromin: The Slow Death of Statist Oil Development in Saudi Arabia',
582 *Business History* l/5 (2008), pp. 645–68. On Yamani's view see Jeffrey
Robinson, *Yamani: The Inside Story* (New York, 1988).

583 14. The Bush factor in the Saudi decision to abandon the market share strategy is
584 mentioned in Daniel Yergin, *The Prize* (New York, 2009), p 737. See Victor
McFarland's chapter in this volume for a recent assessment.

585 15. See Bassam Fattouh, 'Adjustment in the Oil Market: Structural, Cyclical or
586 Both?', *Oxford Energy Comment* (May 2016). Available at https://www.
587 oxfordenergy.org/wpcms/wp-content/uploads/2016/05/Adjustment-in-the-
Oil-Market-Structural-Cyclical-or-Both.pdf (accessed 21 February 2017);
588 and Robert Skinner, 'A Comparative Anatomy of Oil Price Routs Between
1985 and 2014', *SPP Research Papers* viii/39 (2015), pp. 1–36.

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Iran and the Counter-Shock: Oil as a Weapon (for Survival)

Claudia Castiglioni

In August 1986 the Iranian government, which in the previous six years had fiercely opposed any attempt to comply to a cartel-like discipline within OPEC, opted for a change in strategy which made possible the conclusion of a deal with Saudi Arabia and the other members of the organisation that re-established quotas for all the OPEC countries except for Iraq. The agreement significantly contributed to bringing an end to the market share strategy, reintroducing a ceiling on production and paving the way for a lift in price. The decision was taken in tune with more general changes underway within OPEC, but also as a direct consequence of the overriding financial problems that Iran, one of the countries most badly hit by the sharp decline in prices produced by the counter-shock, was facing after six years of war against Iraq. Starting from these premises the chapter will analyse the policy pursued by Iran during the crucial years of 1985–6, with particular attention for the role played by the war effort and by domestic dynamics in the definition of Iranian policy during and in reaction to the counter-shock of 1986.

Oil and the 1979 Revolution

In the 25 years between the 1953 coup and the outbreak of the revolution, there seemed to be little doubt that for Iran oil was to be considered a blessing rather than a curse. Between 1963 and 1975 the country experienced a period of unprecedented growth, made possible and fuelled by the steady increase in oil prices and revenues. By the mid-1960s, the petroleum sector had become the pivotal link in the economy upon which the manufacturing sector was able to prosper, a trend further reinforced by the oil shock of 1973. As a consequence of the fourfold increase in OPEC's posted price, in which the Shah played a pivotal role, Iran's oil revenues jumped from $2.8 billion to $4.6 billion in 1973–4, and to $17.8 billion in 1974–5. The steep surge forced Iran's Planning and Budget Organization to revise the terms of the Fifth Development Plan and raise the total investment target from $36 billion to $70 billion. The 'Great Civilization dream' suddenly became a reality, and massive amounts of money were pumped into Iran's fast-growing economy.[1] Yet Iran's strength and growth soon revealed their feet of clay: the profound reliance of the industrial sector and of the entire economic system on oil income resulted in an extreme vulnerability to any shock such as a drop in the world's demand for Iranian oil or a nominal contraction in crude prices.[2] The weak foundations of the Iranian economy became evident after 1975, when the phenomenal growth rate of the previous two years came to a sudden halt as oil revenues levelled off.[3]

Mohammed Reza Pahlavi, faced with an over-heated economy and with the skyrocketing costs of his development projects, continued to pressure the other OPEC members for higher prices, but, contrary to the early 1970s, this time his campaign failed to achieve the desired goal. As Robert Graham has argued: 'During this period the Shah [...] continually underestimated the Saudi position and their capacity to enforce it. The Shah seemed unable to accept the changed political circumstances.'[4] After two years of struggle, by the end of 1977 the Shah was eventually induced to compromise with the more moderate OPEC members and support a price freeze clearly at odds

with Tehran's policy of massive economic and military spending.[5] According to some commentators, the choice also resulted from Riyadh and Washington's ability to take advantage of the mounting domestic pressure in Iran and the resulting deterioration of the Shah's position to reduce his leverage and influence within the organisation.[6] The subsequent contraction in oil revenues, further aggravated by the strikes that broke out in the oilfields in October 1978, combined with ramping inflation, rising unemployment, and growing dissatisfaction towards the Pahlavis' rule, concurred to the further escalation of Iran's domestic crisis and to the eventual demise of the regime in January 1979.

The immediate aftermath of the revolution saw a sudden and significant drop in Iran's oil production, which even halted completely for a few weeks before recovering in the second half of 1979. In mid-1978 Iran was producing over 5.2 mb/d; by late 1981 daily production was running at 1.2 mb/d.[7] The plunge, which resulted in a fall in the country's revenues, in an extreme volatility in the energy markets and in a steep rise in prices, was produced by the domestic turmoil and the consequent problems in operating the facilities, by the decision by the new leadership in power to reduce the level of oil production to around 30 per cent below its average level over the 1971–8 period, by the outbreak of hostilities with Iraq in September 1980, and by the government's difficulties in adjusting its policy to increasingly unfavourable market conditions.[8] In the words of Shaul Bakhash:

> After the revolution oil policy had to be formulated under volatile conditions and often to satisfy the demands of conflicting policies and goals. At the same time, oil had to be adjusted to changing market conditions: initially to a market in which demand was high and prices strong. Subsequently to a market in which demand and prices were rapidly falling.[9]

By curbing the country's production capabilities while, at the same time, increasing its need for immediate and substantial cash flows, the

revolution exacerbated the aggressive nature of Tehran's oil policy. This, in turn, sharpened the sources of friction between Iran and the Arab states of the Persian Gulf, profoundly affecting the premises and the goals of Iran's policies inside OPEC,[10] and elevating oil politics as the key arena for Iranian–Saudi tensions.[11]

The new regime immediately revised the terms of the relationship between the state and National Iranian Oil Company. Article 44 of the new revolutionary constitution officially reserved oil, along with other significant sectors of the Iranian economy, to be 'publicly owned and administered by the state'.[12] In a largely symbolic gesture, on 28 February 1979, the revolutionary government unilaterally abrogated the remnants of the concessionary agreement. NIOC would now market all of Iran's oil itself and hire contractors directly.[13] In September 1979 Hasan Nazih, a human rights lawyer who had been appointed as chairman of NIOC after the revolution, was replaced by Ali-Akbar Moinfar, who was at the same time appointed minister of oil. Even if Moinfar was not a radical,[14] Nazih's dismissal made Tehran's oil policy more contingent upon the power struggle underway and, together with Prime Minister Mehdi Bazargan's resignation in November, marked a weakening of the moderate forces within the revolutionary leadership. Moinfar's tenure lasted a year. The following September he was briefly replaced by Mohammad Javad Baqer Tondguyan and, after Tondguyan's capture by Iraqi forces, by Mohammad Gharazi, who retained the position until 1985. After Nazih's dismissal, NIOC began to pursue a more aggressive pricing policy. Inside OPEC Iran, soon joined by Libya and Algeria, took even more hawkish positions, constantly pushing for larger and more rapid price surges that could increase the flow of cash in the rapidly emptying coffers of the state. Oil revenues in 1982 still accounted for over 80 per cent of all government revenues and 90 per cent of foreign exchange earnings. When prices began to weaken, Iran argued strongly for the adoption by OPEC members of production limitations to sustain high prices.

The revolution also allowed the emergence of a different approach to oil politics within the new revolutionary elite: some of the new men in

power in Tehran started to favour more restrained levels of development spending and production.[15] A growing hostility towards the large international oil companies, the majors, became widespread, leading to the idea that their role and influence in the functioning of Iran's oil industry should be further diminished. This approach was fomented by the fear of a foreign conspiracy aimed at exhausting the country's resources to weaken it and make it dependent on the West, which somehow echoed Mossadeq's experience and historical legacy of mistrust towards international oil companies.[16] In this sense the revolution was viewed by some members of the new elite in power as a chance to launch a new phase in the country's economic development, where oil revenues would be used to 'promote Islamic values and a sustainable growth, rather than exploitation, immorality and the monarch's apish ambitions'.[17] Despite the profound impact these ideas had on Iran's post revolutionary oil policy, they did not lead to a complete reshuffle of Tehran's priorities, always allowing room for more pragmatic approaches. As it has been recently argued by Suzanne Maloney:

> The early phases of Iran's new order where dominated by improvisation, exigency, institutional upheaval, and political competition. [...] [But] [e]ven in the midst of such intense institutional warfare [...] the emerging state was also subject to powerful forces of stability.[18]

Nevertheless, in the first years after the revolution, Iran's oil policy underwent major structural changes. These changes resulted from the country's increased need of revenues, from the new market conditions and from the new views that were spreading within Iran's new leadership. Short-term contracts, a wide variety of customers to whom Iran sold oil directly,[19] a further reduction of foreign involvement in the country's oil sector, the sale of large volumes on the spot market (from 5 to 10 per cent), the consequent attempt to sell crude to regular customers at inflated spot prices, a moderate decrease in production, the

disruption of some of the traditional lines of supply (even though most of Iran's crude remained destined to Europe and Japan), and the growing reputation for unreliability as a supplier became the major features of Iran's oil policy, a policy centred around the idea of flexibility and short-term gains.[20]

To some extent the new pricing and selling policy pursued by Tehran reflected some changes underway in the companies' market strategy.[21] Since the second oil shock their focus had shifted from long-term contracts to the spot market in order to reduce OPEC's role as price setter, a trend in which British Petroleum led the way.[22] This tendency resulted in the increase of the amount of crude oil sold on the spot market or at prices keyed to the spot market from 10 per cent in the late 1970s to more than 50 per cent by the end of 1982. The aggressive and short-term-oriented policy pursued by the new revolutionary elite in power concurred to the sharp rise in oil prices in 1979 (from $13.45 to $31). At the same time the fascination with the idea of limiting oil exports, especially supported by the leftist elements of the new Iranian leadership like President Abolhassan Banisadr and the prediction that prices would stay high indefinitely, consolidated the argument for lower production.[23] The sale strategy pursued by Tehran eventually led to a drop in exports and production far beyond the predictions (and intentions) of the Iranian leadership.

In synthesis, a mixture of contingent, ideological and economic determinants shaped the first phase of Iran's post-revolutionary energy policy: a difficult financial situation, widespread theories calling for a transition to an 'Islamic economy' vaguely based on egalitarian ideas, the exceptionally high oil prices, and the consequent encouragement to rely on spot markets for the allocation of its, declining, production. In this context the outbreak of the war altered these dynamics by 'transform[ing] the state's mandate from an ideological one to a material one', while Iran's copious revenues 'enabl[ed] its leaders to embrace this agenda without appreciating the extent to which it would undercut their original source of legitimization'.[24]

Oil Policy at War

As a consequence of Tehran's pricing and production policy, on the eve of the Iraqi invasion in September 1980 exports stood at about 700,000 b/d compared to the 4.6 mb/d of 1978, while oil revenues had dropped to $10.5 billion compared to the $25 billion of 1978.[25] The war put further strain on Iran's already declining export capacity: the conflict greatly affected refinery and oil-exporting facilities of both countries; it inflicted damage to the oil terminal on Kharg and it interfered with tanker traffic on the Persian Gulf. In 1980–1, Iraqi bombing and shelling destroyed 65 per cent of Iranian refinery capacity, severely damaged the port of Khorramshahr and the Iranian–Japanese petrochemical complex at Bandar Mahshahr. Iran's oil exports were reduced, while Iraq's almost ceased.[26] Only the intervention of Arab allied states, first and foremost Saudi Arabia, allowed Iraq to sustain the war effort despite the abrupt fall in oil revenues. The plunge in Iran and Iraq's production and the resulting panic in the energy markets caused a new peak in prices after the one recorded the previous year. In its initial stages, the Iran–Iraq war abruptly removed almost 4 mb/d of oil from the world market, 15 per cent of total OPEC output and 8 per cent of Western demand. Yet the increasing supply of cheap oil by non-OPEC producers eventually prevented the potential (and feared) shortage of oil. The rise in sales by countries such as Norway and Britain started to alter the structure of the market in ways not foreseen by the OPEC countries, a process that would ultimately force them to confront the choice between cutting prices to regain markets or cutting production to sustain prices.

In the meantime Iran faced a further contraction of its sales. In 1981 the government's insistence on 'defying gravity' and maintaining high oil prices during a world oil glut, and its reputation for unreliability among customers, reduced Iran's oil exports to nearly one-third the level necessary to meet the country's foreign exchange requirements. In response to the rapidly deteriorating economic situation, the government finally opted for a change in policy. At the

OPEC conferences in late 1981 and in 1982 Iran surprised other participants by reversing its high-price policy, agreeing to a reduction of official prices and working more closely with other members. At the conference in Geneva in October 1981 members agreed to set a new reunified marker price of $34 a barrel for Arabian light.[27] This significant decision 'demonstrated that unrealistically high prices could not be maintained in a soft marked and provided a face-saving formula by which the Iranian authorities could reduce Iran's own inflated prices'.[28]

The partial shift in the country's oil policy which allowed the achievement of the agreement and which was combined with under-the-table deals to regain buyers, push for higher quotas and campaign to reduce the Saudi one, represented one of the first manifestations of the tilt to limited flexibility and pragmatism in economic management after the excesses of the first stages of the revolution. The readjustment also reflected the changes that occurred in the Iranian government from mid-1981 to mid-1982.[29] In June 1981 President Banisadr, one of the major supporters of the policy of limiting production, left his office (and the country) after being impeached by the Parliament. In November an editorial published in one of the most influential newspapers clearly stated the need to use oil revenues to finance the country's reconstruction.[30] In February 1982 the Central Bank severely curtailed imports and the NIOC, in a bid to rebuild its oil sales, cut prices by $5 per barrel and launched and aggressive marketing campaign. Iran gave price discounts under the table and exchanged oil for goods in barter deals with Eastern Bloc and Third World countries such as Romania, Brazil and Taiwan. This was accompanied by an energetic campaign to improve trade ties and win friends abroad, and to resume work on major projects, which required foreign technical expertise.[31] A goods-for-oil agreement worth $1 billion was concluded with Turkey, while foreign companies, especially Italian, German and Japanese, were invited to undertake a number of projects including oil-well maintenance. By the summer of 1982, technocrats in the cabinet were

gaining influence, bringing back planning, technical expertise and fiscal responsibility in the running of the country. While the political and ideological leadership remained firmly in the hands of the clergy, they were allowed a certain room for manoeuvre in the conduct of the economic policy. As Shaul Bakhash has put it:

> For nearly three years Iran had made oil policy a hostage to ideological considerations and internal political rivalries. Officials had again and again misjudged the state of the oil market. The revolutionary government had decimated the ranks of its own managerial staff in the oil industry and mismanaged the economy. [. . .] As a result, the Islamic Republic in early 1982 found its foreign exchange reserves nearly exhausted, its traditional marketing networks disrupted and buyers for its oil hard to find.[32]

It was against this background that the more pragmatic elements within the Iranian government, immune to the widespread fascination with the idea of reducing the country's production and concerned by the long-term impact of the declining revenues, started to push for an aggressive policy in the oil markets. This trend was paralleled by the adoption of a more confrontational strategy vis-à-vis Iran's neighbouring countries, especially the Gulf states. Starting from late 1981 the supreme leader, Ayatollah Ruhollah Khomeini, openly encouraged Iranian pilgrims to use *hajj*, the annual Muslim pilgrimage to Mecca, as an occasion to organise demonstrations in favour of the revolution, calling for an Islamic uprising in the region. In 1982 Iran launched its first counter-offensive in Iraq; the country's military goal changed from the defence of its territory to the overthrow of Saddam Hussein and export of the revolution. In Lebanon Iran's revolutionary guards, the Pasdaran, helped the creation of Hezbollah in the struggle against Israel. This phase of regional dynamism, whose launch proved the prominence of the war effort over the divergences between the pragmatic and ideological wings of the leadership, marked a shift in Tehran's approach to the region and to its Sunni counterparts, with repercussions also on OPEC's internal dynamics.

Iran as a Recalcitrant Member of the OPEC Cartel

The price set at the Geneva meeting in October 1981, $34, proved to be too high, generating a new supply glut in the market. By 1982 Saudi Arabia had already started to act as a swing producer. The changes underway in the oil market and the pricing policy pursued by OPEC resulted in the first attempts to impose a cartel-like discipline in 1982. The extraordinary conference that took place in Vienna in March 1982 announced an OPEC ceiling on production of 17.5 mb/d, almost half the level of 1979, allocated quotas and set up a Market Monitoring Committee. OPEC was finally turning into a cartel. Both Iran and Iraq's quotas were set at 1.2 mb/d but it was clear that, whatever quotas were attributed to the two belligerents, these were only valid to the extent that either country was physically constrained by the war to that quota. 'War, not surprisingly, provided in practice a *force majeure* exclusion clause for both countries.'[33] The stakes were large and the economic needs of each party substantial. It became evident that 'none of the three Gulf powers would have held back production for long if the others were aggressively seeking a larger market share'.[34] Iran declared its fierce opposition to the quota system adopted in Vienna and, in July 1982, argued for a reduction in production from Saudi Arabia that would have allowed Tehran to increase its own share. 'To many observers the July conference [combined with Iranian offensive in Iraq] seemed to mark the re-emergence of Iran as an assertive and influential member of OPEC.'[35]

Iran quickly began to pursue a policy at odds with the one designed by the organisation, maximising its oil production regardless of the quota system and turning into a *de facto* non-OPEC player.[36] Partly in revenge against the Arab oil countries that were supporting Iraq in the war, the Iranian policy boosted its crude output: the country's production rose from 1.1 mb/d in March 1982 to 2.8 mb/d in December of the same year (see Figure 6.1). At the same time Iran did not make any attempt to raise its selling prices in the light of OPEC's renewed determination to defend the $34 marker price and remained $4 below the official level. In the

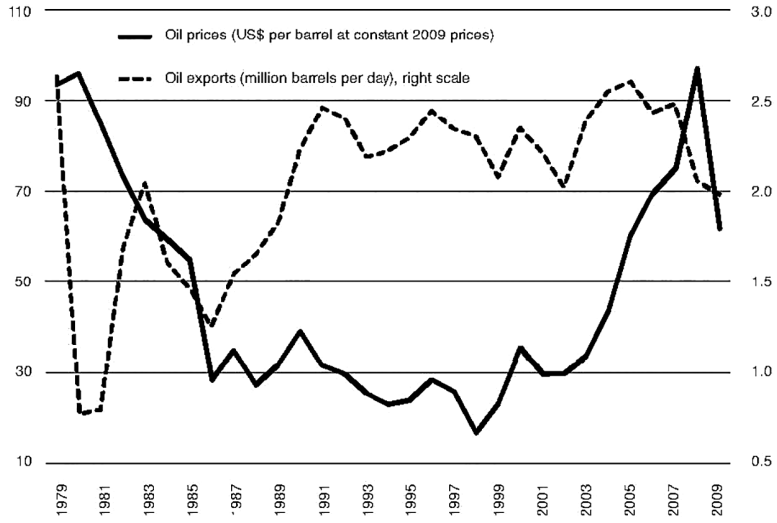

Figure 6.1 Iran's oil exports and prices, 1979–2009. Source: Evaleila Pesaran, *Iran's Struggle for Economic Independence: Reform and Counter-Reform in the Post-Revolutionary Era* (London, 2010), p. 184.

summer of 1982 Iran's persisting obstructionism toward the quota system marked the end of the first attempt by OPEC to work as a cartel.[37]

In the meantime the increasing financial burden of the war further exacerbated the government's economic problems. By March 1983 the damages caused by the conflict to Iranian production and wealth amounted to $135.8 billion, including the loss of oil revenues at $33 billion.[38] The war and war-related activities were absorbing almost one-third of the budget. It drained away foreign exchange, while Iraqi attacks on tankers disrupted Iran's oil exports, raised the costs of insurance and forced Iran to continue to offer its customers substantial discounts in oil prices. Oil revenues in 1983–4, though increasing from $11.5 billion in 1981 to $21.5 million in 1983, were still $3.7 billion below projected earnings.[39] The difference between projected and effective revenues resulted in a deficit in the balance of payment and in the imposition of a new round of restrictions on imports in 1984.[40] The persistent economic difficulties triggered a fierce debate

among the various groups in power, especially between the more leftist exponents as Prime Minister Mir Hossein Mousavi, the pragmatists like the Speaker of the Majles Akbar Hashemi Rafsanjani and those firmly aligned with Khomeini and his party.[41]

In mid-1983, at the OPEC meeting in London, a new agreement was reached. As a consequence of the reduction of North Sea and Nigerian prices and of the failure of the quota system, the OPEC countries under Saudi leadership, decided to reduce the marker price to $29, granting a temporary exception to Nigeria. For the first time since its establishment OPEC reduced instead of increased the price of oil. Iran's quota was increased from 1.2 to 2.4 mb/d; Saudi Arabia assumed again the role of swing producer, while Iraq accepted to keep its 1.2 mb/d quota under the condition that it would be revised upwards when it was capable of exporting more. The decision marked the second attempt by OPEC to act as a cartel, after the failure of early 1982. The system somehow survived until mid-1985, but mostly thanks to Saudi willingness to keep its production down, while cheating and increases in production remained the rule both within and without OPEC. As commented by Daniel Yergin: 'Security was hardly an issue anymore. What mattered was to be competitive in a glutted market.'[42]

Already in late 1983 OPEC production was averaging 1.5 mb/d above the agreed ceiling. Concerns for the constant increase of non-OPEC production and doubts on the ability of the organisation to guarantee the application of the London agreement in a situation of declining demand and external competition grew stronger, while internal OPEC discipline showed its clear limits. By the end of the year Iran went back to its traditional policy of pressure for higher prices, proposing a return to $34 per barrel and more rigorous production quotas while, at the same time, continuing its policy of discounting its price to whatever extent was required to keep its customers and maintain its oil exports. At the OPEC meeting in October 1984 production quotas were readjusted: in the case of Iran its quota was reduced from 2.4 mb/d to 2.3 mb/d while Iraq's was confirmed at 1.2 mb/d. As a matter of fact, the two countries continued to

produce whatever they could, with little or no consideration for the quota system.[43] The cartel and the system remained, at least temporarily, in place but its members were faced with a crucial choice: they could either comply to full discipline or risk Saudi withdrawal from its role as a swing producer.

The Counter-Shock of 1986

In 1985 it became all too clear that the organisation was facing a deep crisis. OPEC's lack of discipline was complete. Most of its members were cheating around the quota system while the rivalry between Iran and Iraq impeded any new effective agreement on prices and quotas.[44] As a consequence of the evident failure of the quota system, in mid-1985 Saudi Arabia abandoned its swing-producer role, increased production and aggressively moved to 'capture its fair share of the market', marking a shift from a policy aimed at defending price to one of defending its own volumes of production. From August 1985 to mid-1986, OPEC output rose by about 4 mb/d, while prices fell from $29 to below $10 per barrel. More than half the surge in production came from Saudi Arabia, but some other members also had significant increases, especially Kuwait, the United Arab Emirates, Iraq and Nigeria. 'Official prices ceased to exist for Saudi Arabia as they had already in practise ceased to exist for many other OPEC members and as they would now cease to exist for all.'[45] The Saudis hoped that what they lost because of lower prices, they would make up with higher volumes. To some extent they were pushing further the policy of cheating and selling cheap oil that had been pursued by a large number of OPEC countries in the previous years, first and foremost by Iran. As noted by Yergin, it 'was not merely that prices were collapsing [. . .]. For the first time in memory, there was no price-setting structure [. . .] And, in the fiercely competitive environment, the matter came down to offering discount after discount to assure markets.[46]

In retrospect the collapse of the quota system and the failure of OPEC to act as a cartel were 'a failure of self-discipline, but also a misreading of

the portents'. OPEC members did not comprehend that 'if they failed individually to keep the cartel rule that they agreed to impose upon themselves, there would come a time when the whole system would break down'.[47] In this scenario Iran played a key role. Its defiant attitude, produced by the economic difficulties the country was going through, by the war effort and by the short-seeing and ideologically constrained policy Tehran pursued in the energy sector, heavily contributed to the lack of discipline within the organisation that ultimately led to the decision by Saudi Arabia to abandon the role of swing producer and start to sign netback contracts at prices determined outside the framework of OPEC's official price-setting.

In the conference held in Geneva in December 1985 price hard-liners within OPEC, i.e. Algeria, Iran and Libya, dissociated themselves from the 'fair market share' decision on the grounds that volume gains by the OPEC countries would not be sufficient to compensate for the drop in prices resulting from a price war with the non-OPEC exporters. They asked for much lower quotas in order to return to a $29 price. Iran was among the countries most affected by the decline in oil prices produced by the counter-shock: its oil earnings in the first half of 1986 were down 42 per cent from the same period in 1985. After struggling so much to bring its revenues back above the $20 billion ceiling in 1983 and 1984, Iran's revenues had now dropped again to $7.5 billion in 1986. The decline hit the country in one of the most delicate moments of its war against Iraq, whose costs would finally amount to $645 billion.[48] Despite the great damage inflicted by the counter-shock on Iran's precarious economy and the long-term unsustainability of its hard-line position within the organisation, Tehran long hesitated before moving toward a compromise with the other OPEC countries, first and foremost with Saudi Arabia and its Oil Minister Ahmed Zaki Yamani. Throughout May and June 1986, as the proposal of a new set price of $18 started to circulate, the new Iranian Oil Minister, Gholam Reza Aghazadeh, continued to insist on higher prices and to oppose any discussion over production: 'The group must first agree on a price level', the Iranian minister declared in June

1986, at the eve of the Brioni meeting, 'this will determine what production is going to be'.[49] Aghazadeh also stressed that $28 price remained the price OPEC should defend, distancing himself from the decision taken in Taif a few weeks earlier by six of the members to set the new price at $18–19.

At the same time Aghazadeh started to show some partial flexibility, admitting the possibility of some lower, intermediate, price to be agreed and some modest production cuts as a necessary step in order to return to higher prices.[50] In the words of Suzanne Maloney, 'while the rhetoric remained at a high pitch and little progress appeared on the horizon, the precipitous decline in prices was forcing both sides toward the centre'.[51] The change in policy became concrete a few weeks later, when the Iranian leadership took an unprecedented initiative that denoted the shift toward a more pragmatic policy in order to re-establish the collaboration with Saudi Arabia on oil prices and quotas.[52] In August 1986, while most of the other OPEC countries were moving towards a reduction of production in order to strengthen the price, the 'slight, soft-spoken Oil Minister of the revolutionary Government of Iran, Gholam Reza Aghazadeh' had a private meeting with the 'patrician' Saudi Arabian Oil Minister, Sheik Ahmed Zaki Yamani in the latter's 'spacious 17th floor suite in the Hotel Inter Continental' in Vienna.[53] The meeting was conveyed at the initiative of Tehran's new minister of oil, pressured by the apparently unstoppable fall of prices and by the financial burden of the ongoing conflict with Iraq. Iran, through its minister of petroleum, was finally willing to accept not only the temporary, voluntary quotas pushed by Yamani and others, but also the exclusion of Iraq from the system. Iran had, in fact, backed down. Its oil policy proved to be more pragmatic than its foreign policy.[54] Thanks to the informal agreement between Yamani and Aghazadeh, the OPEC August meeting resulted in the decision to limit the output of 12 of its 13 members from the beginning of September to the end of October to 14.8 mb/d in an attempt to bolster prices by removing excess supplies from the market. After the accord was reached, prices rose to nearly $17 a barrel from less than $10 a barrel.

Iran's protracted reluctance to agree to the Saudi-sponsored project of quota allocation between in the first half of 1986 focused on the comparison between Iran and Iraq's shares, an aspect that continued to link the intra-OPEC negotiations with the Gulf War. In this sense the greatest concession that the Iranian leadership made in August 1986 was to accept the exclusion of Iraq by the quota system, rather that to agree on the system per se. A new quota allocation scheme was finally introduced in December, together with a fixed price of $18; despite the decision by Iraq to dissociate itself from the negotiations, a nominal Iraqi quota was introduced in the OPEC total. And yet, as Ian Skeet has argued:

> The eventual agreement of Iran to permit Iraq to stay outside the OPEC quota and itself to accept an $18 price signified Iran's preoccupation with the need for revenue to carry on its war with Iraq more than any sudden agreement or alignment with Saudi Arabia.[55]

The convergence, which came as the result of both domestic and international factors that significantly constrained Iran's room for manoeuvre, would soon prove to be short-lived and contingent to the circumstances. As argued below, the agreement did not herald a new phase of collaboration between Riyadh and Tehran or a decline in tension between Iran and its neighbouring countries. 'Like earlier openings between the northern and southern Gulf powerhouses, [. . .] any goodwill between Tehran and Riyadh [. . .] was soon shattered.'[56] Nevertheless the compromise did stand as a moment of redefinition of the oil policy pursued by the Islamic Republic since the revolution, marking a turning point in the negotiations that revolved around the counter-shock.

Conclusion

The temporary truce between Tehran and Riyadh on energy matters further consolidated by Yamani's dismissal as Saudi oil minister in late

October 1986, did not mean that the two countries were ready to embark on a path of far-reaching collaboration. Throughout the final phases of the Gulf War, Saudi Arabia further intensified its financial, military and diplomatic support to Iraq, especially after Iran's capture, in February 1986, of the Faw Peninsula, the site of many of Iraq's oil installations. The Tehran government, for its part, resumed its calls inside and outside OPEC for a reduction in Saudi oil production.

At the same time the historical agreement reached in August 1986, 'forged in hours of bitter haggling by the oil ministers of Saudi Arabia and Iran',[57] marked a significant step in Iran's shift from the initial ambition of making the oil industry a symbol of the regime's new economic policy to a strategy dominated 'by the inescapable need of the post-revolutionary state for revenues to meet popular expectations' and sustain the costs of the ongoing conflict against Iraq.[58] The choice was taken in tune with more general changes underway within OPEC, but also as a direct consequence of the overriding economic problems that the Islamic Republic was facing, after six years of war in a politically unstable situation. In this sense Tehran's decision to partially revise its policy within OPEC under the initiative of his Oil Minister, Gholam Reza Aghazadeh, demonstrates how the need to find an arrangement with the other OPEC members and thus reinforce the role of the organisation vis-à-vis its external competitors, imposed itself as the country's top priority, prompting the leadership in Tehran to temporarily compromise on its anti-Arab and anti-Saudi policy.

Back in 1982–4 Iran's uncooperative attitude toward the quota system, its tendency to openly challenge OPEC official price-setting by selling discounted oil on a short-term basis had significantly contributed to the change in Saudi policy and to the relinquishment of the cartel-like discipline in favour of a market share strategy. It is all the more unlikely that in the mid-1980s the leadership in Tehran was aware of the shift from a producers' to a buyers' market that had been taking place since the late 1970s, but to some extent they behaved accordingly, thus concurring with the change. Yet the policy of barter deals and

discount prices as pursued by the revolutionary elite proved to be ultimately unsustainable: only in a situation of artificially high prices, like the one that existed between 1981 and 1985, Iran could have had preferential access to the market, pursuing its policy of maximising profit through under-the-table deals without facing the competition of other major OPEC producers such as Saudi Arabia.

When in mid-1985 Riyadh decided to flood the market with cheap oil, bringing the openly failing cartel-like strategy to an end, Tehran found itself in an unprecedented situation. It was not the 1970s anymore, Iranian leaders had to face the fact that 'oil could mean not only wealth but also weakness for a nation'.[59] At the same time they could no longer benefit from a cartel-like system they could violate though still taking advantage from its role as price-setter. The display of assertiveness by the Iranian leadership between late 1985 and early 1986, the lack of flexibility of the issue of production and the repeated calls for a return to high prices were, to some extent, designed to convey an image of strength while gaining time vis-à-vis Saudi Arabia and the other OPEC members.

Iran was among the countries most affected by the decline in oil prices produced by the counter-shock. The drop in its oil revenues happened to coincide with a new escalation of the conflict against Iraq. As a consequence Iran found itself to be among the countries mostly in need of a new system that would guarantee a rise in its oil revenues. And it seems difficult that it would have managed to stop the precipitous drop in its oil revenues without striking a deal with Riyadh. Its support to the quota system revealed the acknowledgment by Tehran that only a more rigid discipline among the producers would guarantee prices high enough to sustain its war effort, a war effort in which Iran always felt unjustly penalised or damaged by the support provided by the OPEC Arab members to Saddam Hussein.[60] In addition to that, by the mid-1980s Iran was already trying to shift its pricing policy away from barter deals, which over time constituted as much as 25 per cent of its exports, increasingly seen as eroding Iran's control over prices and destinations as well as contributing to soft market conditions.[61]

Of course Iran was not alone in its demand to put an end to the free fall of prices: by the summer of 1986 'virtually all the OPEC decision makers had concluded that the market share strategy was, at least in the short-term, a failure'.[62] Yet, as observed by Aghazadeh in June 1986 with regard to the negotiation underway with Yamani: 'we are the two to decide'.[63] Iran's key negotiator was not only aware of Tehran's centrality in the negotiations, but also of the crucial role the country played in the re-establishment of the quota system, an agreement that, in his words, 'started from a proposal of Iran'.[64] In the decision taken in the summer of 1986, a prominent role was played by Aghazadeh himself. Iran's oil minister, who would hold the office from October 1985 to August 1997, had previously been an aide to the leftist Prime Minister Mir Hossein Mousavi, advising him on economic and financial matters and arranging many of the oil barter deals concluded by Iran in the early 1980s. During the crucial months of the counter-shock Aghazadeh proved to be a versatile politician, able to translate the partial reassessment in Iran's energy policy into a new course of action. In other words, if it is clear that the August accord was 'no clear Iranian victory', at the same time 'it displayed unusual Iranian negotiating cleverness', a success that many observers attributed to 'Aghazadeh's skilful use of negotiating pressure in the conference hall and in public'.[65]

In retrospect, Aghazadeh's initiative could be seen as part of Iran's steady movement toward political and economic pragmatism that from the mid-1980s slowly replaced the ideological extremism dominant since the revolution.[66] Beginning in 1984 the economic policy of the Islamic Republic had started to signal a progressive shift from the populist euphoria of 1979–80 to a more moderate approach.[67] The leftist forces, led by Prime Minister Mousavi, saw their power weakening in favour of President Ali Khamenei and Speaker of the Parliament Ali Akbar Hashemi Rafsanjani, who would soon emerge as the major protagonist of Tehran's pragmatic turn. Social spending was reduced, while many voices started to call for a greater role for the private sector. At the same time the domestic support for the war began to erode, prompting the

leadership to search for measures to bring some relief to the population. In 1987 the government started to seek foreign loans and committed itself to a more pragmatic social and economic agenda.[68] The following year the long-awaited cease-fire brought to an end eight years of bloody and costly conflict and increased the chances for an improvement of the socio-economic situation.

Between 1987 and 1989 a series of setbacks, first and foremost the leaks concerning the hostage-for-arms deal previously concluded with Washington and the 1987 Mecca massacre during the annual *hajj*, combined with the persistence of tensions between leftists and conservatives, would make impossible for the Iranian leadership to embark in a far-reaching programme of reassessment of the country's foreign and economic policy. For such a shift in policy we have to wait for Khomeini's death in June 1989 and for Rafsanjani's election as President of the Islamic Republic a few weeks later. Yet the partial rapprochement with Saudi Arabia on the quota system, along with the secret engagement with the Reagan's administration in the framework of the Iran–Contra affair, signalled Tehran's intentions to start revising some of the core assumptions that had animated its economic and foreign policy in the aftermath of the revolution, an adjustment that became all the more urgent after the end of the war with Iraq, when Iran was faced with the major task of reconstruction. The major outcomes of this new course would be the re-launching and development of trade relations with Western Europe, the privatisation of many factories and businesses that the state had taken over since after the revolution and the search for international investments to resuscitate the moribund oil industry.[69] Iran's new economic policy would bear fruit for a few years, before entering in a new crisis as a consequence of the new fall in oil prices registered in the 1990s.

Notes

1. 'Great Civilization' (*Tamaddon–e Bozorg*) was the expression used by the Shah in the 1970s to describe his project of development. According to the Shah such project would enable Iran to match the living standards of

661 the West while, at the same time, proposing an alternative to Western
662 political and economic systems.
663 2. Robert Looney, 'Origins of Pre–Revolutionary Iran's Development Strategy', *Middle Eastern Studies* xxi/1 (1986), pp. 104–19: 113–14.
664 3. Robert Graham, *Iran: The Illusion of Power* (New York, 1978), pp. 97–8.
665 4. Ibid., p. 100. In this period Saudi Arabia consistently pursued a policy of
666 moderation within OPEC that contrasted with the Shah's pressures
667 for higher prices. For an illustration of Saudi policy of moderation see:
668 Memorandum of Conversation, Kissinger–Yamani, Taif, Saudi Arabia,
669 11 September 1975, in US State Department, *Foreign Relations of the United States 1969–76*, Vol. XXXVII, *Energy Crisis, 1974–1980* (Washington, DC,
670 2012), p. 279. On the approach pursued by Riyadh after 1973 see, among
671 others: David B. Golub, *When Oil and Politics Mix: Saudi Oil Policy, 1973–1985* (Cambridge, MA, 1985).
672 5. On the 1976–7 OPEC negotiations and their impact on Iran's oil revenues
673 see: Andrew Scott Cooper, 'Showdown at Doha: The Secret Oil Deal That Helped Sink the Shah of Iran', *Middle East Journal* lxii/4 (2008), pp. 567–91.
674 6. See: Andrew Scott Cooper, *The Oil Kings: How the US, Iran, and Saudi*
675 *Arabia Changed the Balance of Power in the Middle East* (New York, 2011),
676 pp. 353–87.
677 7. Pierre Razoux, *La guerre Iran–Irak: Première guerre du Golfe 1980–1988* (Paris, 2013), p. 564.
678 8. Kamiar Mohaddes and M. Hashem Pesaran, 'One Hundred Years of Oil
679 Income and the Iranian Economy: A Curse or a Blessing?', *Cambridge Working Papers in Economics*, Faculty of Economics, University of
680 Cambridge, February 2013, p. 10. The decision to constrain production
681 after the revolution resulted from the intent of the new leadership in power,
682 most notably of Abolhassan Banisadr, to reduce Iran's dependency on oil by limiting its exports.
683 9. Shaul Bakhash, *The Politics of Oil and Revolution in Iran: A Staff Paper*
684 (Washington, DC, 1982), p. 2.
685 10. Ibid., p. 2.
686 11. Suzanne Maloney, *Iran's Political Economy Since the Revolution* (Cambridge, UK, 2015), p. 165.
687 12. Hamid Algar, trans., *Constitution of the Islamic Republic of Iran* (Berkeley, 1980).
688 13. Daniel Brumberg and Ariel I. Ahram, *The National Iranian Oil Company in*
689 *Iranian Politics* (Houston, 2007), p. 17.
690 14. Moinfar had worked for the Planning Organization under the Shah and had
691 connections with the Liberation Movement of the moderate Prime Minister Mehdi Bazargan.
692 15. On the economic policymaking process in the immediate aftermath of the
693 revolution see, among others: Maloney, *Iran's Political Economy*, pp. 107–26.

16. On this point see: Paul Vielle and Abolhassan Banisadr, *Pétrole et violence, terreur blanche et répression en Iran* (Paris, 1974). On Khomeini's position on oil policy see: Ruhollah Khomeini, *Neda – ye Haqq* [The Voice of Truth], Collection of Speeches and Interviews Published by the Iranian Students' Societies in Europe and in America (1979), pp. 206 – 19.
17. Maloney, *Iran's Political Economy*, p. 369.
18. Ibid., p. 108.
19. Pakistani, Turkish, and Soviet Bloc firms were integrated into Iran's customer base.
20. On this point see: Philip Shehadi, 'Economic Sanctions and Iranian Trade', *MERIP Reports* xi/98 (1981), pp. 15 – 16.
21. Andrew Whitley, 'Iran Calls in Shell and BP for Oil Supply Talks', *Financial Times*, 5 December 1979.
22. On the political and commercial implications of BP and Shell's deals with Iran in 1980 – 1 see: FCO 8/4064 'Iran Oil' and FCO 8/3638 'Iranian Oil Affairs', UK National Archives, Kew, London.
23. On this point see Martin Chick's chapter in this volume.
24. Maloney, *Iran's Political Economy*, p. 140.
25. Razoux, *La guerre Iran – Irak*, p. 564.
26. Between 1980 and 1981 Iraqi oil annual revenues dropped from $26 billion to $8.5 billion. Razoux, *La guerre Iran – Irak*, p. 564.
27. Ian Skeet, *OPEC: Twenty – Five Years of Prices and Politics* (Cambridge, UK, 1988), p. 180.
28. Bakhash, *The Politics of Oil*, p. 34.
29. On the evolution of Iran's domestic policy in 1980 – 4 see: Bahman Baktiari, *Parliamentary Politics in Revolutionary Iran: The Institutionalization of Factional Politics* (Gainseville, 1996), pp. 53 – 98.
30. Bakhash, *The Politics of Oil*, p. 34.
31. Shaul Bakhash, *The Reign of the Ayatollahs: Iran and the Islamic Revolution* (New York, 1984), pp. 230 – 1.
32. Ibid.
33. Skeet, *OPEC*, p. 185.
34. 'Oil and the Outcome of the Iran – Iraq War', *MERIP Reports* xiv/125 – 126 (1984), pp. 40 – 2.
35. Bakhash, *The Politics of Oil*, p. 35.
36. Skeet, *OPEC*, p. 187.
37. Ibid., p.188. On the rhetoric employed by the Iranian authorities in this phase see: 'Iranians Challenge Oil Limits', *New York Times*, 8 November 1982.
38. Dilip Hiro, *Iran Under the Ayatollahs* (London, 1985), p. 239.
39. Razoux, *La guerre Iran – Irak*, p. 564.
40. See: 'Bathing in Oil Keeps in Shape', *The Economist*, 8 September 1984.
41. On the differences in economic views within the revolutionary leadership see, among others: Michael Axworthy, *Revolutionary Iran: A History of the Islamic Republic* (London, 2013), pp. 240 – 4.

42. Daniel Yergin, *The Prize: The Epic Quest for Oil, Money, and Power* (New York, 1991), p. 721.
43. Skeet, *OPEC*, p. 200.
44. Leonardo Maugeri, *The Age of Oil: The Mythology, History, and Future of the World's Most Controversial Resource* (Westport, 2006), p. 138.
45. Skeet, *OPEC*, p. 208.
46. Yergin, *The Prize*, pp. 750–1.
47. Skeet, *OPEC*, pp. 210–11.
48. Razoux, *La guerre Iran–Irak*, p. 574.
49. 'Iranian Position Considered Key to OPEC Move Toward Compromise', *Platt's Oilgram News*, 25 June 1986.
50. Ibid.
51. Maloney, *Iran's Political Economy*, p. 168.
52. 'OPEC members' positions begin to clarify', *Platt's Oilgram News*, 30 June 1986.
53. John Tagliabue, 'Iranian–Saudi Talks Created OPEC Pact', *New York Times*, 7 August 1986.
54. Yergin, *The Prize*, p. 761.
55. Skeet, *OPEC*, p. 220.
56. Maloney, *Iran's Political Economy*, p. 169.
57. Tagliabue, 'Iranian–Saudi Talks Created OPEC Pact'.
58. Maloney, *Iran's Political Economy*, p. 369.
59. Yergin, *The Prize*, p. 732.
60. During the war against Iran, the financial aid from Gulf countries covered 56 per cent of Iraq's war costs, while the country's oil revenues only covered for 25 per cent. Razoux, *La guerre Iran–Irak*, p. 564.
61. Maloney, *Iran's Political Economy*, p. 383.
62. Yergin, *The Prize*, p. 760.
63. 'Iranian position considered key to OPEC move toward compromise', *Platt's Oilgram News*, 25 June 1986.
64. John Tagliabue, 'Iranian Oil Minister in Key OPEC Role', *New York Times*, 10 October 1986.
65. Ibid.
66. James A. Bill, *The Eagle and the Lion: The Tragedy of American–Iranian Relations* (New Haven, 1988), p. 312.
67. Baktiari, *Parliamentary Politics*, pp. 120–4.
68. Maloney, *Iran's Political Economy*, pp. 170–9.
69. On Rafsanjani's pragmatic turn see, among others: Axworthy, *Revolutionary Iran*, pp. 308–10; Said Amir Arjomand, *After Khomeini: Iran Under His Successors* (New York, 2009), pp. 133–48; Maloney, *Iran's Political Economy*, pp. 192–257.

7

Iraq, Saudi Arabia, and the Counter-Shock

Ibrahim Al-Marashi

Introduction

The effects of the counter-shock of the 1980s, situated concurrently within the context of the Iran–Iraq war, provided an oft-neglected impetus in the Ba'athist state's reconfiguration of the state-controlled economy to a semi-private one, and reveals the often fraught relations between Baghdad and Riyadh during this conflict, a prelude to the 1990 Gulf crisis. Domestically, the fall in oil prices reduced Iraq's income and its ability to finance the war independently, and during this crisis Iraq intensified its privatisation campaign of state assets, strengthening ties with a constituency among the growing middle classes, challenging the power of the Party and bureaucracy. While Saudi Arabia's oil policy towards the Islamic Republic of Iran was characterised by a policy of economic attrition and containment, the Ba'athist leadership perceived that this policy was also directed towards Iraq, despite Riyadh providing loans for the Iraqi military effort. While this policy may appear paradoxical, it followed a logic of weaker states, such as Saudi Arabia and Kuwait, employing economic

assets to manipulate a stronger state on its borders. The cumulative effects of the events up to and after the counter-shock of 1986 hindered Iraq's capabilities to self-finance the war against Iran, and resulted in the restructuring of the Iraqi economy. The resulting quota system established by the Organization of Petroleum Exporting Countries (OPEC), which Iraq accused Kuwait and the United Arab Emirates of violating in the late 1980s, provided Iraq with a justification to invade its southern neighbour in 1990.

During the Iran–Iraq war, the Ba'athist government would be affected by divergent national oil strategies, particularly by Saudi Arabia. Saudi Arabia's oil policy as a swing producer in the first half of the 1980s situates Saudi decision-making as far back as the mid-1970s within the economic framework of the 'dominant producer' model, to meet Riyadh's political and economic interests, by maximising the long-term economic value of Saudi oil, and consolidating its domestic survival. Determinants of Saudi Arabia's oil policy in the prelude and course of the counter-shock could have been mutually reinforcing, such as the geostrategic environment and domestic economic and political imperatives. Concurrently, Saudi policy also sought to weaken the revolutionary zeal and military offensive of Iran. However, Saddam Hussein and his ministers perceived this policy as also seeking to weaken Iraq militarily, but yet keeping it solvent to survive intact as a state to withstand Iran's military offensive.

There are few primary sources to indicate the causal relationship between the counter-shock and transformations in Iraq – as files from the Ministry of Oil remained in Iraq, unlike the thousands of military and security-related documents that were captured and taken to the United States after 2003. Those documents reveal tensions with Saudi Arabia over its oil policy, and demonstrate Baghdad's fear of an Iranian victory and the fall of Basra during the year 1986, resulting in the transformation of Iraq's domestic economic and power structures, and new strategies to bring the war to an end.

1980–6: Prelude to the Oil Counter-Shock

The destruction of Iraq's oil exporting facilities during the first months of the war resulted in Baghdad producing less in a market where prices were decreasing. By the time of Iraq's invasion of Iran, Saudi Arabia's production constituted 62 per cent of the Middle East's oil output, representing an increase of more than 20 per cent since 1978, contributing to the 1981 glut that hurt Iraq when 40 per cent of its annual budget was spent on the war effort.[1] As of August 1980, before the commencement of the war, Iraq's oil output was 3.4 mb/d. Iran's ability to destroy Iraq's oil facilities from the southern fields and harbours on the northern edge of the Gulf,[2] led to a drop down to 900,000 b/d in 1981.[3] Iraq's oil revenue collapsed from $26 billion in 1980 to $10 billion in 1981, a drop of 60 per cent.[4]

Iraq would criticise Saudi Arabia for the early oil glut, which the Kingdom acknowledged was of its own making. In April 1981 Ahmed Zaki Yamani, the Minister of Oil, granted an interview with NBC's 'Meet the Press', claiming credit for the glut: 'Well, as a matter of fact, this glut was anticipated by Saudi Arabia and almost done by Saudi Arabia. If we were to reduce our production to the level it was at before we started raising it, there would be no glut at all. We engineered the glut and want to see it in order to stabilise the price of oil.'[5] However the stabilisation Saudi Arabia sought soon became a matter outside of its control, as Abbas Alnasrawi writes:

> But this policy of overproduction exerted downward pressure on market prices over which the Saudis had no control. Although the Saudi government believed that it could stabilize the official price of oil through the manipulation of its output and that the glut was a temporary phenomenon that would disappear in mid-1982, the behavior of other oil producers proved the Saudis to be wrong.[6]

Nonetheless, Iraq perceived the glut as Saudi-driven, as demonstrated a few months later in a July statement by Saddam Hussein:

> We direct our friendly but also serious criticism toward some Arab brothers whose production and marketing policies have led to the creation of a glut in the oil market. We cannot possibly find convincing arguments in favour of this policy and its goals. Its harmful effects upon the Arab oil producing states and others is very clear. If some oil producing states have financial surpluses, we do not all possess such an accumulation of wealth. We also do not see any wisdom in production that leads to a glut in the oil market.[7]

Hussein did not explicitly refer to Saudi Arabia, and offered his statement in the form of 'constructive criticism' most likely out of diplomatic sensitivities. At the time he framed Iraq's position during the war as the 'eastern flank' of the Arab world, evident in the following statement: 'Iraq is building an army not to defend just its own borders, but to serve as the shield and sword of the Arab nation against its enemies.'[8] Nonetheless a harsher statement followed in September 1981, when Tayih 'Abd al-Karim, Iraqi Minister of Oil and member of the Revolutionary Command Council (RCC), said the following:

> That country's policy of continuing its high output beyond its needs is suicidal and cannot be explained in any terms other than the desire to harm others [. . .] Were it not for the oil glut, which may have been inspired and planned to prolong the Gulf War and wear down Iraq, the Gulf War would now be over.[9]

Within the span of April to September 1981, Saudi Arabia's oil minister had taken credit for the oil glut, and Iraq's oil minister had issued a strongly worded statement in response to this policy. Saudi oil policy during the war to both belligerents was that of containment and attrition, [illegible] it achieved this policy with differing means to both parties. The Iraqi Oil Minister, exactly one year into the war, stated openly that Riyadh's policy was to prolong the war. From a Saudi perspective, at this juncture, the war was weakening two hegemonic states in the region, and suited its interests.

This exchange in 1981 remained embedded in Iraq's history of the conflict as late as 1987, seven years into the war, an indication that the oil glut had been considered a significant event from Baghdad's perspective. In May 1987 the Iraqi General Military Intelligence Directorate conducted an institutional book-length assessment of the war. Chapter two of this history acknowledged that the Arab Gulf states had provided financial aid to Iraq but complained that more aid should have been forthcoming. The report then referred to the 1981 statement by the Iraqi oil minister that the excess in Saudi oil production was meant to extend the duration of the war so as to weaken Iraq.[10]

In April 1982 Syria, Iran's ally during the war, closed Iraq's oil pipelines going through its territory to Baniyas on the Mediterranean. Iraq's oil facilities in the war theatre in the vicinity of Basra had been destroyed and the fighting prevented the ability of Iraqi oil to be shipped via Gulf outlets. Closing this pipeline deprived Iraq of an export outlet of 400,000 b/d, representing one-fifth of its total oil exports prior to the war.[11] In the Iraqi Military Intelligence history of the war, the closing of the pipeline was retaliation, situated in a history of antagonistic relations with the Ba'ath in Syria, including the failure of the 1979 unification plans, which the author blamed on a Syrian conspiracy against the Iraqi government, and Damascus' declaration of support of the new government in Tehran and the overthrow of the Shah. The report went on to blame Syria for the bombing of the Iraqi embassy in Beirut in December 1981.[12] Syria's closure of the pipeline caused Iraq's oil revenue to fall, and in aggregate terms overall, they declined from $29 billion in 1980 to $7 billion by 1983.[13] Its foreign reserves of some $35 billion prior to the war declined rapidly to $3 billion by 1983.[14]

The Iraqi view of the Saudi glut, followed by Syria's closure of the pipeline, in both public statements and confidential documents, invoked a form of resource nationalism, however not in the traditional sense of the foreign exploitation of oil and a nation's sovereignty. Rather, Iraq's portrayal of the war as a defence of the eastern flank of Arab nation was

redolent in the language of *qawmiyya*, the notion of nationalism on behalf of an Arab *ethnie*. Thus any action taken by the Arab states to affect the price of 'Arab' oil or shut down the flow of Arab oil, as Syria did, was perceived by Iraq as a means to sabotage its war against Iran. The critique lodged by Iraq was that Arab states pursued narrow interests of *wataniyya*, the nationalism that corresponds to a nation-state. Iraq developed an argument that Saudi Arabia's role in the oil glut and Syria's closure of the pipeline were examples of the pursuit of national self-interest instead of Iraq's grandiose pan-Arab war against Iran.

The closure of the Syria pipeline made Baghdad more dependent on a non-Arab country, Turkey, which in the past had disputed the demarcation of Iraq's northern border. Iraq became dependent on its pipeline through Turkey, which moved 750,000 b/d, representing one-fourth of its export capacity just before September 1980.[15] With the construction of a second pipeline the capacity of the Turkish pipeline would eventually double. In return, Turkey had the political cover to unilaterally attack the Kurdistan Workers' Party (PKK) bases in the north of Iraq, without even informing Iraq or asking its permission.[16]

To compensate for the loss of the Syrian outlet, Iraq was able to build a pipeline through Saudi Arabia.[17] This pipeline, together with the pipeline across Turkey, increased Iraq's export capacity to 2.4 mb/d by 1989.[18] Thus, after the construction of new pipelines from Iraqi fields to Saudi Arabia, the war would further link Iraq's sovereign resource, oil, on relations with Turkey, Saudi Arabia and Kuwait,[19] while Kuwait also provided trans-shipping of Iraqi oil.[20] Saudi Arabia and Kuwait also provided 330,000 b/d from the shared 'neutral zone' to compensate for Syria's closure.[21] The geostrategic strategy of diverting oil flows to Saudi Arabia and Kuwait would serve the policy of these two Gulf states, making their stronger northern neighbour, which at times had revisionist claims vis-à-vis Kuwait, more dependent on them for oil outlets and financial subsidies. Iraq's rent-seeking abilities would now depend on the acquiescence of its weaker neighbours to the south, granting them asymmetric power over Saddam Hussein.

At this point in the Iran–Iraq war the Iraqi state tried to insulate Iraqi society from the conflict, according to the history produced by the Military Intelligence Directorate.[22] In the first years of the war the Iraq state engaged in a policy of guns and butter, and lavish spending on development programmes, including an underground metro system. Financial support from other Arab countries, particularly Saudi Arabia and Kuwait, made it possible for the government to pursue this policy, but would have to be curtailed as a result of Gulf states' complaints of misappropriating their loans.[23] Domestic consent, by insulating Iraqi society from the war, was dependent on Iraq's Gulf neighbours, furthering Iraqi domestic regime security on financial flows from these two states, and allowing them input on how Iraq made sovereign decisions on its own development plans.

The loans from the Arab Gulf states such as Saudi Arabia and Kuwait transformed relations with Iraq. In 1979 Iraq had opposed any regional alliance in the Gulf, since it sought to be the hegemon in such a security arrangement. The GCC had not invited Iraq to become a member, and additionally made Iraq dependent on them economically, precluding Iraq from acting as the Arab hegemon in the Gulf. By the time the 1986 oil counter-shock occurred, Iraq's war effort had become dependent on its relations with Saudi Arabia.

This relationship not only had an effect on Iraq's regional posture, it also had ramifications on the international level. As of 1982, Iran had taken the war onto Iraqi soil, and by 1984 threatened to cut Iraq in half as it approached the Baghdad–Basra highway. The fear of Iran dominating the supply of oil was a nightmare scenario for both Riyadh and Washington, not only because of the implications for the oil market, but Tehran would have been in a stronger position to export the Islamic Revolution throughout the Middle East.[24] The United States up to 1984 had acquiesced to a war of attrition between Iraq and Iran as a means to weaken two anti-American states in the region. The war prior to 1984 reduced the amount of oil to both states, and maintained the status quo of Saudi Arabia as the swing producer. By 1984, the Reagan

administration formalised the 'tilt' in favour of Iraq by establishing diplomatic relations, and later providing satellite intelligence to Iraq's military on Iranian military formations.[25]

The 1986 Counter-Shock

Between 1981 and 1985 Saudi Arabia and Kuwait, which had the largest output cutbacks, experienced the sharpest revenue declines within OPEC, as the price of oil declined by nearly 40 per cent. OPEC had introduced a collective quota in meetings in 1982 and 1983 and as a result Saudi Arabia's output went to 2 mb/d.[26] The market conditions prior to the 1985 annual OPEC meeting led to a price decline, and as OPEC had maintained its official price of $28 a barrel, its members endured an increasingly smaller share of the world market's demand. Non-OPEC producers lowered their prices, expanding their market share. In regards to this period, a Brookings Institute Paper wrote, 'It seemed unlikely in 1985 that Saudi Arabia would break with the rest of OPEC and take the high-profile, politically risky strategy of forcing a price collapse'.[27] However, in July 1985 Saudi Arabia threatened to raise its output as high as 9 mb/d unless other OPEC members agreed to end discounting prices and cheating on production quotas.[28] The OPEC conference of October 1985 failed to conclude with an agreement on oil quotas. Saudi Arabia and its Gulf allies sought to adopt a strategy to maximise market share, seeking its 'fair share' of the oil market and let prices fall. As a result of this meeting OPEC members could not reach a consensus on setting official prices for crude oil, and abandoned any restraint on output.

Saudi Arabia increased production in 1986 from 2 mb/d to 4.5 mb/d.[29] The price fell from $29 per barrel in 1983 to less than $10 per barrel (at one point $7 per barrel) in 1986.[30] The price fell in the first half of 1986 by more than 50 per cent, but the Arab Gulf states did not incur a significant loss in revenue, as the price decline was offset by their increases in output.[31] Due to arrangements with its Gulf neighbours

and Turkey, Iraq's oil production had in fact increased by 18 per cent in 1986 over 1985 levels, but its oil export earnings decreased by 27.2 per cent. To situate this effect in the long term within the backdrop of the war, Iraq's oil revenue declined from $26.1 billion in 1980 to $10.4 billion in 1981 to $6.9 billion in 1986.[32] When writing about the Iraqi debt as of 1980, one analysts confirms: 'The financial situation in 1986 deteriorated even further, with that year proving to be a financial disaster due to the collapse of oil prices.'[33] Iraq had to wage a war while faced with declining purchasing power, due to the collapsed oil prices and weakened US dollar, and sought out new credit and guaranties, and debt rescheduling

Iran believed that Saudi Arabia sought to further cripple the Iranian war economy by driving the price of oil down.[34] By the winter of 1986 to 1987, the Iranian military had captured the Faw Peninsula in Iraq and launched an offensive on Basra. A 1986 Iraqi intelligence document writes disapprovingly of the Iranian push to invade the city and declare an 'Iraqi Islamic Republic' in Basra creating, in the document's words, 'a Shi'a Republic'.[35] The Iraqi intelligence reports couples this campaign with the counter-shock, and highlights how the decline in prices were of concern to Iran. Mohsen Rafighdoost, a founder of Iran's Revolutionary Guards, in a meeting with 'Abd al-Halim Khaddam, foreign minister of Syria, asked him to mediate with Saudi Arabia that it not increase oil production at the OPEC meeting scheduled for October 1986. The Iranian fear was that Saudi Arabia's decision would lead to the price per barrel falling below $10. According to this Iraqi assessment, if this were to occur it would hurt Iran's war effort.[36] The report indicated that the drop in oil prices was inflicting the desired effect on Iran, without acknowledging how the price decrease affected Iraq itself.

The counter-shock of 1986, coupled with the Iranian victories in the Basra theatre and mounting foreign debt accelerated Saddam Hussein's implementation of changes in economic policy.[37] While writing a history of the effects of the counter-shock, it is difficult to ascertain whether the fall in oil prices was the causal factor in the restructuring of Iraq's economy. The Party's official title was the Arab Socialist Ba'ath Party.

In the first years of the war, Saddam Hussein opened a session of the RCC declaring: 'Our party rejects the capitalistic way toward progress', and proceeded to have the members extol the positive virtues of socialism over capitalism.[38] Nevertheless, due to the conditions of the war, an economic policy was announced in a July 1982 Baath Party conference that Iraq's state-run economy would foster the private sector.[39] It is only in 1986 that the impetus for such changes occurred, indicating that the precarious economic status combined with setbacks on the battlefield provided the final prod to enact these changes. While in the early period of the war the state pursued an egalitarian policy of guns and butter, the end of the war for Iraq resulted in a rising entrepreneurial class and privation among state employees.

In early 1987 the Iraqi state implemented liberalisation and privatisation policies, inaugurated by Saddam Hussein's statement that 'all activities of the private-sector form part of the national wealth, and are as important as the activities of the socialist sector'.[40] The state would continue to maintain control over critical industries such as the hydrocarbon sector, armaments, steel production, banking and public utilities. It would privatise factories, 47 in total, not related to the aforementioned sectors, such as foodstuffs, textiles, aluminum and plastics. State-owned hotels, supermarkets, and gas stations were sold off, as well as farms to encourage private agricultural ventures, where entrepreneurs could sell produce directly to wholesalers. It enacted laws to lift the ceiling on private investment, encouraged Arab capital investment coupled with Iraqi private capital, granted tax concessions for import of raw materials, decriminalised the use of foreign-held accounts to import goods, and allowed private entrepreneurs to export goods as long as they transferred 60 per cent of their value back to Iraq.[41]

These changes coincided with an 'administrative revolution' (*thawra idariyya*) intended to reduce the powers of the bureaucracy by eliminating the hurdles of red tape needed to navigate the complex apparatus that governed the economy. These changes would threaten the

Party's power, as its members controlled most of the senior positions in the civil service.[42] Economic deregulation represented the abandonment of early Ba'athist socialist ideology, while streamlining the bureaucracy as a result would weaken the power of the Party members. The period from 1986 onwards represents a juncture of the war in terms of the reconfiguration of domestic constituencies, where the power of Party officials and bureaucrats vied for influence alongside a rising middle class and entrepreneurial elite.

The war resulted in the rise of what has been termed a 'contractor bourgeoisie', within Iraq's rentier state structure. If the state was the first level in this structure, projects paid by the state from oil revenues financed the second level of this 'contractor' class. Al-Khafaji traces this second level to constituencies in Anbar, which happened to be Arab Sunni, and Salah al-Din provinces, where families happened to share a primordial connection with Hussein. However, this structure did not fit neatly along regional or sectarian lines, as Shi'a families and personalities were also invited to take part in these economic activities.[43] In the context of the oil shock years, Saddam Hussein had enabled a system of crony capitalism. In one meeting with the representatives of this group, he warned: 'The private sector and owners of relatively big capital are facing a test at this stage.'[44] The Iraqi president in this statement acknowledged that a 'private sector' and 'big capital' existed, and that his reforms had taken root in Iraqi society, an indirect repudiation of tenets of the original Ba'ath ideology.

In exchange for making a concession that contradicted the ideological core of the Party, he demanded a form of monetary obedience, urging that the group provide more donations to the war effort:

> You know that there was only a handful of contractors before the revolution [the 1968 coup] [. . .] Now, this contractor owns not thousands [of Iraq dinars] but millions [. . .] I was informed that he had donated only a pittance. He did not ask himself, 'Where did I get this fortune? Isn't it thanks to these new circumstances?'[45]

Saddam Hussein's string of rhetorical questions highlights the patronage bargain. He had allowed a private sector to flourish to enable a constituency to generate wealth more efficiently; however the bargain implied that the state was engaged in a form of protection racketeering. The state protected the population and economy from an Iranian invasion and the new entrepreneurial class had to pay for this service. The coercive instruments of the state still remained paramount, and the implied threats of the failure to donate would have been apparent. In August 1986 six businessmen were executed on charges of corruption.[46] A neo-patrimonial group was allowed to advance their economic interests due to wartime contingencies, but had to remain loyal, in monetary terms, to the leader who made their financial largesse possible.

It was the same protection-racket logic that Iraq conveyed to its southern neighbours, Saudi Arabia and Kuwait. As the eastern flank protecting them from Iran and the Islamic Revolution, both states had to provide protection money for this effort, as evident from the following statement Saddam Hussein made in 1983:

> All the Gulf countries are aware of Iran's ambitions in targeting them [. . .] They know that had it not been for Iraq, they would have been taken as prisoners to the land of the Persians [. . .] I think they know that, and if they do not, than that is an even graver problem.[47]

The Iraqi state sought out private subsidies from its public and the Gulf states as its own ability to generate revenue had been hindered as a result of the oil glut.

The counter-shock also coincided with an Iraqi strategic air campaign against Iranian oil facilities, seeking to leverage the fall in oil prices in order to cripple the Islamic Republic economically, compelling the leadership in Tehran to declare a cease-fire. Iraq's air force at this point was able to conduct mid-air refuelling so that it could carry out long-range sorties to reach distant Iranian oil terminals in the Gulf, such

as Bushehr. Iran's main oil facilities were working to full capacity, contrary to Iraq whose production and revenues had already declined sharply. Iraq initiated a strategy to cripple Iran's facilities as of April 1986.[48] According to an October 1986 document, the Iraqi air force had taken out the Iranian oil loading facilities on Kharq Island.[49] This year also witnessed the intensification by both belligerents' direct attacks on seaborne trade, and the volatility in the naval theatre of the war led to the internationalisation of the conflict, when Kuwait played off the superpowers in calling for them to reflag its oil vessels, which the United States ultimately agreed to do.

Iraq was critical of Saudi Arabia's role even though it also hurt Iran. Riyadh allayed Baghdad's fears, assuring it of continued financial support, and both Kuwait and Saudi Arabia provided new loans.[50] Unlike in the early 1980s, there are few public statements either condemning the Saudi role in the counter-shock. In 1981 Iraq held out the possibility of winning a war with Iran and was in a position to openly criticise Riyadh. The duration of the Iran–Iraq war resulted in a loss of an estimated 4.1 billion barrels of oil Iraq could have produced, equivalent to depriving it of $230 billion in revenue.[51] The last two years of the war increased Iraq's debt to Saudi Arabia and Kuwait, estimated at $40 billion, eventually emerging as one of the catalysts leading to the 1990 invasion of Kuwait.[52]

1988–90: Iraq's Interwar Period

Despite the restructuring, after the war a mixed economy emerged, with privatisation producing mixed results, but the state's role in the economy still remained dominant, an indication of the nation's dependence on oil income.[53] Iraq's ability to recover economically and maintain political stability after the eight years of war would depend on its OPEC quota and its ability to renegotiate debt payments to international and regional creditors.[54] Iraq's oil revenue was essential for servicing its debt, the basis of its credit standing, which was necessary for new loans. Iraq's priority

was the debts it owed to OECD states and banks, close to $35 billion, and then the $11 billion it owed to the USSR, but its greatest debts were to Saudi Arabia and Kuwait. However, Arab creditors had no effective means of enforcing repayment.[55]

Besides its debts, Iraq depended on oil income to pay for imports, as 70–80 per cent of Iraq's food supplies came from foreign sources. The economic restructuring during the war resulted in inflation at 45 per cent by 1990, and those on fixed incomes, like the vast body of government employees, were particularly vulnerable. Before the mid-1980s the state provided secure employment and subsidies. After the war unemployment grew, and the state sought to encourage the women who replaced the men on the front lines during the war to return home.[56] Iraq's society faced unemployment, inflation, and the failure of the government to deliver on promises of political liberalisation in 1989.[57] To make matters worse, as the Slugletts wrote, 'the rich got richer and the middle and lower classes got poorer'.[58]

In terms of paying back the debts to these Arab Gulf states, Saddam Hussein invoked the narrative of Iraq's sacrifices on behalf of the defence of 'the Arab nation'. As of 1990 the decline in oil prices provoked the Iraqi government to brandish its military power to encourage both debt forgiveness and the Gulf states' adherence to a higher oil price. Despite the crucial role oil income played in its recovery, the Iraqi state did not have direct control over its price and volume.

The 1986 price collapse had forced OPEC in October of the same year to return to its quota system, and an agreed upon reference price of $18 per barrel. This price had been reached by the OPEC members as a consensus figure that was the agreed upon minimum for each of its nations' social and economic development plans. This agreement linked each member country's economic and social development to a minimum price and level of output for the global market. If any nation defected from this agreement and violated the quota, resulting in a price of oil less than the $18 benchmark, the defector would enhance its market share at the expense of fellow producers' economic and social

development goals.[59] This arrangement provided Iraq with justifications for its diatribe directed towards Kuwait and the UAE during the prelude to the Gulf crisis. Iraq's argument was that deviation by any one country in this cartel was detrimental to Iraq's income that was need for reconstruction after a war it launched on behalf of the Arabs. The price per barrel had declined just a year after the 1986 agreement, averaging $16.92 per barrel in 1987; $13.22 in 1988; and $15.69 in 1989. The price increased upward and by January 1990 reached $19.98 per barrel, but Kuwait and other producers increased output, resulting in the price falling to $14.02 in June.[60] For every $1 decline in the price of oil it was estimated that Iraq lost $1 billion per year.[61] The sudden price decline of 30 per cent eliminated a portion of Iraq's anticipated oil income, which it desperately needed for its reconstruction, while it was concurrently engaging in an ambitious rearmament programme, including investing $10 billion in its nuclear programme to counter Israel's nuclear arsenal.[62]

The difference in oil policies at this juncture emerged as Saudi Arabia, Kuwait, and the UAE were 'output maximisers', who sought to increase output even if this increase meant lower prices. All three states had small populations and vast reserves, thus they were less dependent on price.[63] Iraq was not alone in demanding adherence to the quotas, which included its former adversary Iran, and Venezuela, Algeria, Libya and Nigeria, all of which were 'price maximisers', prioritising short-term cash infusions and seeking to stretch their oil reserves by lowering output.[64] Iraq, even if it wanted to increase output, could not do so as its oil facilities were being rebuilt and export outlets were severely limited. The narrow Shatt al-Arab was un-navigable as a result of the ships sunk during the war.[65] Iraq's precarious geographical situation, combined with its dire economic situation, demonstrated to the leadership its vulnerability, mostly like influencing Saddam Hussein's calculations on the eve of the invasion of Kuwait, and in a single day on 2 August 1990 he eliminated Iraq's financial and geographic bottleneck.

Conclusion

In terms of the international history of the region, the Saudi oil policies preceding and during the counter-shock strained relations between the two states, despite Riyadh's substantial loans to subsidise Iraq's war effort. Riyadh's policy of containment, attrition, and subsidies paid dividends in the short-term perspective of the Iran–Iraq war, by preventing Iraq from emerging as a military hegemon that could pressure Saudi Arabia, and also prevented Iraq from realising its full oil capacity, challenging Riyadh's role as the swing producer. Saudi oil policy in the early eighties and during the counter-shock hurt Iraq's ability to self-finance the war, while simultaneously making it dependent on Saudi Arabia and Kuwait for financial lifelines, both in terms of loans and pipelines during the Iran–Iraq war. The war created a mutual dependency between Iraqi and its Gulf neighbours, the latter fearing an Iraqi collapse on their borders. Saudi Arabia and Kuwait committed themselves to financially supporting Iraq, while maintaining their autonomy to set the price of oil that benefitted their domestic agendas. The counter-shock would result in an Iraqi debt to both Saudi Arabia and Kuwait, complicating the transition from a war to a peacetime economy. The ability of states like Saudi Arabia and Kuwait to set oil policies, would be what Iraq essentially repudiated and retaliated against in 1990 by invading its southern neighbour, Kuwait, and by menacing Saudi Arabia with a failed invasion of the Saudi town of Khafji during the Gulf War and with the launching of Scud missiles on its territory.

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PART III

THE PRODUCERS: NON-OPEC

8

Abandoning Enforced Autarky for Re-Insertion in the World Petroleum Market: Mexican Oil Policy, 1976–86

Juan Carlosa Boué

The tightening of the world petroleum market in the lead-up to the first oil shock was an unwelcome surprise in Mexico, because it coincided with the Mexican petroleum balance tilting into an outright overall deficit for the first time since the start of petroleum production in the country.[1] Thus, this development increased the pressure on a domestic economy and political system which were already creaking under considerable strain, as the development model known as *Desarrollo Estabilizador* began to grind to a halt.[2] This import-substitution led model had produced spectacular results throughout the 1950s and 1960s (the so-called 'Mexican economic miracle') but, by the end of the latter decade, it was giving off signs of exhaustion, in the form of worsening public finance and commercial balance indicators as well as heightened social conflict (which culminated in the 1968 student massacre).[3] At such a juncture, the last thing the Mexican government needed was to conjure up new sources of foreign currency to pay for rising volumes of increasingly expensive imported crude oil.[4]

The First Oil Shock, then, appeared to herald the abrupt end of a long period of time during which, for a variety of reasons, Mexico had been largely isolated from the vagaries of the world petroleum market. And, indeed, Mexican autarky in the petroleum sphere quickly became a thing of the past after 1973, but not in the way that would have been expected when the first cargoes of imported oil were discharged at Tuxpan. Only a couple of years after the Organisation of Arab Petroleum Exporting Countries' (OAPEC) oil embargo had run its course, Mexico had not only ceased importing crude oil but its own production had expanded so significantly that the country rejoined the ranks of the major oil exporters. By the beginning of the 1980s, thanks to the discovery and rapid development of the offshore fields in the Sound of Campeche, Mexico had become one of the top five crude oil exporters in the world, a position that it was to hold for more than 20 years thereafter. Indeed, so large were the incremental export flows of Mexican oil that, together with similarly copious flows coming from Alaska and the North Sea, they made a decisive contribution to undermine and eventually bring down the administered price structure that the Organization of the Petroleum Exporting Countries (OPEC) endeavoured to put together once its most important members began to sell directly the oil which their former concessionaires used to commercialise.

The collapse of this administered price structure, and the reverberations for all oil exporting countries that it brought in its wake, are commonly referred to as the oil price counter-shock. When this process reached its apogee with the oil market collapse of 1986, Mexico had only been affiliated to the club of major oil exporters for a brief period of ten years. Nevertheless, the economic effects of the counter-shock greatly amplified the death throes of the *Desarrollo Estabilizador* development model, causing Mexico a degree of damage that has been both greater and longer lasting than anything foreseen in a hypothetical worst case scenario associated with the country becoming a significant net importer of crude oil at the beginning of the 1970s.

The story of the resurgence of Mexican oil production, in its volumetric and operational dimensions, has been amply covered elsewhere.[5] The same is true for the Mexican interaction with OPEC's official price and quota systems.[6] Ditto of the innovative response of Petróleos Mexicanos (PEMEX, the country's national oil company) to the breakdown of these systems: the design and adoption of spot market related pricing formulae.[7] And again, much space has been devoted to discussions about the impact of the oil price counter-shock on the Mexican economy and its role as the triggering event for both the country's external debt moratorium and the wider Latin American debt crisis.[8] However, there is one aspect of the Mexican angle of the oil counter-shock that has not received much attention; namely, the fact that Mexico's emergence from its state of isolation in petroleum matters (during a period of transition for the global petroleum industry as a whole) took place within a legal and institutional framework provided by a *sui generis* governance model incorporating very disparate elements, some of which laid emphasis on the productive dimension of petroleum activities (and were therefore geared towards the goal of output maximisation), while others sought to restrict the free flow of capital (specifically foreign capital) in upstream activities and therefore had great potential as rent maximisation devices (that is, to increase the amount of compensation per unit of output severed from the subsoil).

This article will argue that the waxing and waning of Mexican petroleum production over the 1974–86 period reflected the dialectical tension between the constituent elements of the Mexican petroleum governance model at the time of the country's re-insertion in the world oil market. While production-oriented elements were prioritised at the start of the period (in reaction to the sudden availability of external financial resources for PEMEX and the possibility of employing these funds to thwart the imminent threat of Mexico becoming an oil importer), the rent-oriented elements subsequently came to the fore – and ultimately prevailed over the others – as the post-1981 oil price decline and the unsustainable growth in Mexican external indebtedness

(and the problems arising therefrom) convinced the Mexican government that PEMEX's investments and export volumes both had to be reined back for there to be any chance of generating enough fiscal revenues to keep Mexico from a sovereign default. In the event, this default proved unavoidable, but Mexican oil policy stayed the rent-oriented course all the same, as petroleum levies became the central pillar of a Mexican public finance apparatus unable (or unwilling, politically speaking) to tax the economic activities of the non-oil sectors of the economy.[9]

A Question of Money?

The Mexican petroleum sector governance model of the beginning of the 1970s appears to display significant affinities with the one that OPEC member countries adopted when they nationalised their respective petroleum concessions. Both models, after all, are predicated on excluding private capital from participation in upstream petroleum activities, entrusting these instead to a state oil company. However, this resemblance is deceptive.

The driving force behind the nationalisation of petroleum concessions in all OPEC countries (including the abortive 1951 Iranian one) was, quite simply, the division of the spoils of upstream petroleum activities between oil companies and natural resource owners. The tug-of-war between companies and governments culminated in the exclusion (or, in places like Abu Dhabi and Nigeria, the drastic curtailment) of private capital from petroleum activities. With the price rises that obtained in the wake of the OAPEC oil embargo, full nationalisation of these concessions (or, in a few cases, their transformation into fixed-fee production contracts) became unavoidable. Simply put, OPEC countries could not countenance, going forward, a situation whereby their future prosperity was to hang on the investment and commercial decisions of a handful of foreign companies whose stake in the matter would amount to a few percentage points of what the governments

themselves stood to make (the ratio of government take to company profits in Saudi Arabia after the OAPEC embargo was 97.8 per cent to 2.2 per cent, for example).[10]

The OPEC nationalisation of concessions, then, was a question of money. In contrast, the 1938 oil expropriation in Mexico, notwithstanding its ramifications for the country's subsequent economic development, was the answer that the government of Lázaro Cárdenas (1934–40) gave to a quintessentially political question: who was to rule Mexico thenceforth? The exclusion of private (and exclusively foreign) capital from petroleum activities in Mexico only came about as a result of the oil companies' steadfast refusal to abide by the law of the land, leading to a decision on the part of the country's political leadership (emanated from a national revolutionary upheaval) that such a situation could not be allowed to continue.[11] It is worth recalling that the triggering event of the expropriation crisis was not money but a labour dispute, albeit one invested with systemic implications because it took place against the backdrop of the companies' implacable opposition to the reassertion of the principle of original and inalienable public ownership of the subsoil in the Mexican revolutionary constitution of 1917.

At the centre of both the OPEC and the Mexican models of petroleum governance, then, were to be found national oil companies. However, under the surface, PEMEX was a very different beast from the state oil companies that emerged from the OPEC-wide nationalisation of concessions. The latter were outward-looking entities focused on the international petroleum market, with a mandate centred on the generation and maximisation of petroleum rent (in other words, the objective *raison d'*être of these companies was to act as tax collection vehicles). In contrast, PEMEX was an inward-looking entity focused exclusively on the Mexican domestic market, with a fiscal regime to match.[12] Crucially, PEMEX had a clear mandate to maximise output, albeit only to the extent necessary to cover Mexico's internal petroleum requirements. In the words of Antonio J. Bermúdez (Director General between 1946 and 1958), PEMEX existed in order 'to supply securely the

fuels necessary for the progress and development of the country and to ensure that the petroleum industry functioned as a key lever in the independent development of Mexico'.[13]

PEMEX's capacity to discharge this mandate in full, though, was hamstrung by the paucity of its financial means. This was aggravated by two factors. The first was the Mexican government's decision to make PEMEX responsible for plugging the country's deficit in light fuels through imports acquired at world prices but sold domestically at a lower price, with the resulting shortfall being reflected in the company's balance sheet.[14] The second was PEMEX's inability to supplement its internal resources with funds from external sources (due to the harsh terms demanded by commercial banks, on one hand, and a State Department veto on any US government or IMF money being made available to PEMEX to finance activities which could be undertaken by private US companies, on the other).[15]

PEMEX: One Amongst the New Breed of National Oil Companies?

PEMEX might have subscribed to the mantra of 'Produce more!' from its inception but its managers were not in a position to translate conviction into output because of severe capital constraints. Nevertheless, PEMEX's ethos was not far removed from that of the ideal output-centred national oil company (NOC) which top energy policymakers in developed countries conceived as a vehicle which could potentially make a decisive contribution towards curbing the power of OPEC, by taking over the resource stewardship role which only petroleum ministries (the traditional institutional seats for the hydrocarbon property rights of states) had discharged until then.

The idea behind relegating petroleum ministries to the role of rubber-stamping bureaus (subordinated *de facto* to a NOC) was that the management of petroleum resources should be in the hands of entities more in tune with the requirements of consumers, but nevertheless able

to keep their respective sovereign principals at bay. This rationale had been explained as early as 1959 in a secret British government report on the consortium of the major international oil companies set up to operate the Iranian oil industry on behalf of Iran and the National Iranian Oil Company. As the report observed,

> there might [. . .] be an advantage in [. . .] discreetly encouraging the formation of national oil companies [. . .] [because by] its nature and organisation, a national oil company is more likely to gain the necessary knowledge, experience and authority to deal with oil *practically and sensibly* than a purely governmental administration, which would be more subject to direct political pressures and inhibitions.[16]

Morris Adelman spelled out rather more bluntly the expectations of consumer countries, in terms of just what the 'practical and sensible' management of hydrocarbon resources was supposed to mean: 'national companies have always been and still are price cutters'.[17]

The circumstances surrounding the expropriation of the foreign oil companies in Mexico, together with the centrality of the company to the authoritarian Mexican political system of the day, meant that PEMEX had an appreciable degree of regulatory control over the oil sector. However, despite the strategic policy recommendations of the British memorandum cited above (and their – arguably successful – implementation in Iran), PEMEX's status as *de facto* regulator availed it for nought in terms of its long-standing aspiration to secure finance from foreign governmental sources. The reason for this was simple: American oil companies were prepared to countenance an Iranian-type arrangement with a NOC only *in extremis* (i.e. where a concessionary regime had broken down beyond repair and/or such an NOC provided the only means for American companies to gain entry, conditions both which had obtained in Iran as well as in Sukarno's Indonesia). But the events of 1970–3 drove the point home that it was no longer advisable,

let alone affordable, for consuming country governments to leave oil to the oilmen. Thus, as alarm bells started going off in earnest – most famously when James Akins (director of fuels and energy at the State Department until 1973 and subsequently US ambassador to Saudi Arabia) solemnly intoned: 'this time the wolf is here'[18] – the American government responded by loosening its purse strings and urging banks, development agencies and the like to do likewise, with the aim of funding the search for petroleum in prospective areas outside the OPEC cordon.[19] PEMEX was a major beneficiary of the ensuing largesse and this allowed the company to mount an exploration programme that quickly resulted in a series of significant discoveries (initially onshore and, later, offshore).[20]

PEMEX's exploration successes were greeted with elation in Mexico because they put to rest the looming spectre of petroleum imports. Indeed, such was the magnitude of the finds that they prompted a heated national debate – the likes of which would be almost inconceivable today (in Mexico or elsewhere) – on whether it would be advisable to develop these newfound resources only to the extent necessary to meet the country's requirements or, alternatively, whether the country ought to export oil in significant volumes.[21]

This particular question was peremptorily settled when incoming president José López Portillo designated Jorge Díaz Serrano to be the head of PEMEX and effectively turned the latter into the czar of the country's petroleum policy. Up until his designation, Díaz Serrano had been a major PEMEX contractor and so was automatically inclined towards increasing the breadth and scale of the company's activities. The new Director General sold the President the vision that accelerated expansion across the whole industrial spectrum of the petroleum sector would constitute a major engine of growth in its own right and that, in addition to this, petroleum exports could generate foreign currency flows that would enable the re-activation of the Mexican economy's stuttering engine, chiefly by financing an ambitious resource-based industrialisation programme.[22] Díaz Serrano's PEMEX, in other words, was the

incarnation of the 'practical and sensible' NOC that consumer countries wanted to see in charge of the development of non-OPEC hydrocarbon resources (although, in entrepreneurial terms, PEMEX's breakneck expansion was recklessly imprudent and brought about the collapse of the company's fragile internal governance and control structures, and led to a colossal waste of resources, perhaps best epitomised by the catastrophic Ixtoc blowout and ensuing oil spill).[23]

Although rent-centred considerations initially took a back seat in the definition of López Portillo's petroleum policy, the post-1976 patterns of public expenditure and indebtedness soon thrust such considerations to the forefront and put them into latent conflict with the unbridled expansion of PEMEX (not least because of PEMEX's phenomenal cash burn).[24] Thus, the Mexican government added a rider to the blank cheque that Díaz Serrano had been given until then: the stated target of reaching a production level comparable to that of pre-revolutionary Iran – around 6 mb/d – would not be trimmed back provided that, as the Director General repeatedly asserted, oil prices would continue trending upwards (or, at least, would not decline).

Unfortunately for Díaz Serrano's and his political ambitions, the world price of oil peaked in 1980 – when it hit an annual average of $35 per barrel – whereupon spot market prices began to weaken (even though Iranian and Iraqi output was greatly affected by these countries being at war). In the face of significant bearish factors, the Mexican government nonetheless insisted that a commercially unsustainable position be held *coûte que coûte*, because this was what its mounting revenue needs demanded, as a matter of arithmetic. Thus, by the end of 1980, despite the fact that Mexican Isthmus crude and Saudi Arabian Light were of a very similar quality, the former was being sold at a $2.50 per barrel premium to the latter and this already unjustifiable premium would balloon to $6 per barrel during the first half of 1981. Indeed, in January 1981, even the official selling price (OSP) of heavy sour Maya crude oil ($34.50 per barrel) was higher than that of Saudi Arabian Light ($32 per barrel).[25]

In June 1981, under tremendous customer pressure, Díaz Serrano took the fateful decision to reduce Mexican OSPs by $4 per barrel. A smaller adjustment might have sufficed to restore the competitiveness of Mexican crudes, but Díaz Serrano's advisers insisted that only an adjustment of this magnitude would satisfy some of PEMEX's irate US customers. However, the implementation of these price cuts from a political point of view was suicidal: the Mexican cabinet only learned about them upon reading a press cutting from the *New York Times* which was sent via courier to the presidential residence by the staff of the secretary for National Patrimony.[26] An irate President López Portillo demanded that Díaz Serrano (clear frontrunner at that point for the presidential elections of 1982) fall on his sword and the price cuts were rescinded by the Cabinet. Obviously, PEMEX's commercial position continued to deteriorate after Díaz Serrano's sacking, because Mexican crudes were simply too expensive in relative terms. The day of reckoning came in July 1981, when exports of crude collapsed to 500,000 b/d (compared to a figure of 1,350 mb/d for April of that same year). This traumatic reduction in export volumes meant that, ultimately, Mexico had to adopt price cuts as large as those originally advocated by Díaz Serrano.[27] Crucially, this decision was not taken on PEMEX's sole authority, as had been the case in Díaz Serrano's days. Instead, it was a collegiate decision of the Cabinet, taken after it had been reviewed and sanctioned by the entity that effectively took over the regulation of Mexico's hydrocarbons sector: the Ministry of Finance (*Hacienda*).

A Swift Transition to a Rent-Centred Regime

The end of PEMEX's days as the *de facto* regulatory agency for the Mexican upstream sector meant that, from that point on, PEMEX would have to submit to the consideration of the Ministry of Finance any decision having a foreseeable material impact on public finances (whether commercial decisions to adjust prices, or investment decisions requiring significant outlays). And, as a rule, PEMEX was to find that

clearance for such decisions would only be forthcoming to the extent they satisfied narrow, financial criteria, since short-term fiscal considerations were almost invariably at the top of *Hacienda*'s list of concerns.

The effect of this change of priorities for the Mexican petroleum sector is discernible in PEMEX's production profile: as Figure 8.1 shows, the growth trend in Mexican oil production was abruptly interrupted in 1982 and would not pick up again until 1996–7 (aside from a small increase prompted by the Iraqi invasion of Kuwait and its sequels).

Post-1976 Mexican petroleum policy had privileged output and activity targets over any other consideration, including fiscal ones. Government tax revenues skyrocketed as a result of the Mexican petroleum boom, but this was a secondary consequence of the pursuit of PEMEX's production goals at a time of rising oil prices. As Figure 8.2 shows, during the Díaz Serrano years, the bulk of the government's fiscal income came from an export tax (initially enacted in 1974 and amounting on average to around 58 per cent of export revenues in its last years). To complement this export tax there was a modest

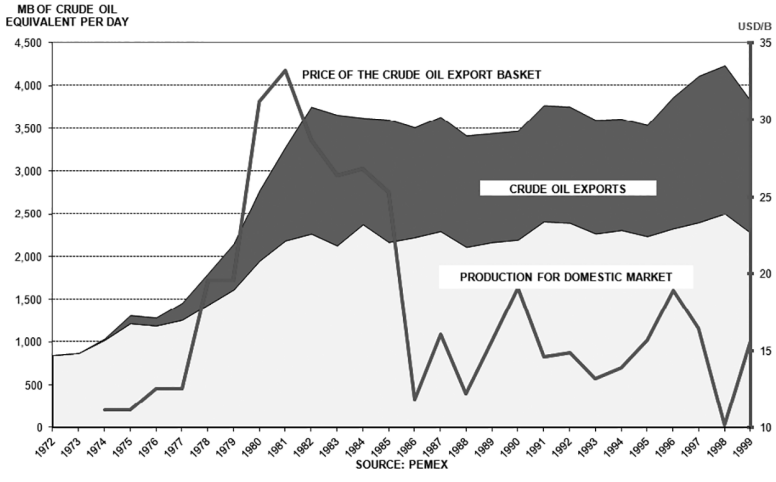

Figure 8.1 Mexico: total production of hydrocarbons and price of Mexican crude oil export basket, 1972–99.

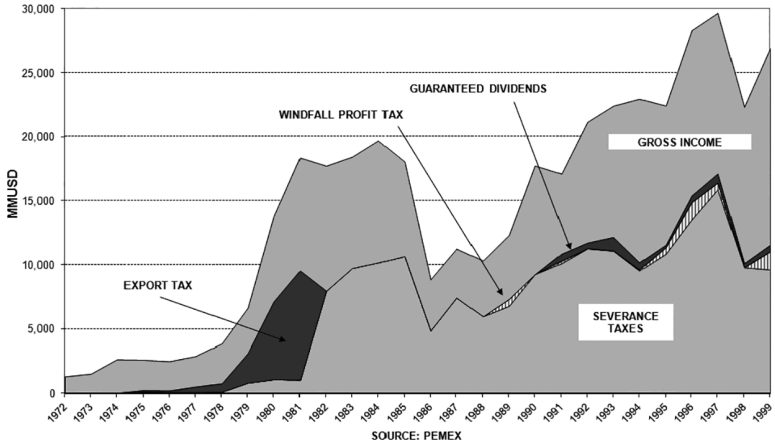

Figure 8.2 Mexico: fiscal income and gross petroleum industry income, 1972–99.

severance tax (*derecho de explotación*), with an effective rate equivalent to five per cent of the gross value of production. As can be appreciated, this fiscal regime tied the expansion of the government's fiscal revenues to the growth in PEMEX's export volumes (and, therefore, to production increases in excess of underlying domestic demand). Such an arrangement might have made sense for the government in the context of an expansionist production policy, but not in a context where exports were to be limited pursuant to the investment retrenchment that *Hacienda* forced on the company. Hence, the export tax was scuppered in 1982 (after the Mexican debt crisis), to be replaced with a complex severance tax structure which collected upwards of 50 per cent of gross upstream revenues (and the equivalent of all the export income).[28] *Hacienda* devoted most of the money thus collected to service Mexico's external debt.

With the adoption of these changes, the post-1982 Mexican petroleum fiscal regime became comparable, in terms of its overall (rent-centred) thrust, to the fiscal regimes of those OPEC countries which had nationalised their petroleum concessions in the 1970s. This radical transformation of the Mexican fiscal regime was accomplished in a

matter of months (under the shadow of a debt default). In OPEC countries, in contrast, this subordination of the rationality of oil capital to the interests of the sovereign resource owners *qua* landlords in receipt of rents (which their respective fiscal regimes crystallised and their decision to nationalise took to its ultimate expression) was the outcome of a long tug of war which spanned decades.[29] Thus, whereas in OPEC countries, the objective of maximising petroleum rent eventually led to the exclusion of private capital from the upstream, in Mexico it was the prior exclusion of private capital that made rent maximisation possible.

The question of how Mexico managed to end up in the same place as the key OPEC countries, despite having set off from a very different position, can be answered by looking into the internal political drivers behind Mexico's progressive withdrawal from the world petroleum market after 1938. To a considerable extent, Mexico's state of petroleum semi-autarky was dictated by factors outside the control of the Mexican government: the efforts on the part of the expropriated companies to boycott Mexican oil exports (and the machinations of the companies' supporters in the United States and the United Kingdom), the post-1951 decline in output at the Poza Rica giant field (discovered in 1932) and, last but not least, the steady and significant growth in Mexican demand for petroleum products. However, Mexico's increasing isolation from the world oil industry and market was also an intended outcome of decisions taken by a succession of Mexican governments, over the 1940–60 timeframe.

In 1938, the Mexican government would have preferred not being barred from the oil export market altogether (whether by geology or politics). However, the administrations of the presidents who succeeded Cárdenas – Ávila Camacho (1940–6), Alemán (1946–52), Ruiz Cortines (1952–8) and López Mateos (1958–64) – gradually reached the conclusion (with the didactic aid of episodes such as the stillborn Iranian nationalisation) that Mexico's ability to hold the petroleum governance line that Cárdenas had laid down was made easier by the fact that the country's petroleum sector did not generate sizable rents from

oil exports.[30] Indeed, it was well understood that the significant domestic dimension to the Mexican oil industry had been essential in laying the foundations for a viable national petroleum administration, not least because it made Cárdenas less vulnerable to the sort of oil-related retaliatory measures which proved to be Mossadeq's undoing and brought about the effective reversal of nationalisation in Iran.[31] For the Mexican government, the effects of other politically motivated measures prompted by the expropriated companies, notably interruptions in US government purchases of Mexican silver, caused much greater financial problems than the oil boycott, but ultimately proved beyond the capabilities of the oil companies to sustain due to the imminence of a new world war.[32]

Presidents Ávila Camacho, Alemán, Ruiz Cortines and López Mateos all shared a great enthusiasm for foreign direct investment. Nevertheless, they all came to believe that the involvement of foreign capital in Mexico's oil sector was not a good idea, because the major oil companies (with the backing of the American government) were not prepared to participate in the Mexican upstream on terms that Mexico might find acceptable and simply leave matters at that.[33] This was driven home by PEMEX's experience with risk exploration contracts, which the post 1938 legal framework allowed. A handful such contracts were awarded during the administration of Miguel Alemán and produced paltry results. More importantly, they provided the US government and the oil companies with an instrument that lent itself to be used as a wedge to pry open, once again, the access paths for private capital into the Mexican upstream sector. The political pressures that these contracts generated confirmed that, whatever terms Mexico might be prepared to offer, the major oil companies would never cease to agitate for better ones and, in so doing, would not hesitate to mobilise forces that would greatly complicate the task of governing the country.[34]

This is the explanation behind one of the more puzzling (and misunderstood) aspects about the evolution of Mexican petroleum governance structures; namely, that it was not the left-wing Cárdenas

who decided to close the Mexican upstream altogether, but rather his conservative successors. Despite their ideological proclivities, presidents Ávila Camacho, Alemán, Ruiz Cortines and López Mateos would all come to see that the less Mexico had to do with the international petroleum scene, the more manageable the country's internal politics. Because of this, after 1940, the various constitutional and statutory elements restricting the participation of private capital in the Mexican petroleum sector went through a series of iterations which saw loose screws tightened, loopholes closed, chinks in the armour sealed off (for example, the signing of new risk exploration contracts was barred after 1958). This depuration process reached its apex in 1960, when the constitutional language governing the participation by private capital in the Mexican upstream crystallised into a radically restrictive formula that would remain unchanged until 2013.[35]

Conclusion

Ultimately, it was this constitutional formula which, in the early 1980s, enabled Mexico to adopt a petroleum fiscal regime (and a non-expansive production policy) that was as absolutely rent-centred as that of any OPEC country and all without the barrage of political flak that OPEC attracted. Of course, Mexico only adopted this fiscal regime in response to the calamitous final collapse of the country's economic development model, a collapse in which oil played no small part.

The 1960 reform to Article 27 of the Mexican Constitution expressed, in statutory form, a central tenet of the *Desarrollo Estabilizador* model, which Carlos Fuentes described in his novel about the great Mexican oil discoveries of the 1970s: a nationally oriented project of a conservative political tenor, predicated on staying out of the Great Game *de nos jours*, a game in which the country only stood to lose were it to become embroiled in it.[36] Transforming Mexico into an oil exporting powerhouse required jettisoning this tenet. López Portillo and Díaz Serrano took this gamble thinking that they – to use a Mexican idiom – could chew glass and spit

out marbles, but both proved maladroit sorcerer's apprentices and the forces they unleashed ended up by swamping the country. Mexico is yet to recover from the long-term effects of their disastrous economic policy decisions and recent developments in the country – notably the casualty figures and viciousness of a low intensity civil war that rages under the guise of an anti-drug policy and the decision by the Peña Nieto government to imitate faithfully the Venezuelan petroleum liberalisation model despite the havoc that it wreaked in that country – suggest that, even after more than 30 years have elapsed, the bottom might still be a way off.

Mexico's oil boom and subsequent sudden bust also made a contribution to radicalise international petroleum politics as a whole. The interruption in the growth trend in Mexican oil production was brought about by a nationally grounded institution (*Hacienda*) which, even if only to stave off the creditors, did not subscribe to a globalised vision of production *à outrance*, and was willing and able of extracting the maximum benefit from national property rights over a scarce and valuable natural resource. This development was greeted with dismay by consuming countries, who had counted on Mexico's contribution 'to bring about a reduction in oil prices by breaking the power of OPEC' (to paraphrase Henry Kissinger).[37] The sudden change in the orientation of Mexican petroleum policy was therefore taken as proof positive that the pursuit of the wider agenda of increasing the output of oil outside of OPEC's control would have to involve the demolition of governance institutions focused on the capture of petroleum rent in major oil exporting countries. This particular lesson has been indeed applied, with extreme prejudice (and lamentable political consequences), in a succession of OPEC and non-OPEC countries throughout the 1990s and, ironically, is now in the process of being applied in Mexico itself. *Ils n'ont rien appris, ni rien oublié*.

Notes

1. PEMEX did not export any crude oil at all, for the first time in its history, in 1970. Mexico became a net petroleum importer (by volume) in 1971.
2. Roger D. Hansen, *The Politics of Mexican Development* (Baltimore, 1974).

3. Soledad Loaeza, 'Gustavo Díaz Ordaz: el colapso del milagro mexicano', in I. Bizberg and L. Meyer (eds), *Una historia contemporánea de México* (México, 2003), vol. II, pp. 117–55.
4. By 1973, Mexico's disbursements for imported petroleum (crude and products) were running at 3.5 billion pesos ($300 million) per year: Lorenzo Meyer and Isidro Morales, *Petróleo y nación (1900–1987). La política petrolera en México* (México, 1990), p.159.
5. For a definitive account see Adrián Lajous, *La industria petrolera mexicana: estrategias, gobierno y reformas* (México, 2014).
6. See Paul Horsnell and Robert Mabro, *Oil Markets & Prices: The Brent Market and the Formation of World Oil Prices* (Oxford, 1993).
7. Juan Carlos Boué with Liliana Figueroa, *The Market for Heavy Sour Crude Oil in the US Gulf Coast: The PEMEX/PDVSA Duopoly* (Oxford, 2002).
8. From 1973 to 1981, the external debt of the public sector in Mexico had grown at an average annual rate of more than 30 per cent, from $4 billion to $43 billion. See also chapter 7 ('The Mexican Crisis: No Mountain Too High?') of James M. Boughton, *Silent Revolution: The International Monetary Fund 1979–1989* (Washington, DC, 2001).
9. At around 15 per cent, the Mexican tax/GDP ratio is the lowest in the whole of the OECD. See Juan Carlos Boué, 'Aspectos fiscales de la apertura petrolera en México', in I. Rousseau (ed.), *¿Hacia la integración de los mercados petroleros en América?* (México, 2006), p. 421.
10. Bernard Mommer, *La cuestión petrolera* (Caracas, 1988), p. 212.
11. J. Richard Powell, *The Mexican Petroleum Industry, 1938–1950* (Berkeley, 1956), p. 32.
12. In 1970, the only levy applicable to upstream petroleum activities in Mexico was a modest severance tax. The Mexican government received considerably more fiscal revenues from excise taxes on motor fuels.
13. Antonio J. Bermúdez, *La política petrolera mexicana* (México, 1988), p. 18.
14. In 1958, for instance, PEMEX paid 626 million pesos ($50.1 million) in taxes but its losses on products imports were 687 million pesos ($55 million); see Antonio J. Bermúdez, *The Mexican National Petroleum Industry* (Stanford, 1963), p. 258.
15. Isidro Morales, Cecilia Lezama Escalante and Rosío Vargas, *La formación de la política petrolera en México, 1970–1986* (México, 1988).
16. H.M. Government, 'Middle East Oil. Report by a Working Party of Officials [POWE33/2529]', in A.L.P. Burdett (ed.), *OPEC Origins and Strategy, 1947–1973*, Vol. 1, *1947–1959. Developments and Events Leading to the Creation of OPEC in 1960* (Cambridge, UK, 2004), p. 304, italics added.
17. Morris Adelman, 'Is the Oil Shortage Real? Oil Companies as OPEC Tax-Collectors', *Foreign Policy* 9 (Winter 1972–3), pp. 69–107: 87.
18. James Akins, 'This Time the Wolf Is Here', *Foreign Affairs* li/3 (1973), pp. 462–90. James Akins, 'This Time the Wolf Is Here', *Foreign Affairs* li/3 (1973), pp. 462–90.

19. David Ronfeldt, Richard Nehring and Arturo Gándara, *Mexico's Petroleum and US Policy: Implications for the 1980s. R-2510-DOE* (Santa Monica, 1980).
20. During the 1970s, only three supergiant fields were discovered in the world and all three were located in Mexico.
21. See Bermúdez, *La política petrolera mexicana.*
22. Richard M. Auty, 'Resource-based Industry in Boom, Downswing and Liberalization: Mexico', *Energy Policy* xix/1 (1991), pp. 13–23. Even so, the government felt impelled to mollify the opponents of petroleum exports by saying that Mexico would 'export oil and gas only as a temporary [*coyuntural*] measure in order to orient ourselves to a new program for medium-and long-term industrialization' (Ronfeldt, Nehring and Gándara, *Mexico's Petroleum and US Policy*, p. 57).
23. The 1979 Ixtoc-1 well blowout gave rise to the third worst oil spill in history (by volume), only tailing those caused by the Iraqi sabotage of Kuwaiti oil facilities in 1991 and the one caused in 2010 by the Macondo blowout in the US Gulf. The Ixtoc-1 blowout caused environmental damages conservatively estimated at $600 million in money of the day.
24. In 1978, for example, PEMEX investment on its own amounted to 5 per cent of GDP (Auty, 'Resource-based Industry', p. 18).
25. Boué and Figueroa, *The Market*, p. 74.
26. Ibid., on the basis of a personal interview with Adrián Lajous (PEMEX Director General, 1994–9).
27. The damage that this episode did to PEMEX's commercial reputation was mitigated by the fact that, post-1982, the US Strategic Petroleum Reserve (SPR) became the single most important lifter of Mexican crude oil. The SPR purchases formed part of the debt rescue package for Mexico.
28. The complexity stems from the division of the severance taxes into three tiers – ordinary severance tax levied at a rate of 52.3 per cent of net income, extraordinary severance tax levied at a rate of 25.5 per cent of any remaining net income after the application of the ordinary severance tax and additional severance tax levied at a rate of 1.1 per cent of any net income remaining after the application of the previous two taxes – for reasons having to do with the distribution of funds to Mexican federal states. See Juan Carlos Boué, 'La captura de la renta petrolera: el régimen fiscal petrolero mexicano', *Revista del Banco Central de Venezuela* 3 (1999), pp. 225–44.
29. See Bernard Mommer, *Global Oil and the Nation State* (Oxford, 2002).
30. A detailed and revealing account can be found in Miguel Alemán, *La verdad sobre el petróleo en México* (México, 1977).
31. In 1938, domestic consumption was absorbing around 65 per cent of Mexico's crude oil output. The generalised perception about the expropriation of the oil companies in Mexico has always been that this was an event involving a major oil producing country, which Mexico no longer was. See for example Stephen Kobrin, 'The Nationalisation of Oil Production 1918–80', in D.W. Pearce,

H. Sieber and I. Walter (eds), *Risk and the Political Economy of Resource Development* (London, 1984), pp. 137–64.

32. In 1936, the Mexican government earned 24 per cent ($30.5 million) of its total revenues from silver sales, twice what it earned from oil taxes (including excise taxes); Noel Maurer, *The Empire Struck Back: The Mexican Oil Expropriation of 1938 Reconsidered: HBS Working Paper 10–108* (Boston, 2010), p. 13.
33. Alemán, *La verdad sobre el petróleo en México*.
34. Ibid.
35. Before its reform in 2013, Article 27 of Mexico's Constitution provided that, in regard to hydrocarbons resources, 'no concessions or contracts shall be granted [...] and the Nation shall carry out the exploitation of those substances, under the terms set forth in the respective Regulatory Law'.
36. 'Call me a conservative nationalist, if you will. I would like to preserve that, a project of ours and avoid foreign blocs' playing with us': Carlos Fuentes, *La cabeza de la hidra* (México, 1978), p. 111.
37. Henry Kissinger, *Years of Renewal* (New York, 1999), pp. 668–9.

9

The Double Shock: The Soviet Energy Crisis and the Oil Price Collapse of 1986

Olga Skorokhodova

Since Stalin's Great Leap Forward, the Soviet political and social discourse of economic development was dominated by what is appropriate to term as heroic language. In the late 1960s and early 1970s this language was employed to portray the feat of the Soviet oilmen, who moved the centre of the Soviet oil industry to the West Siberian wilderness. This achievement not only made it possible to meet rising figures of the oil production plan, but also established the USSR among leading oil producers. Against this backdrop, the Soviet energy crisis – a slowdown of the growth in output in the 1970s followed by the fall of production in 1984 and 1985 – was especially striking and, to some extent, perplexing; the inability of the Soviet oil industry to sustain the level of production manifested itself at a time when the global energy market was hit by overproduction.

Interconnections between energy and politics in Russian–European relations have grown significantly over the last decade, and so has the amount of publications on the subject. In the aftermath of the Russian–Ukrainian gas wars, much has been written on the political use of

hydrocarbon resources by modern Russia.[1] In contrast, the energy export policy of the USSR has been largely missing – or missed – in historical research on energy, but that can be partly explained by the restricted access to Russian archives. Indeed, earlier accounts by Margaret Chadwick, Thane Gustafson, Maria Slavkina and others[2] were mainly focused on the Soviet energy industry itself. It was not until recently when the pioneering archive based research of Per Högselius (2013) has given us a clearer understanding of the Soviet gas trade with Europe, as well as efforts by Jeronim Perović and Dunja Krempin,[3] whose article explored interlinks between energy considerations and Soviet foreign and economic policies in the 1970s. Following the same line and drawing from Russian archives, this paper aims to shed light on the Soviet perception of the dramatic developments that unfolded in the energy market in the early 1980s, in the broader context of soaring oil prices and the crisis in the Soviet energy industry.

The Soviet Energy Triumph, Technology Transfer and the Tragedy of DeTente

The 1970s were truly a decade of internationalisation for the Soviet economy. Foreign trade grew five times faster than the national economy and had gained a 10 per cent equivalent of the national income by the late 1970s. Oil and, in later stages, gas, was at the very centre of this unprecedented growth. It was exactly in this decade that the foundation for the Soviet/Russian status of an energy superpower was laid down. According to official statistics, oil export to the dollar zone grew from 44 million tonnes in 1970 to 170 million tonnes in 1986.[4] By 1983, energy and fuel goods composed 53.7 per cent of Soviet exports. In the same year, total exports amounted to 36.4 billion rubles with oil revenue covering 'more than three fourths' of it.[5]

It is of primary importance to take into consideration the seemingly purely political factor that underlined a deepening Soviet involvement in the world of oil and gas trade.[6] Détente boosted economic cooperation

between the socialist and capitalist camps in general and resulted in a number of 'deals of the century' that brought Soviet oil and gas to Europe, as well as US and European gas and oil technologies to the USSR. While petrodollars ensured the social and political wellbeing of the country, the latter acquired strategic importance for the fate of the Soviet oil industry.

At the end of the 1960s, at the dawn of détente, the Soviet leadership made a crucial decision to start moving the centre of oil production to West Siberia with the idea of using the benefits of Western and Japanese equipment to achieve this goal. The concept of 'the intensive use of advanced international experience through purchases of production lines and complete enterprises for licensed production'[7] had been promoted by Nikolai Baibakov, a former oilman and the head of the State Planning Committee (*Gosplan*) at that time, and supported by the Soviet prime minister Alexei Kosygin.

In other words, West–East oil cooperation in terms of increased Soviet supplies to Europe and Western machinery exports to the USSR turned out to be one of the first fruits of détente. Therefore, it was bound to go through a rise and fall, as did the politics of détente. While the Nixon–Ford administrations actively negotiated several oil and gas projects with the Soviets, President Jimmy Carter took a rather different stance on the matter. In 1977 and 1978 the US intelligence community prepared several widely discussed reports on the upcoming Soviet energy crisis.[8] Eventually, some of them were made public at the request of Capitol Hill.[9] Although the main prediction that the Soviet oil production would peak 'not later than in the early 1980s' and that 'the decline, when it comes, will be sharp' did not prove to be entirely true (the decline was not that sharp and production having fallen for two years returned, albeit for a short time, to the maximum level in 1988), a recommendation made in one of those reports 'to use technology transfers, specifically in oil production, to bring pressure to bear on the USSR either to alter its behaviour or suffer the resulting constraints on its economic assets and military capabilities',[10] had a very far-reaching effect.

After more than a year of interagency discussions, on 18 July 1978[11] President Carter included oil production equipment in the export-licensing list. Later on, in January 1980, as a reaction to the Soviet invasion of Afghanistan, the President suspended issuance of export licences, thus effectively limiting the flow of US equipment to the USSR.[12] This trend culminated in 1982 and 1983 when President Ronald Reagan, in a bid to block or postpone the construction of the Soviet export pipeline to Europe, imposed sanctions against European companies and American subsidiaries involved in the project – a move that was strongly rebuked by European governments.[13] Even though Washington had to revoke this decision at the end of 1983, some of the oil and gas related items of 'crucial strategic importance' were included in the COCOM list.[14] The White House also tried to reinforce the tactics informally, for instance, by persuading Japan not to sell its robotics to the USSR or strongly discouraging American companies from signing any new contracts with Moscow, 'in spite of the existing legal possibility to issue export licenses for certain types of equipment'.[15]

Thus, in the late 1970s and early 1980s, an important link between energy security concerns, the politicisation of the Soviet oil trade and the return to Cold War confrontation emerged as essential factors which had a major influence on the Soviet oil industry in the 1980s.

'Impending Oil Crisis': Soviet Evidence

The CIA was often criticised for its inaccurate assessment of the Soviet political, economic and military strength;[16] however, once it came to the oil and gas industry, the US intelligence community was on the right track. Although concrete figures turned out to be incorrect, it is important that upcoming problems in the Soviet industry were red-flagged by intelligence analysts at an early stage and that, if not confirmed, they were not denied by Soviet officials.[17]

The Soviet reaction to the publication of the CIA reports was accompanied by remarkable reticence. Already the Tenth Five-Year Plan

(1976–80) envisaged slower growth of oil production, however, it came as a big surprise that Soviet officials, while criticising in a very moderate and rather formal way what was published, started discussing existing and upcoming difficulties in the energy sector, including in public speeches. In March 1977, in the same month the first CIA report was released, Alexei Kosygin assured the Finnish President that the USSR would guarantee stable oil supply for the next 15 years, noting however that 'the fuel problem cannot be solved easily; in 1977–80 production will be lower than it was planned before'.[18]

The White House attributed such a reaction to 'a state of concern and uncertainty among responsible Soviet officials over the energy prospects of their country'.[19] Indeed, a quick look into the Soviet oil and gas journals is enough to conclude: the crisis was already there in the mid-1970s, and Soviet officials were well aware of it. From 1975 onwards, the problem of inefficiency in exploration, production, and transportation gained prominence in Soviet specialised literature.[20] According to one of the experts, in 1971–5, the coefficient of investment efficiency in the oil industry fell dramatically, from 0.24 to 0.17.[21] The next example is even more revealing: in 1971–5, in order to meet the planned figure of production growth of 134 million tonnes, 392 million tonnes of new capacities had been required, meaning that more than 250 million tonnes of oil were needed just to compensate for the accelerated falling production of the old fields.[22]

The Tenth Five-Year Plan (1976–80) was fulfilled thanks to massive budget allocations that grew by 65.4 per cent in comparison with the previous five years, from a total of 16.0 billion rubles to 26.4 billion rubles, and this is for the oil industry alone. Overall, the energy sector reached 14 per cent of the total budget for industrial development, compared with 7 per cent in the previous five-year plan.[23] It was exactly what Gustafson, one of the most prominent researchers of Soviet energy, called 'the growing burden of energy', referring to the extremely high price the USSR had to pay in order to satisfy domestic demand, fulfil its export obligations and provide the country with much-needed hard currency.

It should be noted that even the oil price collapse of the mid-1980s could not reverse this trend. In September 1985 at the meeting with the Tyumen workers (a major Soviet production region) the newly elected general secretary Mikhail Gorbachev announced a 60 per cent oil budget increase with the aim to 'raise efficiency and reliability of the main fuel base of the country'.[24]

In the early 1980s the so-called 'turn to gas' became one of the ways to alleviate the growing burden of oil. In 1980 the strategy of rapid development of the gas industry was adopted (general secretary Leonid Brezhnev was its supporter, among others) and the budget of the oil and gas industry was increased by 50 per cent.[25] The primary goal of the new policies was not to increase gas export per se, but to substitute galloping domestic oil consumption and divert more oil for export. Despite these measures, already in 1982 Tyumen failed to meet planned figures.[26] In 1984–5 for the first time in postwar history the USSR experienced a decrease in oil production by 0.5 per cent and 3 per cent, respectively.

At the same time it was 1984 when Soviet oil export to the West reached its peak at 170 million tonnes. But already in 1985 Moscow had to cut its supplies to OECD countries by an astonishing 6 per cent.[27] One can say that this might be explained by lower global demand that was the underlying factor of the energy counter-shock of 1985–6. However, it was not the case. Archival documents demonstrate that the USSR did not deliver the contracted amount of oil to Japan[28] and Finland. The latter was the only non-socialist country heavily dependent (up to 70 per cent) on Soviet oil.[29] The same happened with the gas contracted by Germany: in February 1985 the deputy foreign trade minister Nikolai Osipov was urgently informed that the pressure in the export pipeline to Germany had dropped to 35 bar as only 98.4 million m^3 of gas had been pumped into the system instead of 146.4 million m^3. At around 33 bar, according to the report, compressor stations would be shut down automatically.[30]

Later that year, in meetings with their foreign counterparts, Soviet officials tried to explain away these failures with temporary technical

problems and weather conditions. However, until the end of the year the Soviet Union did not manage to offset this undersupply.

Crisis in Demand and Energy Investments

Like other oil producers, the Soviet Union suffered from the reduction in demand as in the early 1980s the oil market gradually moved to a consumer market. For the USSR the situation was aggravated by the fact that in the late 1970s and the early 1980s, large-scale infrastructure projects, such as the Urengoy – Pomary – Uzhgorod pipeline, or Siberian pipeline,[31] were implemented in anticipation of an export increase. In 1979, when negotiations concerning the Siberian pipe were at an early stage, the USSR received applications for 60 – 70 billion m^3 of gas from six countries 'that significantly exceeded planned capacity' of the project.[32]

However, the situation changed rapidly. For example, in 1981 Italian officials pressured the Soviets to allocate at least 10 billion m^3, while three years later Italy lowered its contracted amount of Soviet gas to less than 6 billion m^3.[33] The same happened with oil supplies: in 1983 head of the Italian oil giant ENI tried to convince the deputy minister Nikolai Osipov that his company had to cut Soviet imports by 25 per cent due to problems with refineries and not for 'political purposes'.[34]

Likewise, in November 1985 the delegation headed by the deputy minister Vladimir Sushkov travelled in vain as far as Japan. Sushkov, the most influential Soviet oil negotiator, was tasked to push forward the oil and gas production project in Sakhalin that had been in negotiation since the early 1970s, but the Japanese 'expressed the need to postpone realization of the project by three years'. Waving off Soviet ambitions and hopes, they promised to come back to the Soviet proposal in the second half of the 1990s on the grounds that 'the Japanese companies had already secured long-term oil supply contracts'.[35] Archives reveal that the outcome of the Japanese trip caught Moscow by surprise. The Kremlin had been contemplating the offer at least since 1983, hoping that

the traditional strategy of favourable pricing would work out and being apparently unable to embrace the idea that the scale of the Sakhalin project and the exorbitant costs were irrational at the time of the oil glut.

The Soviet Energy Crisis: What was to Blame?

Thane Gustafson framed the situation in the Soviet oil sector in the late 1970s and early 1980s as a fundamental reform issue of the Soviet system. Still, for him it remained an 'interesting question' how the list of the problems experienced by the industry 'must have looked to the new Soviet leadership taking shape in 1983–5'. Below is some archival evidence on the matter.

In early 1983, there was a great deal of discussion within the Council of Ministers on the Tyumen region's failure to fulfil the plan. Nikolai Maltsev, then oil minister, made a statement that 'targets were not possible to meet due to lack of essential inputs'. According to his report, in 1982 the State Supply Committee (*Gossnab*) 'has not fully delivered even allocated funds'. The shortage of basic equipment of 1981 and 1982 had not been offset in the 1983 delivery plan.[36]

Furthermore, the constant undersupply was aggravated by the rhythm of work of the Soviet bureaucracy. Normally, the second half of the year was the time when major efforts were made to meet the plan targets. But in the case of the oil industry such an approach simply did not work. Equipment had to be delivered to the West Siberian wilderness by the winter roads *(po zimnikam)* before April in order to be installed over summer. Everything delivered afterwards was extremely difficult to install, let alone use within a given calendar year.[37] With the permafrost turning into one big swamp, transportation of anything, not to mention large-sized units, during summer or early fall very often resulted in the loss of goods.[38] On top of that, the oil industry suffered badly from the All-Union energy saving campaign that was launched across industries without appropriate investment and prior preparation in order to reduce energy consumption. Under this programme the whole oil sector was

allotted only 1.4 billion KW of electricity that led to frequent electricity outages on the production sites. As a result, in 1984 alone the Tyumen oilfields experienced more than 550 blackouts.[39] After a series of discussions in the Council of Ministers, in April 1983 the head of the Council Nikolai Tikhonov wrote to the State Planning Committee in a very tense manner that 'the 1983 plan for the Oil Ministry had not been correlated with technical and material resources'.[40] This letter should be seen as recognition the oil industry's problems at the highest level.

More than that, this quote introduces yet another factor of the Soviet oil 'crisis amid plenty', a factor of systemic, strategic importance. By the early 1980s, the oil industry had been bestowed the honourable title of the 'locomotive for industrial development'. In line with this general understanding and given the almost insatiable thirst for cash of the Soviet state, major figures for the oil and gas sector were calculated based on the amount of hard currency needed and not on the comprehensive geological and technical analysis and industry performance. As Gadel' Vakhitov, then head of the Oil Ministry Research Institute, put it 'the only way to meet national oil production goals [of the 1970s and 1980s] was to ignore approved methods of rational exploitation of large oilfields'.[41]

Last but not least, the Soviet oil sector was under the pressure of restricted technology transfer from the West. In 1983–5, the overall cost of imported equipment for drilling, exploration and development decreased from 972 to 271 million rubles, which could, to a large extent, be explained by Western sanctions.[42] Although it is difficult to evaluate the possible effects incurred from the collapse of the technologies import strategy, one of the main pillars of Soviet energy development since the early 1970s, one cannot fail to notice that it was synchronised with the fall in production of 1984–5.

At the same time, taking into account existing domestic problems, the role of US sanctions in the Soviet energy crisis should not be exaggerated. Publicly, the Soviets neglected or denied their negative impact, underpinning their thesis with the fact that the primary target of

US 'repressive measures', the Siberian pipeline, was put into operation without delay in 1984. Nonetheless, archival documents contain consistent and persistent references of the Soviet elite to the sanctions. Already in 1982 during the meeting with the US Congressional Research Service Vladimir Sushkov admitted that sanctions 'created additional difficulties for the Soviet oilmen'.[43] Great political sensitivity associated with the 'repressive measures' manifested itself once again in 1986, when Milkhail Gorbachev mentioned the COCOM and restrictions on the oil technologies during the press conference after the Reykjavik summit:

> You do not want to give us even oil equipment [. . .] At the same time you want us to believe that you will share the SDI's [Strategic Defence Initiative's] results with us! It would be a kind of second American Revolution, and revolutions do not happen so often.[44]

Oil Price Collapse: The Kremlin under the Sword of Damocles?

The Soviet oil industry had already been under the heavy crossfire of slackening production and weakening demand when OPEC lowered its official prices in a bid to stabilise the market. How did the Soviet officials react to the unfolding counter-shock of the 1980s? Archival documents reveal a puzzling picture: even a brief analysis demonstrates a gap between the understanding of the situation within academia and the prevailing, or preferred, understanding on the political level.

The All-Union Scientific Research Institute under the Foreign Trade Ministry (abbreviated in Russian as VNIKI) was primarily responsible for carrying out current market analysis for the respective ministry. It produced weekly, monthly and quarterly reports *On the Oil, Oil Products, Natural Gas and Timber Markets*, a snapshot of Soviet academic opinion on the subject matter. As could be predicted, the 1984–5 reports gave quite a gloomy forecast for both oil and gas markets, consistently emphasising the high supply and weak demand.[45] The authors of the final 1984 report made it very clear that that the

situation in the first half of 1985 was likely to deteriorate further due 'to widespread practice of netback deals and discounts'.[46] In October 1985 V. Sabel'nikov, head of the international trade department of the Institute, while presenting a paper *Major Trends in the Trade of the Western Countries: Implications for the Soviet Interests*, drew the following conclusion: 'There is no reason to expect any significant positive changes [for the USSR – O.S.] in the foreseeable future.'[47]

The expert community was also raising concerns regarding the possible risks of increasing involvement in the international oil trade, especially because the Soviet Union, not being a member of OPEC, was excluded from the oil-related decision-making process. V. Kominov, a member of the famous 'Primakov energy group',[48] had called for a more proactive approach in this direction already in 1975:

> We must admit that indeed the world oil prices are not determined by the USSR [...] Our role in this field has always been rather passive. The time has come to revise it.[49]

As far as discussion at the official level is concerned, the State Archive of the Russian Federation contains reports *On the State of Economies of the Capitalist Countries and the Situation on the Oil, Gas and Gold Markets* that were submitted quarterly by the Soviet Academy of Sciences to the Council of Ministers. Notwithstanding the fact that the titles were almost identical to those of VNIKI, these reports differed substantially in their conclusions and recommendations. The experts from the Academy of Sciences were very accurate in their description of ongoing events. However, their forecasts, being by and large optimistic, often contradicted the content of reports. For example, the authors of the last 1983 report pointed out that commercial and strategic oil stocks were on the rise and that the gap between official and contract prices had been widening and then unconvincingly concluded that 'despite these facts, OPEC will be able to maintain current prices'.[50] It is of principal importance to notice that the VNIKI reports, which did not go beyond

the operational level of the Foreign Trade Ministry, did not contain such discrepancies.

As a matter of fact, the next 1984 winter report of the Academy of Sciences once again reaffirmed the questionable argument about 'OPEC's ability to keep abreast of the oil market'.[51] Of course, as prices continued their decline, this thesis was disavowed in the summer, although authors without any justifications or explanation wrote that 'in any case, the minimum level [of demand] has been passed through'.[52]

How one can explain the appallingly poor quality of the materials circulated among the members of the Council of Ministers? The first idea which comes to mind is that at a time when the national economy was increasingly relying on oil revenues, to warn of impending price or demand collapse would mean to challenge 'the general line of the Party' that emphasised further development of the energy sector and oil trade expansion.[53] In light of this, it is both ironic and tragic that already in his Tyumen speech, Mikhail Gorbachev criticised such a disservice of the academic community, saying the following:

> Over the years, research organizations of the industry have been using their entire arsenal just to defend the existing status quo, although they were not created as law bureaus under the ministries.[54]

There is no straightforward answer whether the Soviet elite would have adopted different policy if the quality of analytics had better reflected the situation on world energy markets, especially at a time of uncertainty created by constant changes of the leadership after Brezhnev's death. However, the quote of Gorbachev does imply that academia did not do a good job.

The other side of the coin was that Soviet officials firmly believed in a dogma about the 'unpredictability of capitalism' and therefore were not fond of economic projections, except for Soviet-styled planning. It was Nikolai Patolichev, foreign trade minister, who admitted to Klaus Liesen,

head of Ruhrgas AG, that he 'had come to the conclusion that forecasts are often produced by incompetent people who are not involved in productive labour [*sozidatel'nyi trud*], and can only criticize and forecast instead'.[55]

Yet the most important explanation of the Soviet reaction to the 'oil turmoil' of 1983–5 was hidden in the inability of the system and the people within the system to recognise – or to believe in – the potential influence of fundamental changes of the global energy balance, including energy intensification and saving programmes. In February 1983 the Soviet ambassador to France wrote in a memorandum to the deputy head of the Council of Ministers Ivan Arkhipov that over the last four years the national energy saving programme enabled France to cut its oil import from 120 to 68 million tonnes. In the next paragraph, he also reported that ELF Aquitaine, the main operator of French–Soviet oil trade, had requested only 100,000 tonnes of oil in 1983, in contrast with 1.5 million tonnes (!) in 1979. He explained this fact by the 'weakening of direct contacts between SoyuzNeftExport [the Soviet official oil exporting agency, well-known for its inefficiency and bureaucracy] and French companies',[56] without even mentioning the energy-saving programme as a possible factor. Taking into account that a detailed description of the programme was provided in the beginning of the same document, the inability of the ambassador to embrace the structural changes in oil consumption as a drive behind the French import shift becomes even more striking.

Finally, even though the Soviet oil sector was one of the first industries to be affected by the worsening West–East political relations, an argument about 'increasing difficulties in the majority of international trade flows in times of crisis'[57] was often used as an explanation or justification for the deteriorating West–East trade. This disposition to put the negative Soviet experience into a broader global context can be found in archival documents as well as in official propaganda. It has a lot to do with the fact that since the early 1970s the USSR's integration in the global economy was invariably described as an unconditional success

and implementation of the socialist idea of the 'international division of labour'.[58]

In light of this prevailing way of thinking, the notion of possible costs to be paid for being involved in the international trade in commodities was not often addressed at the political or ideological level. In the same vein, the Soviet political elite recognised the exponential expansion of foreign trade as the main achievement of détente and therefore hardly thought about the possibility of using oil or gas supplies as political leverage. As Evgeny Primakov, one of the most prominent Soviet and Russian intellectuals and policymakers, noted, in the 1970s and the 1980s there was a clear understanding that 'Soviet power is based on military might and political prestige', rather than on the successful use of economic instruments.[59]

In other words, the experience of the Soviet energy sector in the mid-1980s was predetermined by a number of factors: the tragedy of failing production, including due to restrictions on technological import, the Soviet planning system with its perception of the oil industry as an inexhaustible fountain of currency and by the oil price collapse. Nonetheless, the opinion that it was first and foremost the 1986 counter-shock that caused the Soviet empire to collapse is very common.

Russian collective memory explains the dramatic developments in the energy realm in 1985–6 as a conspiracy between Saudi Arabia and the United States: a conspiracy primarily directed against the USSR. The obsession with the idea that 'Americans are leading from behind' manifested itself in the notes left by Nikolai Tikhonov, head of the Council of Ministers, on the pages of the last 1985 report of the Academy of Sciences. Among all of the reasons that caused the oil price decline, including the milestone decision of Saudi Arabia to cease acting as a swing producer, he used a red pen to mark the only paragraph about the US test sales of approximately 5 million barrels of oil from the Strategic Petroleum Reserves.[60] In 1987, in the speech at the fateful June Plenum that promulgated *perestroika* as an official ideology, Mikhail Gorbachev for the first time blamed his predecessors for wasting petrodollars and

buying consumer goods instead of carrying out a much-needed complex economic modernisation.[61] He also stressed that the cost of the illusive prosperity of the 1970s had not been justified 'socially and economically'.[62] Likewise, *The Concept of the XXVIII Party Congress Report* (1989) put the oil price collapse well before fundamental financial miscalculations or mismanagement in the list of factors that caused *perestroika*'s failure.[63]

In other words, it was the Soviet elite who already at the inception of *perestroika* shaped and incorporated into the public discourse the notion of a direct connection between the 'end of the oil money' and Soviet economic difficulties. In the beginning it was used in order to explain the poor results of ongoing reforms, while later it became the reason for *perestroika*'s collapse.

Conclusion

In 2006 Yegor Gaidar, the father of the Russian 'shock therapy', i.e. radical economic liberalisation of the early 1990s, presented his book *Collapse of an Empire*, wherein great attention was given to the impact of the oil price collapse on the Soviet financial and economic system. He argued that the main purpose of his work was 'to show the reader that the Soviet political and economic system was intrinsically unstable. The only question was when and how it would collapse.' As this paper reveals, the Soviet leadership was aware of the difficult situation in the energy industry and saw the developments on global oil markets, but it was simply unable to deal with the rising costs of increased Soviet involvement in the world energy trade in a business-like, 'capitalist' manner. The quasi-socialist system of the late USSR was also unable to perform much-needed reforms of the energy industry, which almost universally led to privatisation. It took the dissolution of the USSR and creation of New Russia to make this happen.

Back in 2006, Gaidar's book turned out to be a bestseller. It is an open question as to whether its subtitle, *The Lessons for Modern Russia*, had

something to do with its success. Yet, striking parallels between the 1986 and current oil price turmoil, accompanied by a return to Cold War rhetoric and practice, cast serious doubts on the lessons learned.[64]

Notes

1. Marshall I. Goldman, *The Enigma of Soviet Petroleum: Half Empty or Half Full?* (London, 1980); Marshall I. Goldman, *Petrostate: Putin, Power, and the New Russia* (Oxford, 2008); Anita Orban, *Power, Energy, and the New Russian Imperialism* (Westport, 2008); Jeronim Perović, Robert Orttung and Andreas Wenger, *Russian Energy Power and Foreign Relations* (London, 2009).
2. Margaret Chadwick, David Long and Machiko Nissanke, *Soviet Oil Exports: Trade Adjustments, Refining Constraints and Market Behaviour* (Oxford, 1987); Thane Gustafson, *Crisis amid Plenty: The Politics of Soviet Energy under Brezhnev and Gorbachev* (Princeton, 1989); Id., *Wheel of Fortune*: *The Battle for Oil and Power in Russia* (Cambridge, 2012); Maria Slavkina, *Triumf i Tragediya: Razvitie Neftegazovogo Kompleksa SSSR V 1960–1980-e gody* [Triumph and Tragedy: Soviet Oil and Gas Industry in the 1960s and 1980s] (Moscow, 2002).
3. Per Högselius, *Red Gas: Russia and the Origins of European Energy Dependence* (London, 2013); Jeronim Perović and Dunja Krempin, 'The key is in our hands: Soviet energy strategy during Détente and the global oil crises of the 1970s', *Historical Social Research* xxxix/4 (2014), pp. 113–44.
4. Slavkina, *Triumf i Tragediya*, p. 126.
5. Russian State Archive of the Economy (hereafter RGAE), Moscow, f. 413, op. 32, d. 3648, l. 207.
6. Perović and Krempin, 'The key is in our hands'.
7. Mikhail Gaykazov, *Valentin Dmitriyevich Shashin – Bistatel'nyy Strateg Neftyanoy Promyshlennosti* [Valentin Dmitriyevich Shashin as a Brilliant Strategist of the Oil Industry] (Moscow, 2006), p. 274.
8. Intelligence Memorandum, 'Impeding Soviet Energy Crisis', March 1977, NLC 12–59–1-2–1, Jimmy Carter Presidential Library, Atlanta, GA (hereafter JCL); 'State-Treasure Assessment of the CIA Prognosis for Soviet Oil Production', 27 December 1977, NLC 29–10–7-7–5, JCL; National Security Council Memorandum, 'Roundtable on the Soviet Economy', 26 August 1977, NCL 12–57–2-11–2, JCL.
9. Central Intelligence Agency, 'Prospects for Soviet Oil Production', 1977, ER-10270. Available at https://www.cia.gov/library/readingroom/docs/CIA-RDP08S01350R000602080002–0.pdf (accessed 25 July 2017); Staff Report of the Senate Select Committee on Intelligence of the US Senate, 'The Soviet Oil Situation: An Evaluation of CIA Analyses of Soviet Oil Production', No. 28–025 (1978). Available at https://www.intelligence.senate.gov/sites/default/files/publications/95soviet_oil.pdf (accessed 25 July 2017).

10. Memo, *Soviet Purchase of Western Oil and Gas Equipment*, 15 March 1978, NLC 12–41–7-13–2, JCL.
11. The announcement came as a reaction to the Sharansky trial, when a prominent Soviet opposition activist was sentenced to prison.
12. Jimmy Carter, 'Exports of High Technology and Other Strategic Items to the Soviet Union Memorandums from the President', 8 January 1980, in University of California at Santa Barbara American Presidency Project (APP). Available at www.presidency.ucsb.edu/ws/index.php?pid=33008&st=&st1%28 (accessed 17 October 2016).
13. Comments of the European Communities on the Amendments of 22 June 1982 to the US Export regulations (12 August 1982). Available at www.aei.pitt.edu/1768/1/US_dispute_comments_1982.pdf (accessed 17 October 2016).
14. The Coordinating Committee for Multilateral Export Controls (COCOM) was created in 1949 as the main watchdog to exercise control over transfer of strategic goods and technologies to the Eastern bloc.
15. This is a quote of the US Secretary of State George Shultz, cited in: Archive of Foreign Policy of the Russian Federation (hereafter AVP RF), Moscow, f. 129, 1985, op. 71, p. 441, d. 46, ll. 9–10.
16. Kennedy School of Government Case Program, 'CIA and the Fall of the Soviet Empire: The Politics of "Getting it Right"'. Available at www.foia.cia.gov/sites/default/files/DOC_0005302423.pdf (accessed 23 October 2015).
17. A very detailed account of the systemic reasons for the Soviet energy crisis can be found in Gustafson, *Crisis amid Plenty*.
18. CIA National Foreign Assessment Center, 'The Soviet Comments on CIA Energy Projection', March 1978, NCL 12–41–7-11–4, JCL.
19. Ibid.
20. 'Puti povysheniye effektivnosti kap vlozheniy v neftyanuyu promyshlennost' [Ways of improving efficiency of capital investments in the oil industry], *Neftyanoye Khozyaystvo* [Oil Industry] 8 (1975), pp. 1–2; V. Fedynskiy, 'Problema povysheniya effektivnosti i kachestva geofizicheskikh rabot na neft' i gaz' [On the need to increase efficiency and quality of geophysical survey in the oil and gas industry], *Geologiya nefti i gaza* [Geology of Oil and Gas] 11 (1977), pp. 10–15; K. Syromyatnikov, 'K metodike otsenki ekonomicheskoy effektivnosti novoy burovoy tekhniki' [Evaluating economic efficiency of the new drilling equipment: methodological aspect], *Ekonomika Neftedobyvayushchey Promyshlennosti* [Economy of Oil Production] 2 (1978), p. 3–4.
21. P. Sapozhnikov, 'Aktual'nyye problemy ekonomiki kapital'nykh vlozheniy na sovremennom etape razvitiya neftyanoy promyshlennosti' [Urgent problems of economy of capital investments at the present stage of development of the oil industry], *Ekonomika Neftyanogo Khozyaystva* [Economy of Oil Production] 10 (1977), p. 34.
22. I. Ponomareva, 'Sovershenstvovaniye metodiki otsenki ekonomicheskoy effektivnosti razrabotki neftyanykh mestorozhdeniy Zapadnoy Sibiri'

[Improving evaluation of economic efficiency of the West Siberian oil fields development], *Ekonomika Neftyanogo Khozyaystva* [Economy of Oil Production] 7 (1978), p. 18.

23. Gustafson, *Crisis amid Plenty*, p. 66.
24. Archive of the Gorbachev Foundation (hereafter AGF), Moscow, f. 2, op. 1, d. 21584.
25. Archive of the Russian Academy of Sciences (hereafter ARAN), Moscow, f. 1916, op. 1, d. 17, l. 2.
26. The State Archive of the Russian Federation (hereafter GA RF), Moscow, f. 5446, op. 142, d. 439, ll. 5.
27. Chadwick, Long and Nissanke, *Soviet Oil Export*, pp. 131 and 144.
28. RGAE, f. 413, op. 32, d. 4193, l. 79.
29. RGAE, f. 413, op, 32, d. 4110, l. 34.
30. RGAE, f. 413, op, 32, d. 4107, l. 180.
31. One of the main Russian export arteries, it was featured during the Russian–Ukrainian gas wars.
32. RGAE, f. 413, op. 32, d. 977, l. 115.
33. RGAE, f. 413, op. 32, d. 3590, l. 16.
34. RGAE, f. 413, op. 32, d. 3590, l. 41.
35. RGAE, f. 413, op. 32, d. 4193, l. 237. Eventually, the first oil well appeared on the Sakhalin Island only in 1989, and the LNG plant was built only in 2009.
36. GA RF, f. 5446, op. 142, d. 439, l. 5.
37. Thus, in 1984, only 383 objects out of planned 437 had been built, and majority of them were finished in December: GA RF, f. 5446, op. 145, d. 505, l. 142.
38. P. Kuvshinkin, an oilman, worked in West Siberia in the 1970s and the 1980s, in discussion with the author, Volgograd, 29 July 2014.
39. GA RF, f. 5446, op. 145, d. 506, l. 37.
40. GA RF, f. 5446, op. 142, d. 439, l. 62.
41. G. Vakhitov, *Neftyanaya promyshlennost' Rossii: vchera, segodnya, zavtra* [The oil industry of Russia: yesterday, today, tomorrow] (Moscow, 2012), p. 497.
42. *Vneshnyaya torgovlya SSSR. Statisticheskiy sbornik* [USSR Foreign Trade. Statistics], 1980–1985 (Moscow, 1981–1986).
43. RGAE, f. 413, op. 32, d. 2262, l. 61.
44. Mikhail Gorbachev, Television Address, 'The Results of the Soviet–American Summit in Reykjavik', AGF.
45. RGAE, f. 413, op. 32, d. 3649; d. 4198; d. 4685.
46. RGAE, f. 413, op. 32, d. 4198, l. 29.
47. RGAE, f. 413, op. 32, d. 4199, l. 122.
48. This Task Force was created within the most influential Soviet think-tank, the Institute of World Economy and International Relations (IMEMO), in order to consider the outcomes of the Arab oil embargo.
49. ARAN, f. 1978, op.1, d. 455, l. 56.

50. GA RF, f. 5446, op. 144, d. 1256, ll. 2–20.
51. GA RF, f. 5446, op. 144, d. 1255, l. 113.
52. GA RF, f. 5446, op. 144, d. 1255, l. 135.
53. In 1983, the first Soviet comprehensive Long-Term Energy Program was adopted where it was clearly said that 'while adhering to the politics of further expansion of export in machinery and manufactured goods, the Soviet Union at the same time does not pursue the goal to cease export in commodities. Calculations show that commodities will play a significant role in the export': in RGAE, f. 413, op. 32, d. 3648, l. 221.
54. AGF, f. 2, op. 1, d. 21584.
55. RGAE, f. 413, op. 32, d. 3581, l. 31.
56. AVP RF, f. 197, 1983, op. 67, p. 308, d. 15, l. 16.
57. RGAE, f. 413, op. 32, d. 3648, l. 235.
58. XXV Party Congress. Stenographic report, p. 81.
59. Evgeny Primakov (Director of the Russian Foreign Intelligence Service, 1991–6, Minister of Foreign Affairs 1996–1998, Prime Minister, 1998–1999) in discussion with the author, Moscow, 29 July 2014.
60. GA RF, f. 5446, op. 147, d.1079, l. 58.
61. Report at the Plenary Meeting of the Central Executive Committee of the Soviet Union Communist Party, 'O zadachakh partii po korennoy perestroyke upravleniya ekonomikoy' [On the Party's tasks to radical reconstruction of the economic management], AGF.
62. According to Slavkina, in 1965–85 grain import grew by 1000 per cent, while clothing and leather goods import grew by 640 and 550 per cent in 1973–85 respectively: Slavkina, *Triumf i Tragediya*, p. 132.
63. AGF, f. 2, op. 1, d. 8318.
64. Agnia Grigas, *Beyond Crimea: The New Russian Empire* (New Haven, 2016); Marvin Kalb, *Imperial Gamble: Putin, Ukraine, and the New Cold War* (Washington, DC, 2015); Walter Laqueur, *Putinism: Russia and Its Future with the West* (New York, 2015); Edward Lucas, *The New Cold War: Putin's Russia and the Threat to the West* (New York, 2014).

10

The Counter-Shock in Norwegian Oil History

Einar Lie and Dag Harald Claes

The Norwegian economy has always been rich on energy. From the late 1800s, large waterfalls have supplied households and heavy industry with low cost hydro-electric energy, today labelled as 'renewable'. Large oil fields on the Norwegian Continental Shelf were discovered around the time of the 'oil shock' in 1973. The fast-growing petroleum sector had a huge impact on Norwegian trade, incomes and economic policies, but hardly on domestic energy allocation and consumption, which continued to rely on hydro-electric power. The counter-shock in 1986 still had large and longlasting consequences for the Norwegian economy and economic policymaking. The oil riches had had a strong influence on public and political debate and perceptions from the mid 1970s. Government and private spending grew rapidly, especially in the years 1974–7 and 1981–5. Parts of the existing industry suffered from the economic downturn, generally low productivity and a rapid growth in wages, partly caused by the new oil riches. The counter-shock highlighted the oil dependency of the Norwegian economy. Among its consequences were a number of strong contractionary measures, closures

of state-owned enterprises, deregulation of energy markets etc. Norway's attitude to OPEC cooperation changed too. Prior to 1986 Norway chose not to engage in any kind of discussions with OPEC connected to regulation of production volumes. After the counter-shock, Norwegian authorities engaged in discussions with OPEC and contributed to reductions in production and sales volumes.

Background: Oil Production in a Country Rich on Hydro-Electric Power

Norway's oil history starts late. The first, and still one of the largest oil fields on the Norwegian Continental Shelf, Ekofisk, was found late in 1969. During the 1970s, 1980s and 1990s a number of new fields were discovered and developed. Production of oil and gas from the Norwegian sector of the North Sea climbed steadily from the 1970s until the mid-1990s, when growth flattened out. The economic significance of the sector grew from zero in 1970 to represent 37.6 per cent of total exports and 18.7 per cent of GDP in 1985.[1] The large price movements on petroleum – the shocks of 1973 and 1979–80, and the counter-shock in 1986 – thus had a major impact on Norwegian national income and economic policies.

The effects on energy policies and compositions were, however, less dramatic. This is mainly due to the fact that Norway even before the oil discoveries was a nation rich on energy. Norway was industrialised from the late 1800s on heavy energy-intensive electrochemical industry, based on rich power supply from Norwegian waterfalls. Postwar industrial policies, aimed at a rapid increase in the size of manufacturing industry, were also based on electricity in abundance. Furthermore, all electricity in Norway was produced from waterfalls, whereas carbon-based fuel has never played any role in the production of electricity in Norway. Petroleum was used, of course, in transport and partly in heating, with electricity as an alternative source. The large production of electricity from waterfalls still played a vital role in moderating the effects of rapid price movements of petroleum on domestic demand and production.

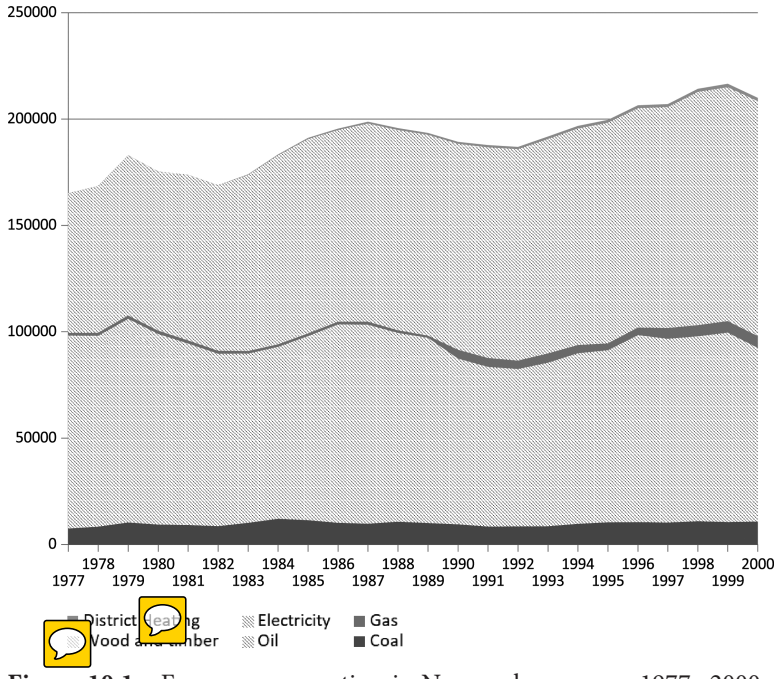

Figure 10.1 Energy consumption in Norway by sources, 1977–2000.

In a 30-year perspective from the early 1970s, electricity's share of total energy consumption in Norway has grown steadily. The price jumps in 1973–4 and 1979–80 probably supported an increased production of electricity in the 1970s. Questions regarding regional development and further industrial growth on the one side, and environmental concerns around new dam projects on the other were probably more important than the oil price for the pace of growth in total electricity production. The development of a high capacity transmission grid in the 1960s made it possible to supply almost all consumers with electricity at very low marginal costs. Thus, the hydro power based electricity took an increasing share of total energy consumption throughout the 1970s and 1980s. In a longer perspective, the steady increase through all three decades – 1970s, 1980s and 1990s – dominates the picture. Having covered the investment costs of this system, no other energy source could compete with the hydro-based electricity for household heating, cooking and light.

As mentioned, also a large share of Norwegian industry was based on this low-cost electricity. It follows that the counter-shock in 1986 had almost no effect on domestic energy consumption. Oil's share of energy use actually grew substantially in 1985, before the counter-shock, the growth was smaller in 1986, then we had a substantial reduction (39 per cent) in consumption of petroleum products in 1987 to 1992. We find, in the same years, an increase in the production of electricity and a reduction in energy consumption as a whole, which at least partly must be explained by the poor performance of the Norwegian economy in the late 1980s and early 1900s (see below). In the 1970s, the production of oil and gas on the Continental Shelf became a source of a new industrial development, but there was little need for the energy in Norway. It became, and has always remained, an export sector generating income, but with little importance for the Norwegian energy system.

These basic elements of Norway's oil and energy reliance will also provide the elements of the analysis in this contribution. We will start by presenting the framework for government control of the oil industry and how this developed in the 1970s and early 1980s. In a following section the perspectives and guidelines for how oil incomes should be incorporated into the Norwegian economy in the 1970s will be presented. These principles were, however, by no means followed. The domestic economy expanded rapidly towards the mid-eighties. The counter-shock in 1986 created a huge deficit in the Norwegian current account balance. The political response will be presented in three areas: A new approach to OPEC and cooperation with other oil producers, a less protectionist regime in order to motivate the large internationals to remain in the Norwegian oil sector; and the rapid tightening of economic policies and abandonment of a vast amount of postwar regulations in vital markets.

State Control

Before oil was discovered in 1969 the Norwegian government was reluctant to engage in oil exploration on the Norwegian Continental

Shelf. It was considered a very risky business where Norway had no competence whatsoever.[2] In a famous Report to Parliament from 1974 the Norwegian government discussed the consequences of the oil discoveries on the Norwegian society at large.[3] The importance of democratic control and state engagement in all part of the petroleum industry were spelled out. Likewise, the report emphasised the aim to use the oil revenues for greater equality in living standards, prevention of social problems and to develop an industrial production for the future. The report elaborated the so-called '10 oil commandments' spelled out in a brief report to Parliament in 1971.[4] With the creation of Statoil in 1972, the state participation agreements with the IOCs were amended to include a 50 per cent direct share to be granted to Statoil in every block, in addition to a carried interest clause. Statoil thus would be exempted from incurring expenses during the exploration phase. At the Gullfaks field Statoil was awarded an 85 per cent share. The carried interest concept enabled the state to combine a risk-averse posture with a very high direct state ownership share. Since the voting rights were based on a company's ownership share, Statoil had veto power over all production leases and field development decisions that were made after 1973.[5] The international oil companies operating on the Norwegian Continental Shelf accepted this *de facto* nationalisation, partly due to lack of alternatives after the nationalisation of the petroleum industry in the Middle East during the 1970s.[6]

On the international scene, the early 1970s saw a change in the relationship between the producing countries and the IOCs. Some countries, like Iraq, nationalised the oil company operating within its borders, while others, such as Saudi Arabia, followed a more moderate strategy and negotiated a state participation agreement. The Norwegian model amount to a legislative framework giving the state the ultimate control over the resources, a politically governed concession system, and a strong element of direct state participation through the state oil company – Statoil. The Norwegian model had certain peculiarities but was basically in line with the international trend.

Probably without any direct connection, the Norwegian model is quite similar to the idea spelled out by Raymond Vernon in his so-called 'Obsolescing Bargaining Model'.[7] Vernon sees the relation between IOCs and host states as a bargaining game where the upper hand changes. First the IOCs have the upper hand, because the host country is unable to build a petroleum industry from scratch on its own. Thus they have to give the IOCs lenient conditions in order to have them invest in oil exploration. As discoveries are made and the companies have made their investments the upper hand in the game changes to the host country, since the investments, in particular in the oil business, are sunk costs. An offshore production platform is usually designed for a particular field and can hardly, if ever, be moved to another field. The company will therefore have to accept the conditions of the host country or forfeit future profit. Norway took advantage of this, helped by nationalisation in the Middle East and increased oil prices in the 1970s.

Oil Riches in the Domestic Economy

New discoveries and the oil price jumps in 1973–4 and 1979–80 made it clear for the Norwegian public and politicians that incomes from petroleum would be very large in the decades to come. The following debate on how production and incomes should be handled was coloured by the Dutch experience of the 1960s, where tradable sectors (except for petroleum itself) suffered from the deterioration of competitiveness caused by a large domestic spending of income from the newly discovered natural gas.[8] The strategy chosen by Parliament in 1974 was to spend revenue as it accrued but control the rate of development and production to match the domestic economy's capacity to absorb the oil income without a too strong deterioration of competitiveness and crowding out of the business competing with foreign producers.

Norwegian spending did not, however, follow the relatively disciplined guidelines formulated in 1974. The chief of the Central Bank of Norway stated in a witty remark in 1988 that Norway in the mid

1970s 'set an excellent course, and then immediately took off in another direction'.[9] We will in the following section summarise some key features of the economic development and economic policies in Norway in the decade before the counter-shock.

The first problem was that oil income grew faster than Government authorities had anticipated when the framework for domestic spending of oil revenues was made in 1974. New discoveries were made. It became, in practice, difficult to regulate, or to delay the development of new fields after their discovery. The strong actors in the oil sector, including trade unions, successfully pushed for rapid development and high activity. The process is summarised in political scientist Johan P. Olsen's term 'petrolisation', which denotes a development opposite to one determined by rational, hierarchical planning: The 'petrolisation' resulted in a situation 'everyone had wanted to avoid [. . .] Confronted with strong interest groups, the political system is not able to formulate common measures as a foundation for coherent policies. The political authority is weakly developed, all matters are politicised, and the State becomes fragmented.'[10]

The higher pace of production and the new price jumps in 1973 and 1979/1980 created higher incomes for government to spend. The basic structure of the Norwegian political economy changed considerably in these years, as a combined result of the new, or rather anticipated wealth, and a number of other factors: The international economic setback from around 1974 was met with overly large doses of expansionary policy, and the policy was maintained for too long.[11] Thus, prices and costs rose rapidly, and large trade deficits emerged in 1975, 1976 and 1977. This process was reversed after 1978, resulting not only in reduced inflation rates but also reduced GDP growth and an emerging unemployment problem in the early 1980s.[12] Yet, the expansionary climate in Norwegian politics had both causes and effects that cannot be seen solely as the outcome of counter-cyclical policy as such. Wages rose at an unprecedented speed – the average hourly pay in manufacturing industry increased by 25 per cent in 1973, 13.5 per cent in 1974, and 15

per cent in 1975. Some economic sectors were given heavy economic support grounded in various regional policy considerations or specific social policy aims, which neither before nor since have carried any weight in the formulation of economic policies. And several very costly reforms were carried through in a short time, sometimes without any administrative preparation.[13]

A new element in the planning and policymaking in the middle of the 1970s was the weakening of ordinary procedures and division of tasks between ministries, cabinet and parliament. The position of the Ministry of Finance vis-à-vis the other ministries was weakened. Parliament became the important driving force in suggesting and planning expensive reforms. The first package with counter-cyclical policies in the spring of 1975 was presented through normal procedures from the government, but then Parliament became much more active. As historian Harald Espeli has pointed out, 'the Ministry of Finance started the support of industry but soon lost control. Parliament got steadily more self-opinionated confronting a government that did not even have a strong support within its one party.'[14]

The aforementioned development is not explicitly related to the oil sector or activity. But the expected future revenues from the sector were an important element in all political debates from the mid 1970s to the mid-1980s. It was particularly obvious in the seventies. Both labour unions and government referred to future incomes in the extremely expansive income settlements in which high nominal wage increases and tax reductions were combined. Economic policies in the early eighties had a different agenda, as the Conservative party replaced the Labour Party in the cabinet offices after the election in 1981. Liberalisation of credit markets, of industrial policies, of production of utilities, market for housing etc. was on the agenda, along with a reduction in gross taxes and the public sector's share of GDP. Parts of the deregulations were implemented. Most significant was the half-hearted liberalisation of the credit markets. The government first removed quantitative regulation of credit; still the interest rates were held at a regulated low level, and the tax

system subsidised debtors by very generous rules of deduction.[15] The combination of these elements led to a credit-fuelled expansion in 1984, 1985 and early 1986, with historically high rates of investments and consumption. The monetary expansion was supported by growing public expenditures in the mid-1980s. For the latter, references to present and future oil incomes played an important role in creating an expansionary climate for all discussions around government budgets and expenditure.[16] Both monetary and fiscal policies had a pro-cyclical effect and reinforced a general business cycle upturn in the first half of the decade.

The combined effect was a rapid growth in domestic wages. When other factors failed to rein in losses in growth in costs and wages, changes in the exchange rate were used to increase competitiveness. The years from 1976 to 1986 have been labelled the 'devaluation decade'. A high number of explicit devaluations and so-called 'technical adjustments' on how the value of the krone should be calculated on the basis of other currencies were carried out, most intensely from 1982 and onwards. In the short run, competitiveness was improved, but inflation and inflationary expectations rose as a consequence of the series of devaluations.

Oil Production and OPEC Relations before 1986

In addition to state control over the Norwegian oil sector and the macroeconomic effects of oil income, also Norwegian foreign economic relations changed due to the oil discoveries. Norway rapidly found itself having common interests with a group of countries Norway had had very little contact with at all – namely other oil exporters, in particular the members of OPEC.

In retrospect, it is common knowledge that the price increase of 1979–80 overshot what the market could swallow and the OPEC ministers misread the situation: 'when OPEC supplies started to decline sharply in 1981 and 1982, as a result of the fall in demand and the rise in

non-OPEC supplies, we recognised too late that oil was overpriced'.[17] In March 1982, the organisation initiated the quota-sharing system among its members, and the first contacts with Norway and Britain were taken in order to have these new oil producers help limit oil supplies and balance the market. The initial reaction was that Norway was a too small producer to matter, and that its production costs made it necessary to always produce at capacity level. By August 1984, Saudi Arabia's production had declined to just above 4 mb/d, while OPEC total production was around 16.5 mb/d. Just as OPEC prepared an extraordinary meeting on 28–9 October 1984, Norway entered the international oil arena, by offering an official reduction in price of about a dollar and a half:[18] 'a crisis nobody had expected, not even those who triggered it off, the directors of the Norwegian state oil company Statoil. The OPEC conference that had been called to raise the organisation's production ceiling was in fact forced to lower it by 1.5 million barrels a day, in a desperate attempt to save oil prices from the North Sea turmoil.'[19]

The immediate reaction in OPEC was strong: 'Norway received rough treatment in Friday's UAE newspapers. Gulf News writes that the Norwegian decision to reduce the price of North Sea oil is extremely difficult to understand.'[20] On 26 October 1984, Saudi Oil Minister Ahmed Zaki Yamani came to Norway for talks with Prime Minister Kåre Willoch and Minister of Oil and Energy Kåre Kristiansen. They assured that the Norwegian step was an adjustment to market realities and not an attempt to undermine OPEC's attempt to stabilise the market. Kristiansen assured Yamani that Norwegian production in 1985 would not exceed that of 1984.[21] This turned out not to hold true. The Saudi Arabian weekly magazine *Igraa* ran an article in the 15 November issue entitled 'The Latest Oil Price Crisis: A Saudi View'. Probably the views were those of Yamani. The article states that demand was picking up in the last quarter of 1984, until the

> big surprise – Norway's decision to reduce its price by $1.35/b . . . .
> 10 days before Norway's decision, the prevailing Norwegian view

> was that the price of oil would begin to rise in November and December as demand increased and that there would be no problems on prices or production until March or April. Therefore, the Norwegian decision was based on non-economic considerations. Normally Norway does not take the initiative on pricing but follows the British lead. It is remarkable that in this case the smaller producer took the initiative [...] Some people believe that internal reasons were behind the Norwegian decision, since the President of [...] Statoil belongs to the opposition political party and wanted to embarrass the present government [...] There are also those who say that there was American pressure on Norway.[22]

Later the same month Yamani commented: 'I don't care about what Norway will do. The situation will right itself when demand increases and the market improves.'[23] This did not happen. With this October crisis of 1984, the Norwegian innocence in the political game of international oil was gone. The argument used that Norway, as a marginal producer, had no influence on the international oil market, was no longer credible.[24] Norway had shown that it could, in certain situations, actually influence market developments. On the other hand, the high production costs continued to be an applicable argument for self-commitment. To a great extent, bargaining power involves depriving oneself of alternatives of action. Until the price crash of 1986, Norway insisted that any cooperation with OPEC was out of the question simply because the high production costs in the North Sea prohibited any reduction of capacity utilisation.

The Price Crash of 1986

During the first half of the 1980s the world market price for crude oil showed a downward trend. However, the oil producers' income from exports was propped up by the increase in the dollar exchange rate in the first half of the 1980s, occurring as a consequence of the aforementioned devaluation policies. From 1980 to 1985 the oil price increased when measured in Norwegian kroner (NOK) but fell in US dollars. When the

oil price and the dollar fell simultaneously in 1985–6, the oil price measured in Norwegian kroner was halved.[25] With the oil price collapse in spring 1986, the value of the exports of oil and natural gas fell by NOK 32.3 billion from 1985 to 1986. Paid taxes from the oil sector fell from NOK 71 billion in 1985 to NOK 16 billion in 1988.[26]

The conservative–liberal cabinet led by Kåre Willoch tried to introduce an austerity package during the winter 1986. When the opposition in Parliament refused to support his measures, he resigned and opened up for a new Labour government led by Gro Harlem Brundtland. The main task of the new government would be to try improving Norway's economic and financial position.

After a large devaluation, a new policy of fixed exchange rates was introduced. As a part of the new regime, Norges Bank had to be allowed to use the interest rate to keep the value of the Norwegian krone at the desired rate. This led a rise in interest rates from late 1986.

The high interest rates were combined with a contractionary fiscal policy, launched in 1986. The combined effect of the monetary and fiscal

Figure 10.2 Current and capital account. Quarterly figures. Current prices. Source: Statistics Norway.

policy was a sharp reduction in inflation from 1987, but also of imports and aggregate demand. In order to improve productivity and increase competitiveness, a number of policy changes were made. Subsidies in a number of industries – remains of the policies from the 1970s – were cut. A number of the most important state-owned companies from the postwar era in heavy industries, were closed down, sold or completely restructured. The domestic energy market was liberalised. This sector had for a long time been characterised by heavy local and regional regulation in both production and sales. Public institutions remained as dominating owners but domestic regulations on trade were removed, with large efficiency gains as a result. By the early 1990s, however, Norway had one of Europe's most market-oriented systems for production and allocation of electricity. Most importantly, the previous heavily regulated credit sector was completely deregulated and all forms of capital controls were lifted through 1988 and 1989.[27]

In sum, major elements of the postwar system for economic management were dismantled through the high number of policy reforms in the late 1980s and early 1990s. Obviously, important elements in this reorientation of policies would have occurred sooner or later. The large oil incomes probably postponed some of the aforementioned reforms; the sharp reduction in national and state income, and the austerity policies following the counter-shock, clearly enabled the new government to implement a number of large structural reforms.

Government Attitudes to the National and International Companies

The oil price collapse of 1986 thus fundamentally changed the perspectives on the national oil industry from creating excessive amounts of income to a normal business with normal margins of profit or, in the mid-1980s, an industry losing money fast.

In December 1985, some months before the collapse of oil prices in the winter of 1986, concessions of the so-called 'Diamond Block' were

allocated to the oil companies. This was the last of the large, extremely prospective blocks from the 1970s and early 1980s. Both the lower expectations with respect to future fields and the low price of oil led to important changes in the rules of the game between Norwegian authorities, national and international companies. The state now started giving the international oil companies considerably better conditions.[28] Several foreign companies had indicated that they would limit their involvement on the Norwegian Continental Shelf. At the same time both the Norwegian and the international companies presented plans for a sharp cut in exploration and research activity in the years ahead. It was decided in 1986 that international companies would no longer have to 'carry' Statoil and the state's share of the exploration costs. Furthermore, in the 11th licensing round in 1987 and the 12th in 1988 foreign companies were granted much larger shares than in previous allocations.[29] In both rounds these companies were granted shares of over 40 per cent, compared with around 35 per cent on average in the previous two rounds. They were also given the majority of the operatorships in the 12th licensing round. However, in subsequent rounds in the early 1990s, the allocations fell back and were in part smaller than had been the practice in the period 1981–6.[30]

The previous provisions in the concession system and the key role of Statoil could also be viewed as a kind of 'infant-industry' policy, where a national industry is protected in the early stages. In January 1988, in the midst of this dramatic economic situation, Statoil suffered a severe crisis of confidence as a result of huge cost overruns associated with the Mongstad refinery. The leader from the time of Statoil's founding, Arve Johnsen, resigned and was replaced by Harald Norvik. This leadership change also signified a reorientation in the company's role as the new leader stressed the need for a more efficient business strategy and a corporate restructuring.[31] The outcome may be viewed as a combined result of the changed economic climate associated with a weakened oil price and the Mongstad scandal, which caused political uproar. Over time, international oil market developments seemed more

effective in shaping the company's behaviour than were the political authorities in the early 1980s. But it also should be kept in mind that the initial reorganisation may have altered the political setting sufficiently to facilitate future changes in the same direction. Such changes could occur as the result of conscious actions by political decision makers or they could be part of a process of adaptation – slow or rapid – to an altered political environment by NOCs' managers. With the low oil price it became necessary to use political instruments to make the Norwegian Continental Shelf attractive. Taxes were eased in the late 1980s, the sliding scale was abandoned, and the provision ensuring the state (and Statoil) a 50 per cent share was lifted. The argument was that with these provisions, exploration deemed valuable to the society might not be profitable to the companies and thus would not be affected. By the early 1990s the infant-industry phase was definitely over. Neither was there much to protect, since the idea of a resource rent to be collected by society had disappeared with the oil price decline of 1986.

Emerging OPEC Cooperation

Our third leg, the foreign economic relations with OPEC also changed drastically with the counter-shock of 1986. As Norway had been tuned in on the radar of the OPEC ministers, it followed naturally that their decisions to change their market strategies, also included direct references to Norway and the United Kingdom.

At the OPEC meeting in Geneva on 9 December 1985, the members agreed to change their market strategy from the defence of a high oil price to the defence of the OPEC countries' market shares. The rhetorical game around this resolution had the objective of drawing attention just as much to the producers outside OPEC as to those within the organisation who were failing to keep to their quotas. Thus, strong complaints and threats concerning a price war were expressed: 'OPEC still harbours the hope that other producers will cooperate

in trying to maintain prices by curbing their output. But implicit in the communiqué issued yesterday is the threat of a price war if they do not.'[32]

The Norwegian government steered a somewhat unsteady course in the domestic political landscape in the spring of 1986, a circumstance that also affected relations with OPEC. Various statements suggested that Norway was considering some form of cooperation with OPEC, in order to support the weak market price. When the oil price fell to $10 per barrel in May 1986, the Norwegian economy was hit hard. The fall in oil prices created a current-account deficit of NOK 33 billion in 1986. The Norwegian krone was devalued by 12 per cent. The interest rate was raised and a fixed exchange rate system was established. The governmental expenditure was reduced, and high interest rates contributed to bringing down aggregate demand.[33]

Norway found itself in an economic crisis; which, for the first time, illustrated how important the oil sector had become for the Norwegian economy at large. In this situation, it seems reasonable to try to deal with the cause of the crisis, not only the consequences. In other words, any political action by Norway that had a reasonable chance of contributing to an increase in oil prices was regarded as worthwhile trying.

The economic crisis also created a change of government, and in the inaugural address by the new government led by Gro Harlem Brundtland, it was stated that 'If the OPEC countries agree on measures capable of stabilizing the oil prices at a reasonable level, the Government will contribute to such stabilization, which may in turn ensure future supplies of oil and gas.'[34] Out of consideration for opposition at home as well as abroad, the government had to put its OPEC policy into practice with caution. It was pointed out that it was a matter of limiting actual production growth only, not the total produced volume. The Norwegian measures would be dependent on OPEC itself enforcing measures inclined to stabilise prices. The Norwegian oil minister Arne Øien, met with Yamani in June in Venice. Yamani responded with strong attacks

on the Norwegian policy since 1984 (see above) and referred allegedly to the consequences of low oil prices for children in Nigeria.[35] Øien made it very clear that pressure would be counterproductive. He represented a minority government, the cooperation with OPEC was contested both at home and by Norway's main ally, the United States. OPEC would have to praise Norway and be satisfied with the limited contribution he could offer. In fact, Norway only cut planned production, and it hardly affected the activities on the Continental Shelf at all. However, it seems to have been a valuable contribution, as it could have made other countries more willing to contribute. A demarche was received from the United States, but not taken very seriously by the Ministry of Oil and Energy.[36]

Conclusion

We have identified three areas of clear effects of the counter-shock of 1986: first, reduced political ambitions in the regulation of the Norwegian oil sector, turning the sector into a more liberal (or perhaps 'normal') economic sector, attractive for foreign investments and renewed IOC participation in oil exploration and production. Secondly, the counter-shock produced an economic crisis that influenced the macroeconomic policy at least for a decade, with high interest rates and contractionary fiscal policy. Reduced aggregate demand and cuts in state subsidies triggered structural reforms in Norwegian industries and businesses. Finally, the foreign economic relations were opened towards Norway's colleagues as oil producing countries. A good relationship was sustained especially when Norway was among the top oil exporters in the world around the turn of the century.

We find the counter-shock to have been rather important for Norwegian (energy) political economy; but not where it might have been expected – in the domestic energy consumption, although the changes in economic policies in the late 1980s and early 1990s following the counter-shock undoubtedly had long-term effects on all aspects of the national energy markets.

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Notes

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11

Counter-Shock or After-Shock? North Sea Oil and Economics as Politics in the UK, 1973–86

Martin Chick

In the years following the sharp rise in the price of oil in 1973–4 and the steep fall in price in 1986 (Tables 11.1 and 11.2), the United Kingdom developed and sold North Sea oil very rapidly (Tables 11.3 and 11.4). This rapid exploitation of UK North Sea oil reserves raised important issues of political economy, of which three in particular are discussed in this chapter. The first concerns the rate at which North Sea oil reserves were depleted. In addition to economic discussions of depletion rates and expectations of future oil prices, the election of the Conservative government with Margaret Thatcher as Prime Minister made an important difference to the aim and tone of discussions of the rate of oil depletion. The second issue was the impact of the sale of North Sea oil on UK exchange rate policy. Here again the election of the first Thatcher government made a discernible difference to the aims and assumptions of exchange rate policy. Finally, the discovery and exploitation of North Sea oil increased the electoral popularity and economic credibility of the Scottish National Party (SNP) and its aim of achieving an independent

Table 11.1 Crude oil spot prices ($/bbl)

	Dubai $/bbl[1]	Brent $/bbl[2]	Nigerian Forcados $/bbl	West Texas Intermediate $/bbl[3]
1972	1.90	-	-	-
1973	2.83	-	-	-
1974	10.41	-	-	-
1975	10.70	-	-	-
1976	11.63	12.80	12.87	12.23
1977	12.38	13.92	14.21	14.22
1978	13.03	14.02	13.65	14.55
1979	29.75	31.61	29.25	25.08
1980	35.69	36.83	36.98	37.96
1981	34.32	35.93	36.18	36.08
1982	31.80	32.97	33.29	33.65
1983	28.78	29.55	29.54	30.03
1984	28.06	28.78	28.14	29.39
1985	27.53	27.56	27.75	27.98
1986	13.10	14.43	14.46	15.10
1987	16.95	18.44	18.39	19.18
1988	13.27	14.92	15.00	15.97
1989	15.62	18.23	18.30	19.68
1990	20.45	23.73	23.85	25.40
1991	16.63	20.00	20.11	21.54
1992	17.17	19.32	19.61	20.57
1993	14.93	16.97	17.41	18.45
1994	14.74	15.82	16.25	17.21
1995	16.10	17.02	17.26	18.42
1996	18.52	20.67	21.16	22.16
1997	18.23	19.09	19.33	20.61
1998	12.21	12.72	12.62	14.39
1999	17.25	17.97	18.00	19.31
2000	26.20	28.50	28.42	30.37
2001	22.81	24.44	24.23	25.93
2002	23.74	25.02	25.04	26.16
2003	26.78	28.83	28.66	31.07
2004	33.64	38.27	38.13	41.49
2005	49.35	54.52	55.69	56.59
2006	61.50	65.14	67.07	66.02
2007	68.19	72.39	74.48	72.20

Table 11.1 *Continued*

	Dubai $/bbl[1]	Brent $/bbl[2]	Nigerian Forcados $/bbl	West Texas Intermediate $/bbl[3]
2008	94.34	97.26	101.43	100.06
2009	61.39	61.67	63.35	61.92
2010	78.06	79.50	81.05	79.45
2011	106.18	111.26	113.65	95.04
2012	109.08	111.67	114.21	94.13

Source: BP Statistical Review of World Energy (London, 2013).
[1] 1972–85 Arabian Light, 1986–2012 Dubai dated.
[2] 1976–83 Forties, 1984–2012 Brent dated.
[3] 1976–83 Posted WTI prices, 1984–2012 Spot (Cushing) prices.

Scotland. Most of the North Sea oil lay in what would have become, on independence, the Continental Shelf of an independent Scotland. While a referendum on devolution was technically lost in 1979, the debates associated with the use of North Sea oil and its impact on the choice of currency for an independent Scotland remained extremely pertinent. Such were the shocks associated with the changing political approaches to the use of North Sea oil between the first OPEC oil price shock of 1973 and the sharp price drop in 1986, that the term 'counter-shock' is inappropriate. The UK political economy had already been through a series of major shocks related to the development and use of North Sea oil, such that the events of 1986 might be regarded as an aftershock following the preceding major disturbances.

Depletion

In theoretical terms, decisions on the optimal rate of depletion of exhaustible reserves are strongly influenced by expectations of future prices. Accounting for only 5 per cent of world oil consumption in 1984, the United Kingdom was always an oil price-taker.[1] It was recognised that to extract and sell oil as quickly as possible might be to forego higher income from sufficiently higher oil prices in the future. In economic

Table 11.2 Crude oil prices, 1950–2012

	Current prices $	2012 prices $
1950	1.71	16.30
1955	1.93	16.54
1960	1.90	14.71
1965	1.80	13.08
1970	1.80	10.64
1971	2.24	12.68
1972	2.48	13.61
1973	3.29	17.00
1974	11.58	53.94
1975	11.53	49.21
1976	12.80	51.63
1977	13.92	52.70
1978	14.02	49.37
1979	31.61	99.97
1980	36.83	102.62
1981	35.93	90.75
1982	32.97	78.44
1983	29.55	68.12
1984	28.78	63.60
1985	27.56	58.61
1986	14.43	30.23
1987	18.44	37.26
1988	14.92	28.96
1989	18.23	33.75
1990	23.73	41.68
1991	20.00	33.72
1992	19.32	31.62
1993	16.97	26.97
1994	15.82	24.50
1995	17.02	25.64
1996	20.67	30.24
1997	19.09	27.31
1998	12.72	17.91
1999	17.97	24.76
2000	28.50	37.99
2001	25.44	31.69
2002	25.02	31.94

Table 11.2 *Continued*

	Current prices $	2012 prices $
2003	28.83	35.97
2004	38.27	46.51
2005	54.52	64.09
2006	65.14	74.19
2007	72.39	80.16
2008	97.26	103.71
2009	61.67	66.00
2010	79.50	83.70
2011	111.26	113.56
2012	111.67	111.67

1950, 1955, 1960, 1965, 1970–83 Arabian Light posted at Ras Tanura.
1984–2012 Brent dated.
Source: BP, Statistical Review of World Energy (London, 2013).

theory, Lynn Gray, Harold Hotelling and Robert Solow had considered such temporal questions variously amongst others.[2] While Gray may have been the first to develop a theoretical approach to the treatment of exhaustible resources, Solow provided an asset equilibrium interpretation of Hotelling's earlier work in which the future value of oil was represented as a 'royalty'. In Solow's asset equilibrium approach, the rate of return expressed as a capital gain from holding the asset under the sea was compared with the opportunity cost of the depleted oil invested in alternative (and more diversified) assets. Central to both approaches was the comparison of future net earnings discounted back to present value with the opportunity cost returns foregone as expressed in the interest/discount rate used. Even if owners chose to deplete, speculators could still buy and hold oil if they held a sufficiently more optimistic view of future price than did the original owners.[3]

An interdepartmental Working Group on Depletion Policy, which was established in London in September 1975 and chaired by the Department of Energy, studied such issues.[4] It included representatives from the Treasury, Foreign Office, Central Policy Preview Staff, the

Table 11.3 Oil: indigenous production and refinery receipts, UK 1972–80[1] (thousand tonnes)

	1972	1973	1974	1975	1976	1977	1978	1979	1980
Total indigenous petroleum production[2]	333	373	410	1,567	12,171	38,265	54,006	77,854	80,468
Crude petroleum: [3]									
Refinery receipts total	105,642	114,032	113,478	92,273	98,384	92,260	96,759	98,325	87,457
Indigenous[4]	227	235	250	1,156	8,576	21,929	28,609	38,493	39,896
Other[5]	1,267	1,560	1,810	1,275	692	682	916	606	2,005
Net foreign arrivals[6]	104,148	112,237	111,418	89,842	89,116	69,649	67,234	59,226	45,556

Source: Central Statistical Office, *Annual Abstract of Statistics 1984* (London, 1984), Table 8.12.

[1] The term indigenous is used in this table to include oil from the UK Continental Shelf as well as the small amounts produced on the mainland.

[2] Crude oil plus condensates and petroleum gases derived at onshore treatment plants.

[3] Includes process (partly refined) oils.

[4] Includes condensate for distillation.

[5] Mainly recycled products.

[6] Foreign trade as recorded by the petroleum industry and may differ from figures published in *Overseas Trade Statistics*.

Table 11.4 Oil: Indigenous production and refinery receipts, UK 1981–90 (thousand tonnes)[1]

	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990
Total indigenous petroleum production[2]	89,480	103,219	115,045	126,065	127,642	127,053	123,306	114,458	91,811	91,616
Crude petroleum: [3]										
Refinery receipts total	76,616	76,705	76,344	78,450	78,653	79,666	80,363	83,925	88,840	88,402
Indigenous[4]	37,769	40,294	44,815	45,304	43,231	38,780	38,794	40,582	39,585	36,035
Other[5]	2,486	3,162	2,366	2,196	1,095	1,006	939	730	904	916
Net foreign arrivals[6]	36,361	33,249	29,163	30,950	34,327	39,880	40,630	42,613	48,351	51,451

Source: Central Statistical Office, *Annual Abstract of Statistics 1992* (London, 1992), Table 8.11.

[1] The term indigenous is used in this table to include oil from the UK Continental Shelf as well as the small amounts produced on the mainland.

[2] Crude oil plus condensates and petroleum gases derived at onshore treatment plants.

[3] Includes process (partly refined) oils.

[4] Includes condensate for distillation.

[5] Mainly recycled products.

[6] Foreign trade as recorded by the petroleum industry and may differ from figures published in *Overseas Trade Statistics*.

Scottish Economic Planning Department and the Department of Energy. Its first report appeared in January 1976. The general expectation was that oil prices would rise well into the future. As outlined in the Green Paper on Energy Policy (Cmnd. 7101), and the White Paper 'The Challenge of North Sea Oil' (Cmnd. 7143), it was envisaged that oil prices could double or even treble their value in real terms by the end of the century. On that basis, oil conserved in the 1980s for use in the 1990s and beyond would have increased, and probably greatly enhanced, value. Indeed, as was remarked in the second review of depletion policy, the much-vaunted aim of becoming self-sufficient probably came at a high economic cost, a better strategy being to import oil at the current world price and extract the reserves at a later higher price.[5]

While estimates of prices, reserves, and the peak and trend of output over future years changed from one report of the Working Group to the next, in general the case for reducing the rate of depletion remained strong. Various possible methods existed for achieving this. The most direct and most immediate in its effects was to reduce current and future output. However, this required the owners of the rigs, who had borne the risk of exploration, development and now production, to be prepared to wait for future higher oil prices. In general, they were not prepared to do this and indeed, amidst early concerns with undue political interference in their activities, they had obtained assurances (the so-called Varley Assurances) that production would not be subject to political whim. Eric Varley was the Secretary of State for Energy at the time. The Varley Assurances were that with respect to new field developments no delays would be imposed on finds made before the end of 1975, and if they were imposed on later discoveries, there would be full consultation with the industry so that premature investment was avoided. With respect to production, there would be no cuts imposed on fields from discoveries already made or from new finds made before the end of 1975, until 1982 at the very earliest. Further, no cuts in production would be made from any later discovery made under an existing licence until 150 per cent of the capital investment in the field

had been recovered. On the back of the estimates made in the third review of the Working Group on Depletion Policy, consideration was given as to whether modifications to the Varley Assurances should be made. Ultimately, concerns with the effects on investor confidence prevented this happening.[6] In the short term, the respecting of the Varley Assurances meant that the UK government had almost no control over the rate of depletion. However, since oil fields discovered after 1975 were not protected by the Varley Assurances, then discussion of future depletion policy remained very pertinent.

One longer-term approach to slowing the rate of depletion was to have smaller licensing rounds. Given predictions of falling output from the mid–late 1980s, this would also help to smooth the rate at which orders flowed to the offshore supplies industry and, like a slower depletion rate, potentially ease the transition to a low-oil economy. It might also have been possible for the British National Oil Corporation (BNOC), established by the UK government in 1976, to have exercised more influence over development and extraction rates had it participated in the early risk stages of exploration and development.[7] Instead it was 'carried' (i.e. it did not contribute) in the exploration stage, and did not operate on a pay-as-you-go basis. This was the subject of sharp disagreement between the Department of Energy under Tony Wedgwood Benn and the Treasury with Denis Healey as Chancellor. For the Fifth Round of licensing in 1976, Benn proposed that participation be at 51 per cent in every licence and that licences be issued only after the conclusion of a satisfactory operating agreement between BNOC and its partners. Benn argued that if BNOC contributed in the same way as its partners it would give credence to the claim that the Corporation would act in a commercial manner. Joel Barnett (Treasury) in the Cabinet meeting of 13 May 1976, while regarding it as unfortunate that overseas borrowing by BNOC counted as part of the Public Sector Borrowing Requirement, expressed concern that knowledge of the potentially huge obligations to contribute to development costs would create serious problems for

Britain's credit abroad.[8] As Barnett wrote to Tony Wedgwood Benn in September 1976:

> I have considered this matter further both with my officials and with Harold Lever, and I am bound to say that I feel little enthusiasm for putting up Government money to finance North Sea development when the alternative is for the oil companies – some of whom may have a better credit rating than HMG on overseas markets – to do it for us.[9]

In the event the Cabinet did support Benn's proposal, although BNOC's being given 51 per cent participation, and therefore an increased influence over the rate of depletion, was overshadowed by the possibility of BNOC being shut down by a future Conservative government. The future for BNOC looked unpromising following the election of the Conservative government in May 1979 and, had it not been for the heightened concern with the security of oil supply following the revolution in Iran in 1979, then BNOC might well have been privatised in that year.[10] As it was, BNOC only had to wait until August 1982 to see its production assets, but not its trading assets, transferred to a new company called Britoil.[11]

In fact, the election of the first Thatcher government in 1979 marked the start of a significantly changed attitude towards depletion. While in 1977 the Department of Energy was discussing how, while respecting the Varley Assurances, cuts could be made to production, from 1979 into these mainly microeconomic assessments of the socially optimal rate of depletion intruded more political macroeconomic considerations. The Chancellor of the Exchequer, Geoffrey Howe, became concerned at the effect on tax revenues of any cuts in oil production. The reduction in North Sea oil production estimates for 1981 from 100 million tonnes to 91 million with smaller reductions for 1982, 1983 and 1984, and the larger one in 1985 from 126 million tonnes to 115 million were in turn estimated to reduce the government's tax take by £0.4 billion in 1981–2,

£0.7 billion in 1982–3, and £3.5 billion in 1983–4. The arrival of Nigel Lawson at the Department of Energy added weight to arguments against any more active government depletion policy. Essentially Lawson questioned the assumption that oil prices would be higher in the future, a similar view having also been expressed by Alan Walters, the Special Adviser to the Prime Minister. Lawson also wrote a note to the Prime Minister arguing that it was no part of the Government's philosophy to engage in commodity speculation, which, he felt, was entailed by dictating that there should be investment in oil in the ground. The Central Policy Review Staff, a government think tank, expressed its reservations, but the Prime Minister agreed with Lawson. Lawson was also very mindful that cuts of 5 million tonnes in 1982 and 10 million in 1983 would increase the Public Sector Borrowing Requirement by £600 million in 1982–3 and £1.7 billion in 1983–4. Further, any receipts from the privatisation of BNOC's and BGC's oil interests would be depressed and further investment in the North Sea could be discouraged. Perhaps more surprisingly Lawson's memorandum saw no case in the foreseeable future for deferring new field developments. This reflected Lawson's view that there had already been delays in bringing projects forward for other reasons, and that the imposition of further delays would damage the confidence of the industry. There had been no field development approvals in 1981 and investor confidence had certainly been shaken by the tax increases in that year. Lawson's approach was not dissimilar from that of the oil companies who had been arguing for repletion rather than depletion to encourage exploration and development to deal with the problem of a sharp decline in production from the later 1980s. Lawson's views also roughly chimed with those of the House of Commons Select Committee on Energy, which launched a longlasting enquiry into oil depletion policy. There were no fewer than 11 oral evidence sessions ending in December 1981.[12]

The period of tussling with the microeconomic question of the rate of depletion ran from 1975 to 1983 and was eventually subsumed and

overridden by these wider political macroeconomic considerations. Difficult issues like the premium placed on the national security benefits of domestic energy supply were not quantified at the margin, and the view of Alan Walters was that long-term security of supply could probably be better enhanced by the holding of adequate stocks of oil rather than by slower depletion. Events proved the Lawson and Walters perspective to be correct, whatever their multiplicity of reasons for holding such views. The oil price fell sharply in 1986, and in real terms had not recovered to the levels seen in 1980 and 1981 by 2005. Broadly speaking extra oil in the ground would not have proved a good investment in that period. Similarly, security of supply in the period to the end of the century was not an issue. Oil and gas supplies were generally ample. The projections of oil (and gas) production from the UK Continental Shelf for the 1990s made in the period of the depletion debate also turned out to be spectacularly pessimistic, with oil production climbing in the 1990s to a new peak in 1999. If post-2005 oil price conditions are also considered the discount rate necessary to support depletion policy delays in the 1970s and early 1980s would have been very low indeed.

North Sea Oil and Exchange Rate Policy

The election of the first Thatcher government also coincided with, if not entirely caused, a shift of emphasis regarding the accommodation of North Sea oil income in exchange rate policy. In the wake of the collapse of the Bretton Woods system of fixed, if occasionally adjustable, exchange rates during 1972 and 1973, the United Kingdom had belatedly joined the European-managed exchange rate system, popularly known as 'the snake'. UK membership lasted eight weeks, after which the pound initially floated downwards, before receiving some support from OPEC petrodollars being recycled through London.[13] It then fell again to the sufficient alarm of politicians that the United Kingdom borrowed from the International Monetary Fund (IMF). In return for IMF loans, the

United Kingdom signed letters of intent in which the United Kingdom agreed to maintain a competitive exchange rate fixed in terms of export price competitiveness around its level in the fourth quarter of 1976. The concern to maintain the competitiveness of the UK exchange rate was highlighted by the knowledge that the benefits of North Sea oil would begin to flow. While these were expected to 'transform the balance of payments', there was concern that the impact of North Sea oil could potentially cause damage to the manufacturing sector which remained important for employment and exports.[14] As Andrew Britton, Senior Economic Adviser in the Treasury, commented in October 1977:

> The present dilemma facing exchange rate policy is a real one. The market, left to itself, would almost certainly produce an exchange rate over the next twelve months or more which would imply a serious loss of competitiveness. Medium-term projections moreover suggest that our present targets for the current balance and the growth of real output can only be achieved together if we *gain* competitiveness. The present strength of sterling thus appears as a threat to our medium-term strategy.[15]

Also lurking in the background were fears of the United Kingdom contracting a case of the 'Dutch Disease'. Following the discovery and extraction of natural gas in Holland, the increase in income benefited non-tradable goods and services (restaurants, hairdressers) whose prices could rise. However, the natural gas boom damaged tradable goods whose prices were determined on the world market but whose internal costs rose as its domestic labour and other costs rose. Internally, resources switched into the 'boom' sector and exported manufacturing output and employment fell.[16]

There did however exist an alternative view that it was by letting the exchange rate rise that exchange rate policy could best accommodate the effects of the sale of North Sea oil. Prior to the general election in 1979 of the Conservative government, some of the broad lines of this approach were set out by mainly monetarist economists, often in the national

Table 11.5 Sterling–US dollar exchange rate, 1975–86

1975	1976	1977	1978	1979	1980	1981	1982	1983	1984	1985	1986
2.22	1.80	1.75	1.92	2.12	2.33	2.03	1.75	1.52	1.34	1.3	1.47

Source: Central Statistical Office, *Economic Trends: Annual Supplement, 1996* (London, 1995), Table 5:1, p. 223.

newspapers or in stockbrokers' papers. The London Business School economists Terry Burns and Alan Budd argued in the *Sunday Times* in 1977 that letting the exchange rate rise would allow interest rates to fall and that it would reduce domestic inflation, both directly through lower import prices and indirectly through reduced wage settlements. The consequent fall in nominal interest rates would help investment and stimulate consumption, as lower inflation reduced the need to force consumers to save in order to maintain the real value of their financial balances.[17]

The movements in the nominal US$:£ exchange rate are shown in Table 11.5. The fluctuations in the exchange rate from $1.75 in 1977 to $2.33 by 1980, and then from $2.33 in 1980 to $1.3 by 1985 were considerable. Expressed as a real exchange rate, the relative unit costs, often considered to be the best measure of the real exchange rate, rose by over 55 per cent from 1977 to 1981, an unparalleled increase. The oil price hike of 1979–81, a domestic monetary squeeze and a reduction in official action to reduce the exchange rate rise, allowed the exchange rate to rise. Together with the spending effect of North Sea oil, there was an increasing shift from manufacturing to services. Manufacturing's share of GDP fell from 31.7 per cent of GDP in 1973 to 24.2 per cent in 1988. The rate of fall from 29.3 per cent in 1978 to 25.0 per cent in 1981, a fall of more than 4 per cent in three years,[18] was particularly striking. In addition to manufacturing export industries, some traded goods service sectors also went into what proved to be irreversible decline. Tourism, which had previously been a large net earner of foreign exchange for the United Kingdom, swung into deficit for most of the 1980s. The contribution of UK exchange rate

policy to the hastening of deindustrialisation was significant, and while monetary policy was important in raising the exchange rate, so too was the management of the income from the sale of North Sea oil. With the election of the Thatcher government, a policy of seeking to manage the exchange rate so as to maintain the competitiveness of UK exports, gave way to one which emphasised the contribution which a higher exchange rate could make to reducing inflation. The early years of the first Thatcher government were extremely contentious in terms of economic policy-making, and both on depletion and exchange rate policy decisions concerning the use of North Sea oil reflect distinctive and new approach to economic policy. This new policy attracted strong criticism in Scotland and laid the basis for the subsequent collapse of Conservative parliamentary representation in Scotland and increasing demands for independence.

Table 11.6 North Sea oil tax revenue as % of GDP

1973–4	0.0
1974–5	0.0
1975–6	0.0
1976–7	0.1
1977–8	0.2
1978–9	0.3
1979–80	1.1
1980–1	1.5
1981–2	2.5
1982–3	2.7
1983–4	2.8
1984–5	3.6
1985–6	3.1
1986–7	1.2
1987–8	1.0
1988–9	0.7
1989–90	0.4
1990–1	0.4
1991–2	0.2

Source: Institute for Fiscal Studies.

Scotland

The discovery of North Sea oil gave a boost to the political fortunes of the SNP. The SNP registered 21.9 per cent of the vote in the February 1974 general election when seven MPs were elected, and increased this to 30.4 per cent of the vote with the election of 11 MPs in the October 1974 election. On 3 March 1979 there was a Scottish Referendum on Devolution, which was a vote for or against devolution and the establishment of a Scottish Assembly. The 'Yes' vote won the referendum narrowly by 51.6 per cent to 48.4 per cent but to no avail as an amendment to the 1978 Scotland Bill by a backbench Labour MP required that the Yes vote be 40 per cent of all registered voters. The 'Yes' vote was 32.8 per cent of registered voters. On 18 September 2014, a referendum was held on the question of Scottish independence. This time there was no requirement as to what share of the total registered electorate should vote, one way or the other. The turnout was 84.6 per cent of the total electorate. Of those voters, 44.65 per cent voted in favour of independence, 55.25 per cent voted against with 0.1 per cent of voting papers being rejected.

As an independent sovereign state, the government of Scotland would be able to tax the exploitation of the oil reserves of its Continental Shelf. In the 1970s, whatever the disputes about median lines, it was obvious that most of the UK's North Sea oil fields lay in an independent Scotland's Continental Shelf, and a government of an independent Scotland would very likely have sought to slow depletion, even if only to ease pressure on what may have been its independent exchange rate.[19] On the basis of the contribution of oil taxes to UK GDP (see Table 11.6), over this same period had all of that tax revenue gone to an independent Scotland, then the GDP of Scotland would have increased by about one-third in the mid-1980s. This was a very considerable increase in Scotland's GDP, as was recognised by the Scottish Office economist, Gavin McCrone, early on in discussions about the possible shape of a devolved settlement for Scotland. In an internal paper circulated on

5 April 1974, McCrone thought that North Sea oil 'completely overturned the traditional economic case against Scottish nationalism' since:

> Scotland could now expect to have massive surpluses both on its budget and on its balance of payments and with the proper husbanding of resources this situation could last for a very long time into the future [. . .] Thus, for the first time since the Act of Union was passed, it can now be credibly argued that Scotland's *economic* advantage lies in its repeal.[20]

At that time, the expectation was that an independent Scotland would have its own currency. Again, fear of the 'Dutch Disease' reared its head. Unless an independent Scottish exchange rate was carefully managed, an increase in GDP might also be accompanied by accelerated deindustrialisation. McCrone thought an exchange rate of '£1 Scots to 120p sterling within two years of independence [. . .] quite probable' necessitating strategies to avoid the 'Dutch Disease' such as 'extensive lending abroad, whether to England, the EEC or under-developed countries'.[21] Consideration would also need to be given to a depletion policy[22] which was more 'appropriate' and which could be 'very different from that now being demanded by the UK [since] quite apart from the need to avoid piling up excessive surpluses, Scotland would wish to extend her North Sea oil revenue over a much longer period than the 30 or so years which seems likely at present planned rates of extraction'.[23] Concerns that if Scotland gained independence then England might impose 'an import surcharge, a quantitative control or even a tariff on goods coming from Scotland' were allayed by the recent accession of the United Kingdom to the EEC in 1973. Membership of the EEC would require both England and Scotland to respect EEC rules. In the wake of the financial disaster of the Darien Scheme in the late 1690s and to remove tariffs between England and Scotland, representatives of Scotland had agreed to the Act of Union in 1707. Were England to leave the EEC then it was expected in the 1970s that Scottish access to the

other countries 'could in time largely compensate for any restrictions that might arise on English trade'.[24]

In the twenty-first century, a financial crisis with an unwanted starring role for Scottish banks, the Halifax Bank of Scotland and notably the Royal Bank of Scotland, formed part of the background to the 2014 referendum on independence. Perhaps scarred by the 1970s discussion of the potential 'Dutch Disease' effects of an independent currency, in 2014 the SNP campaigned on the basis of continuing to use the pound sterling as the currency of an independent Scotland as part of a formal monetary union with the rest of the United Kingdom. Whether a monetary union would have been negotiated after a Yes vote will not now be known. Yet, as Mervyn King, who was governor of the Bank of England at the time of referendum, subsequently pointed out after resigning as governor, the 'sterlingisation' option, whereby Scotland simply continued to use sterling, was perfectly viable.[25] It might not sit well with SNP notions of being independent, but it was a practicable option. With the United Kingdom as a whole, but not Scotland itself, voting for 'Brexit', then the currency question became potentially more complicated. If, in another referendum, Scotland was to vote for independence, it would then seek membership of the European Union. It might be expected to join the Euro, but given the fact that two-thirds of its trade is with England, this would clearly fall foul of the criteria for an optimal currency area.[26]

Conclusion

Even without considering the miners' strike of 1974 and 1984–5, or the privatisation of the nationalised gas and electricity industries in the 1980s, the political heat surrounding the UK fuel and power industries in the 1970s and 1980s is striking. The arguments over the depletion, ownership and macroeconomic accommodation of North Sea oil are a further striking example of this. The arguments reveal fundamental differences of view between economists in the Treasury in the mid-1970s and the ministers and advisers whose views came to dominate

discussions following the election of the first Thatcher government. These differences concerned not just the role of free market mechanisms in depletion and exchange rate policy and the extent to which they should be modified by government intervention, but also the question of the effects of such policies on different parts of the United Kingdom. The effects of deindustrialisation were felt particularly strongly in Scotland and, in as much as it was the exchange rate policy of the Thatcher government that contributed to this, then so too was the government seen as applying policies which were contrary to the economic interests of Scotland. That such policies arose in part from the exploitation of oil in what would have been an independent Scotland's Continental Shelf simply rubbed salt into Scottish wounds. Given the arguments over depletion, exchange rate policy and the constitutional future of the United Kingdom, all of which arose from the exploitation of North Sea oil, then the fall in the price of oil was but an aftershock following more than ten years of tectonic movement at the centre of the political economy of the United Kingdom.

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PART IV

THE CONSUMERS

12

Reducing Dependence on OPEC Oil: The IEA's Energy Strategy between 1976 and the Mid-1980s

Henning Türk

Introduction

When on 9 July 1985 the governing board of the International Energy Agency (IEA) met at ministerial level in Paris to discuss the situation of the energy and especially the oil market, the atmosphere of the meeting was relaxed. The ministers could bring in the harvest of the last 11 years work. They declared that the oil market was currently characterised by 'weak demand, considerable over-capacity [···] and downward pressure on prices'[1]. In the eyes of the ministers this was partly due to the structural change of the energy sector in the IEA member states. In the previous years the IEA members had reduced the amount of energy needed for each unit of the GDP, and the share of oil in the fuel mix was reduced from 53 per cent in 1973 to 42 per cent. According to the ministers, one reason for this change were the two oil crises of the 1970s with their sharp price increases and another reason was government policy. With regard to the last point, the ministers stressed in the final

communiqué 'the crucial importance of international energy co-operation within the IEA in achieving these results'.[2]

That the ministers would pat themselves on the back could be expected but even the former Venezuelan OPEC secretary-general Francisco Parra attested the IEA countries in his book about oil politics 'spectacular results'[3] in restructuring the energy sector between 1973 and 1985. So in my chapter I will focus on the role the IEA played for the energy policy of its member states in this period. Is it possible to identity connections between the IEA's work and the members' energy policy? Can we detect shifts in the IEA's approach to energy policy between the 1970s that were characterised by a sharp oil price increase and the 1980s with their relaxed oil market and low prices? To answer these questions I will firstly concentrate on the guidelines and instruments the IEA developed for influencing its member states' energy policy. Subsequently, the development of the West German energy programme between 1973 and 1981 will be shortly analysed with a view to the IEA's strong emphasis on energy conservation. Finally, I will discuss the evaluation of the 'counter-shock' by the IEA and the conclusions it drew from the situation of the oil market in the midst of the 1980s.

The Founding of the IEA and the Development of its Long-Term Co-Operation Program (LTCP), 1974–6

The International Energy Agency (IEA) was founded in November 1974 after the first oil crisis. In this autonomous sub-organisation of the OECD in Paris, the Western industrialised countries (except France) gathered to coordinate their energy political approaches. In the various bodies of the organisation the member states officials discussed their views with energy experts and representatives of the IEA secretariat thereby developing a common view on the energy problems of the time and the possibilities to resolve these problems. Its main decision-making body was and still is the governing board where the representatives of the member countries

decided on various energy topics and the future development of the IEA. In the founding process in 1974 the United States was able to push through a system of weighing votes according to oil consumption on most of the topics, a ruling that was clearly in favour of the United States as the largest oil consumer of the IEA countries. As a sort of compensation, the voting system also made sure that neither the United States nor Western Europe as a bloc could push through decisions alone.[4]

The members expected the IEA to be effective in different time spans. In the short run, it should prevent the potential future use of the 'oil weapon' with the help of a crisis mechanism that was elaborated in detail in the International Energy Program (IEP). In the long run, it should help to reduce dependency on oil, especially from the Middle East. For this task the IEP only provided the framework with some general remarks about its aims.[5] It was therefore crucial in the initial period of the IEA to fill this part of the IEA's work with a concrete programme. As the whole IEA project depended from the beginning on US leadership, it was no surprise that the US government took the initiative by proposing a Long-Term Co-Operation Program (LTCP) in the first session of the IEA's governing board in November 1974.[6] The Assistant Secretary of State Thomas Enders pleaded in his speech for common principles guiding the effort of the IEA countries to reduce the dependency on oil from the Middle East. He called especially for energy conservation and the development of new oil supplies. He also supported setting targets for the members' energy conservation efforts and reviewing the countries' actions to reduce energy dependence every year. With its peer review proposal the United States picked up a soft-power tool that was already practised in some OECD Committees.[7] In the IEA it was to serve as a means of coordinating the members' energy policy.[8] In the following months the US demands were mainly discussed in one of the so-called Standing Groups of the IEA – the Standing Group on Long-Term Cooperation (SLT). Here the government representatives and the staff of the secretariat met to develop a coherent programme. The Deputy Assistant Secretary of State,

Steven Bosworth, became the chairman of the SLT and thus held a key position for the further negotiations.[9]

During the discussions the US government introduced a new element that proved to be a serious stumbling block for the negotiations. The US representatives pushed for a system that would protect large investments in the development of new technologies or the exploitation of energy sources like tar sand. By this, the US government wanted to prevent a dumping strategy of OPEC that could squeeze the new competitors out of the market by making oil considerably cheaper. The proposed system rested on two pillars. One pillar was a floor price for the import of crude oil and the second a common fund for energy investments of the IEA members. The US position was supported by other oil producers like Great Britain[10] but was firmly opposed by large oil consuming countries like Japan, Italy and West Germany.[11] They feared that they would secure US or British investments without receiving anything in return. Despite this basic clash of interests, the US government pressed for speedy negotiations because it wanted to adopt a strong programme of the industrialised countries before the start of the preparatory meeting of the Conference on International Economic Cooperation (CIEC). In this conference the industrialised oil consuming countries discussed the situation of the oil market with the oil producing developing countries. The US strategy obviously was to strengthen the position of the industrialised countries in these negotiations by an ambitious IEA programme of reducing dependence on Middle Eastern oil.[12]

During the negotiations in the IEA the US government turned out to be flexible. It dropped the idea of a common fund, which was heavily opposed by West Germany, but insisted on a high floor price of $8–9. In the governing board meeting in March 1975, the member states accepted the introduction of a floor price in principle, but without fixing its level. It was planned to determine the details of the programme in the governing board meeting in July. In this meeting the conflict between the oil producing and oil consuming countries in the IEA culminated. There were still different assumptions about the level of the floor price.

Additionally, the United States wanted to lay down the procedure on how to protect the floor price in the programme whereas West Germany and other European countries argued for a flexible solution that would leave the freedom of decision to the member states. Italy, Sweden and other countries criticised the imbalance in the programme that would be mostly advantageous for the countries that were also large oil producers. Besides, some other countries feared that the adoption of the LTCP would provoke the OPEC countries and thus strain the beginning of the CIEC talks. As the US congress also articulated scepticism against the instrument of a floor price the US negotiators finally accepted to postpone the decisions until the end of 1975. In the meantime, the SLT should further study the potential effects of the floor price and work out a more balanced programme.[13]

Finally, in the governing board meeting of 19 December 1975 the member states accepted the new version of the Long-Term Co-Operation Program that was officially adopted on 29 January 1976. The now so-called minimum safeguard price (MSP) was fixed at $7 as a compromise between the high expectations of the US and UK governments and the demands of West Germany or Japan.[14] Additionally, to receive a balanced programme that would also give some advantages to the non-producing countries of the IEA the LTCP included a declaration of intent about the facilitation of cooperation on the development of alternative energy sources. The member countries also declared they would put the nationals from other IEA countries on equal footing with the natives with regard to 'energy investment, the purchase and sale of energy and the enforcement of rules of competition'.[15] With a view to the interests of the non-producing countries, the chairman of the governing board declared that the chapters about the MSP, the closer cooperation and the reduction of discriminatory measures against nationals of other IEA countries were strongly interconnected to secure 'an overall balance of burdens and benefits'.[16] In the following years neither the MSP nor the cooperation declaration played a significant role.[17] The MSP was never used due to the high oil prices. Even in the midst of the 1980s, when there

was a large excess of crude oil on the market, the price never fell below the $7 limit.

So, the energy conservation aspect of the LTCP proved to be more important than the MSP. Right from the beginning of the IEA's work, the US government advocated strong energy conservation efforts from the member states. In line with this, the IEA members were to reduce their oil consumption by 2 mb/d at the end of 1975. Most of the other governments opposed strong conservation goals because they feared causing a reduction in economic growth and a higher unemployment rate.[18] Obviously, it was difficult to discuss such a proposal in the atmosphere of economic decline in 1975. But the member states accepted a review of their conservation policy by the IEA's Standing Group on Long-Term Cooperation. The internal review of the member states' conservation efforts started as early as 1975 and was based on a questionnaire the member states had to deliver to the IEA. Since the second review in 1976 the comparison of the member states' conservation policy was also published by the IEA. In the meantime energy conservation was introduced as an important part of the Long-Term Co-Operation Program and controlled by the IEA's sub-group on energy conservation. In the programme the member states also accepted group targets for energy conservation and 'a thorough and systematic assessment of evolving national programmes and policies on the basis of common criteria'.[19]

In these published reviews the IEA pushed its member states to strong efforts in energy conservation. The Agency recommended for example speed limits on highways, stronger subsidies for public transport etc. With the help of the reviews the IEA also spread its energy political approach that an undistorted market price of oil would be very important to induce energy conservation. It would force industry and private households to reduce energy consumption substantially. Therefore it admonished countries that artificially held the price down. Especially the United States was in the focus of the reviews. A characteristic example is the 1976 report that recommended the following to the US government: '[P]rices and taxes must rise soon to reflect at the very least,

the real value of the energy (as they have in other countries) if long-term conservation is to be taken seriously by industry and consumers.'[20]

The Group Target and the Common Principles on Energy Policy

Shortly after the establishment of the LTCP, the US government tabled a new proposal, this time aiming at a more ambitious group target for the oil consumption of the IEA as a whole. The group target should also be broken down to national quotas. The group and national targets should be reached by concrete measures of the members. The rationale behind this proposal was to maintain the impression of the IEA as an 'action-oriented organization'.[21] But the most important aspect of such a commitment on the international level would be to help the US administration 'in persuading a reluctant Congress to adopt a strong and effective US domestic energy policy'.[22]

Most of the other countries opposed country quotas.[23] The West German government for example feared an embarrassing haggling among the member states that would be counterproductive to consumer solidarity. Additionally, the economics ministry underscored that it would be difficult to forecast individual consumption targets. In line with its economic policy approach, neither was West Germany willing to interfere in the oil market to obtain certain IEA goals. The West German government therefore argued for a decision only about a group objective and a catalogue of possible measures to reach it.

The US activity resulted, after more than one year of negotiations, in the Group Objectives and the Principles for Energy Policy the IEA adopted in October 1977.[24] The starting basis of the document was a predicted severity of the situation on the oil market in the midst of the 1980s. The IEA predicted that oil imports of IEA countries from OPEC would rise from 23 mb/d in 1976 to 33 mb/d in 1985. Furthermore, the non-IEA members would consume a minimum of 10 mb/d. As the IEA expected this general demand to be considerably higher than OPEC

production, it called for a strong reduction in energy consumption by the IEA countries. The group objective now determined oil imports of 26 mb/d in 1985 to avoid strong pressure on the market. To reach this aim, the ministers urged stronger conservation efforts, an increase in the use of coal and an expansion in the use of nuclear power.[25] Additionally, the ministers committed themselves to a strengthening of energy policies in their home countries on the basis of the adopted principles. The vision of these principles was a national energy policy that was based on a coherent energy programme. The main pillar was the price for energy that should 'reach a level which encourages energy conservation and development of alternative sources of energy'.[26] The members were to promote the use of coal and atomic energy instead of oil and call for energy conservation with the help of pricing policy (like taxes) or the setting of energy efficiency standards. Additionally, the member states were to establish an 'investment climate which encourages the flow of public and private capital to develop energy resources'.[27] The group objectives and the principles on energy policy were the basis for an intensified peer review process that should be conducted every year by the SLT. The basis document for the review was to be delivered by the secretariat and discussed in plenary session.[28] In a certain cycle, some countries were to be reviewed in depth, with a team visiting the country and discussing the development of national energy policies with politicians, government officials and representatives of energy companies. In the Principles on Energy Policy the member countries pledged to 'strengthen their policies [···], taking into account the results of the reviews'.[29] Besides the permanent pressure of the IEA on its member states to implement energy conservation measures, the second oil crisis underscored how important it was to reduce oil consumption.

The Impetus of the Second Oil Crisis

The second oil crisis of 1978–9 was caused by the drop out of Iran as the second largest oil exporter from the oil market due to a violent regime

change from the Shah to Ayatollah Khomeini in January/February 1979. This development caused panic in the oil market, with the result that many oil companies bought their oil on the narrow market for short-term contracts, the so-called spot market. The price for crude oil exploded, and the OPEC countries adapted their price policy to the spot market developments.[30]

This event seemed to confirm the gloomy predictions of the IEA about the future of the oil market, although it came earlier than expected and was caused by political turmoil. As the shortfall did not reach the trigger for the activation of the IEA's emergency mechanism, other possibilities to cope with the crisis were evaluated by the secretariat and the member countries. In its meeting on 2 March 1979, the governing board adopted the 'Action on the Oil Market Situation'.[31] The centrepiece of this resolution was a legally non-binding commitment of the member states to reduce their oil consumption by 5 per cent. The way to achieve this reduction was left to the member states. In the following months this decision proved to be ineffective so that the governing board met again in May 1979, this time on the ministerial level, to reconsider the measures. The meeting confirmed the decisions of March, but now implemented a monitoring process of the activities of the member states to reach the reduction in oil consumption.[32] The governing board also noted that some governments wished mandatory measures to be implemented. This proposal was mainly put forward by the United States, where President Jimmy Carter needed backing for his domestic energy policy plans against the oppositional Congress. In addition, the United States wanted to send a strong signal to OPEC countries to be reluctant in their price decisions. But the majority of the IEA members insisted on voluntary measures. Especially the governments of liberal market-oriented economies like West Germany opposed the US plans.[33]

During and after the second oil crisis the IEA tried to reinforce the change of its member countries' energy mix at the expense of oil consumption. In May 1980 the IEA introduced so-called yardsticks that were based on a target for every country's oil import.[34] The secretariat

was allowed to review regularly the single country's performance against the yardsticks. Additionally the IEA adopted the 'Ministerial Lines of Action for Energy Conservation and Fuel Switching' in December 1980.[35] The lines concretised the existing recommendations of the IEA. The IEA once again emphasised the central role of the energy price. According to the IEA '[g]overnment actions affecting price [. . .] should positively promote the efficient use of energy and substitution away from oil'. The IEA demanded that governments should serve as role models for society in their energy use. They should also stimulate the energy efficiency of the industry and monitor this process. A strong consideration was also given to the use of waste heat. The other chapters recommended stronger insulation of buildings and certain measures for the fuel efficiency of automobiles, which could be influenced e.g. by the level of fuel and road taxes. Finally, the IEA urged its members to further reduce oil-fired electricity generation.

The IEA's Impact

Although it is of course impossible to measure the direct impact of the IEA's work on its members energy use, we can at least detect a change in governmental policies over the time. The discussions in the IEA and its strong focus on energy conservation seemed to contribute to a common view of the possibilities of energy policy to influence the markets. A short example is the West German case that can be studied by a comparison of the energy programmes between 1973 and 1981.[36] The first West German energy programme was published in 1973 shortly before the first oil crisis.[37] Alarmed by the strong dependence on crude oil imports and the development of the oil market, the social-liberal coalition government emphasised the need for a stronger use of coal and atomic energy. Additionally, it justified the increase in oil stocks for short-time supply shortages. The West German government dedicated only a small paragraph of the energy programme to energy conservation. It is simply mentioned as an option without any concrete measures.

An update of the programme was already necessary after the first oil crisis and was published on 30 October 1974.[38] It underlined the international context of energy markets and the need for an internationally coordinated energy policy. The West German government again pointed to the strong dependence on crude oil imports and listed the means to shift the energy basis away from crude oil. It repeated the demand to extend the use of coal and atomic energy in electricity generation. This emphasis on the supply side of energy can also be recognised by a closer look at the small conservation paragraph. It referred to the great importance of energy conservation, but still contained no concrete measures. The government only announced a programme to inform private households about the possibilities of reducing energy consumption and wanted to invest in research about the consumer behaviour. Apart from that, the government expected a steering function of the high energy price.

This disregard of conservation aspects changed with the second adaption of the programme in December 1977. The West German government now judged the energy conservation aspect for the first time to be as valuable as the shift to coal and nuclear energy.[39] The programme therefore not only touched the supply side but also targeted at the private and industrial energy consumers. With a mixture of incentives and regulatory measures the West German government tried to change the behaviour patterns of the consumers. This can be seen as a first step in a more interventionist approach to energy policy the West German government had shied away from before. For example, the government tightened the provisions for the insulation of new buildings and subsidised the improved insulation of old ones. It announced new requirements for heating systems and subsidised the installation of solar panels and the use of district heating. Additionally, it raised the tax on light fuel oil. Some minor measures were the labelling of the energy consumption on home appliances and a new norm for the calculation of gasoline consumption of cars. All in all, it was a first attempt to influence the energy consumption of private households and industry and an adaption to the recommendations of the IEA, but mainly in one point

ignored them totally. The IEA's demand for a speed limit on motorways was a taboo for the German government. The strong German car industry should not be constrained.[40] This overall tendency to stronger focus on the behaviour of energy consumers was carried forward in the third adaption of the energy programme in 1981.[41]

As the case of West Germany shows the energy programme converged more and more with the IEA's approach to energy policy. Additionally, the shifting focus of the programme on energy conservation also reflects the strong opposition of parts of society against the expansion of nuclear energy.[42] In the period between 1973 and 1981 it became obvious that the initially expected share of nuclear energy in the future energy mix was unattainable – a development that also contributed to the rising significance of energy conservation. But how did the unexpected relaxation of the oil market in the 1980s influence the IEA's and its member states' view on energy policy?

The IEA and the Counter-Shock

Although the IEA had reached its aim of reducing dependence on oil, especially from the Middle East, the relaxed market and falling prices were a serious problem for the IEA. The prediction of a tightening market and rising prices had been a core belief of the IEA and its member states. With its gloomy predictions the IEA had motivated its member states to restructure their energy sector, but its prognosis about the dramatic situation of the oil market in the midst of the 1980s proved totally wrong. Now, the low oil demand of the Western industrialised countries and the loss of influence of OPEC entailed the danger that the IEA members would slow down the restructuring process and considerably increase the consumption of cheap oil. Therefore a backlash to the IEA aims loomed large. Would the IEA eventually become a victim of its own success?

The IEA reacted in two ways. On the one side it evaluated the situation in the oil market as temporary. It therefore appealed to the

member states to hold on to their efforts of shifting the energy structure away from oil. A perfect example of this strategy is the already mentioned communiqué of the 1985 ministerial meeting. The perceived danger for the IEA's work oozed out of every sentence. For example, the IEA and the ministers 'concluded that the present oil market situation is not to be expected to extend far into the next decade and beyond'.[43] As the IEA's secretariat predicted, 'within ten years, world demand for oil could approach levels close enough to anticipated available production capacity to produce upward price pressures and to restore the condition of vulnerability to supply disruptions which existed in 1973–4 and 1979–80'.[44] The consequences of this expectation were clear:

> Ministers therefore agreed that it would be imprudent and even dangerous for IEA countries to ignore forecasts of the IEA, governments and industry [...]. They therefore forcefully underlined the importance of reducing future risks by maintaining the energy policy directions already well established in the IEA and continuing their vigorous implementation [...].[45]

On the other side the IEA adapted to a more liberal approach in line with the prevailing view of the economy in most important countries of the IEA. Decisive for this was the attitude of the US government that changed when Ronald Reagan took over presidency in January 1981. The push for setting targets and quotas, favoured by the Carter government, was now replaced by an emphasis on the free market. So, all the policies of targeting and measuring of the member states' policies against fixed oil import quotas or yardsticks were tacitly abandoned.[46] Instead the IEA gave priority to market solutions and deregulation of the member states' energy markets. Since the ministerial meeting of 1981 the communiqués refer to the important contribution of a full implementation and strengthening of market forces to the objectives of the IEA.[47] The focus in the following years was especially on pricing and on free trade of energy in the member countries. This shift was reinforced with the appointment of

the new executive director in 1984. The West German Ulf Lantzke was replaced by his compatriot Helga Steeg. She had been the head of the department of trade in the Economics Ministry and was an advocate of liberal markets. In one of her first announcements she stated:

> Most of IEA work is in removing impediments to a free market in oil, gas, coal and nuclear energy. [...] I am a strong believer in letting the market allocate energy resources, and giving governments as small a role as possible.[48]

Conclusion

The chapter tried to discuss the contribution of the IEA and its reaction to the 'counter-shock' of the oil market in the midst of the 1980s. First of all, we have to state that one of its central aims was to reduce its members' dependence on oil, especially from the Middle East. To reach this aim, the IEA developed the Long-Term Cooperation Program in 1976 and the Group Objectives and Principles on Energy Policy in 1977. With these basically normative declarations, the member states expressed guidelines for the restructuring of the energy sector and developed a peer review process to secure compliance of the member states with the IEA's policy objectives. Besides the substitution of oil use by coal and nuclear energy and the development of alternative energy sources, the IEA focused strongly on energy conservation. With various declarations and reviews it tried to persuade its members to implement energy conservation measures. As the example of West Germany shows the IEA was relatively successful in this respect. The basis for the IEA's dramatic appeals to its member states to shift their energy basis away from oil were gloomy predictions about the development of the 1980s oil market. But instead of a forecasted very tight oil market, the market was relaxed and prices fell drastically. In this period with its danger that the IEA would become a victim of its own success, the IEA downplayed the situation of the oil market as temporary. Now it assumed a tight oil market in the 1990s and tried to convince its members to stick to the

established strategy. In parallel, the IEA adapted to the more market-oriented approach of deregulation and free energy trade that was also advocated by the leading member governments and sought to secure its relevance on the basis of this new mission.

Notes

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6. Telegram, 'US Mission OECD, Paris, to Secretary of State, 20 November 1974'. Available at https://file.wikileaks.org/oc/2474.2/186747.pdf (accessed 8 November 2016). For preparation of the proposals in the US government see the documents 10, 14, 15, 17 and 18 in US State Department, *Foreign Relations of the United States* (henceforth *FRUS*) *1969–1976*, vol. XXXVII, *Energy Crisis 1974–1980* (Washington, DC, 2012).
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11. See e.g. 'Memorandum of Conversation, 20 February 1975', in *FRUS 1969–1976*, vol. XXXVII, *Energy Crisis 1974–1980*, doc. 43, pp. 146–50.
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15. 'Long Term Co-operation Program', in Scott, *History*, vol. 3, pp. 177–204: 188.
16. Ibid., p. 172.
17. IEA executive director Ulf Lantzke admitted in a lecture at the University of Cologne in 1977 that there were no concrete projects planned. See his lecture series 'Zusammenarbeit der Verbraucherländer in der Internationalen Energieagentur', session 'Praktische Zusammenarbeit in der IEA', p. 12, in BaK, Nachlass Lantzke (N1360), vol. 154. See Peter Roggen, *Die Internationale Energie-Agentur. Energiepolitik und wirtschaftliche Sicherheit* (Bonn, 1979), p. 129.
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21. 'Briefing Memorandum from the Acting Assistant Secretary of State for Economic and Business Affairs (Katz) to Secretary of State Kissinger, Washington, 16 July 1976', in *FRUS 1969–1976*, vol. XXXVII, *Energy Crisis 1974–1980*, doc. 100, pp. 357–60: 359.
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43. 'Communiqué of the IEA Meeting of the Governing Board at Ministerial Level, 9 July, 1985', in Scott, *History*, vol. 3, p. 409.
44. Ibid.
45. Ibid.
46. Although, as Victor McFarland argues in his article in this volume, the change in energy policy was not as sharp as Reagan's rhetoric suggested, the Reagan government approached the IEA differently from Carter's administration. See e.g. the first hints in 'Memorandum from Secretary of Energy Duncan to President Carter, 4 December 1980', in *FRUS 1969–1976*, vol. XXXVII, *Energy Crisis 1974–1980*, doc. 289, pp. 910–13: 910.
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13

The United States and the Oil Price Collapse of the 1980s

Victor McFarland

The decline in oil prices that began in the early 1980s and accelerated in 1985–6 had a major impact on the United States, both in domestic politics and in foreign affairs. The price collapse was a boon for the Reagan administration, which hailed it as a victory for Reagan's free-market approach to energy issues – even though the causes of the price decline were worldwide. The United States, however, was not only the world's largest oil consumer; it was also one of the world's largest oil producers. Low oil prices represented a crisis for the domestic petroleum industry and oil producing states in the south and west and, over the long run, the price collapse increased American dependence on imported oil by encouraging consumption and discouraging domestic production. Partly as a result, the Reagan administration expanded US military involvement in the Middle East in order to secure the continued flow of oil from the Persian Gulf. Finally, while the 1980s were a moment of triumph for oil consumers, they also represented a missed opportunity – a time when the United States could have made more progress toward energy conservation and alternatives to fossil fuels than it did.

Reagan's Energy Policies

During the 1970s, the US government attempted to meet the challenge of the energy crisis through measures like lower highway speed limits, mandatory fuel economy standards for automobiles, and oil price controls. Jimmy Carter promoted the most ambitious policy agenda of all, establishing the Department of Energy and dramatically expanding funding for solar power, synthetic fuels derived from coal, and other alternatives to imported oil. Carter allowed most oil price controls to expire in order to encourage conservation, but coupled that move with new taxes on the oil industry. He also stressed the importance of conservation, including symbolic steps like wearing a cardigan sweater during a televised address in which he encouraged Americans to turn their thermostats down in the winter, installing solar water heating panels on the White House roof, and denouncing the excesses of consumer culture in his famous 'crisis of confidence' speech in 1979. Unfortunately for Carter, his presidency coincided with a renewed energy crisis at the end of the 1970s that contributed to a sharp economic downturn and rising inflation, which played a major role in his defeat by Ronald Reagan in 1980.

Conservatives vehemently rejected Carter's approach to the energy crisis. They attacked his emphasis on conservation and government planning, calling instead for a renewed emphasis on free enterprise, domestic production of fossil fuels, and unrestrained economic growth. This condemnation of federal energy policy was an important part of the broader conservative critique of an activist, interventionist government during the 1970s.[1] In 1977, the University of Chicago economist Milton Freedman wrote: 'Mr. Carter's energy program is a monstrosity. If enacted, it will involve a very long step in the United States toward a corporate state, towards centralization and federal control.'[2] The 1980 Republican Party platform called for an end to 'shrinking energy prospects and expanding government regulation and meddling' and a return to 'the proven American values of individual enterprise'.[3] During

his campaign for the presidency, Reagan promised to abolish the Department of Energy, mockingly proclaiming that despite its 'multibillion-dollar budget, in excess of $10 billion', it had yet to produce 'a quart of oil or a lump of coal or anything else in the line of energy'.[4]

Reagan's first official act after taking office was to sign an executive order ending all remaining oil price controls. The controls were already scheduled to expire by the end of the year, but the symbolism of Reagan's action was important. In his autobiography, he would write that abolishing the price controls was 'my first effort to liberate the economy from excess government regulation'.[5] He told Congress in July 1981:

> Our national energy plan should not be a rigid set of production and conservation goals dictated by Government. Our primary objective is simply for our citizens to have enough energy, and it is up to them to decide how much energy that is, and in what form and manner it will reach them. When the free market is permitted to work the way it should, millions of individual choices and judgments will produce the proper balance of supply and demand our economy needs.[6]

The Reagan administration cut the Department of Energy's non-nuclear budget roughly in half, eliminating or sharply restricting funding for research and development in solar power and other fields.[7] The administration promised to boost domestic production of fossil fuels by relaxing environmental regulations, part of a broader anti-regulatory approach that included slashing the budget of the Environmental Protection Agency (EPA). Opposition from Congress and advocacy groups, however, forced Reagan to compromise on much of that agenda.[8] Under Reagan, many longstanding provisions in the US tax code that favoured the oil industry (like the 'depletion allowance') remained in place, while some were scaled back. Many but not all, of the tax credits for conservation and alternative energy that had been passed during the 1970s were eliminated. Reagan also ended Carter's 'windfall profits' tax on the oil industry, although not until

1988, after oil prices fell and it became clear that the tax would not produce the expected revenues.[9]

Reagan was forced to compromise on other energy policy issues, as well. His promise to abolish the Department of Energy was never carried out. Congressional opposition helped prevent Reagan from eliminating price controls on natural gas, which were not finally abolished until after Reagan left office.[10] The Department of Energy's research and development efforts continued during the 1980s, albeit at reduced levels, and laid the groundwork for subsequent breakthroughs in solar power, wind turbines, compact fluorescent lighting, unconventional fossil fuel extraction and other energy technologies. Federal tax credits and research funding were critical, for example, in developing the hydraulic fracturing techniques that have enabled the recent 'fracking' boom in oil and natural gas.[11] Reagan's funding cuts slowed progress on those technologies, however, until federal support for energy research was expanded again starting in the 1990s after his presidency.

The Corporate Average Fuel Economy (CAFE) standards for American automobiles established in 1975 also remained in place, although Reagan did not tighten the standards any further.[12] The average efficiency of vehicles on US roads improved from 13.1 mpg in 1975 to over 21 mpg in 1982, but the progress stopped there. In fact, fuel efficiency actually fell to 19.3 mpg in 2004, largely because of the rise of heavier vehicles like small trucks and sport-utility vehicles (SUVs). The CAFE standards had been intended to reduce oil consumption, but they had the additional positive consequence of sharply cutting carbon dioxide emissions from the US vehicle fleet. The average carbon dioxide emissions per vehicle fell from 681 g/mi in 1975 to 425 g/mi in 1982, but then, just as with fuel economy, progress stopped for the next two decades.[13]

Reagan and the Oil Price Collapse

Reagan took office in 1981 just as oil prices peaked and began a gradual decline. In some ways, his policies contributed to that shift. The final

elimination of oil price controls allowed domestic prices to rise to the world level, discouraging consumption. Reagan's environmental policies also made it easier to extract fossil fuels in the United States. Those policy shifts played only a limited role in shaping the energy market, however, compared with previous policy decisions, the delayed impact of the 1970s oil crisis, and events beyond America's borders. The oil glut of the 1980s had many causes, some of which are discussed in the other chapters in this volume. They included OPEC's difficulty in coordinating production cuts; new production from non-OPEC areas like Alaska, Mexico and the North Sea; the increased use of non-oil fuels like coal in power generation; and increased energy efficiency as both businesses and consumers responded to the high oil prices of the 1970s. In the United States, for example, the CAFE standards were phased in between 1978 and 1985. Even then, older automobiles were only gradually retired and replaced with newer, more efficient models, so it took years before the full benefits of the 1975 law were apparent.[14]

Nevertheless, the Reagan administration was quick to claim credit for the decline in oil prices. In 1982 Secretary of Energy James Edwards declared that while energy had once been 'one of our most serious national problems', after less than two years of the Reagan presidency 'that era is behind us'.[15] The 1984 Republican party platform boasted that Reagan's 'oil price decontrol crippled the OPEC cartel', liberating Americans from the threat of further supply disruptions and radical price hikes.[16] Reagan administration officials said much the same thing in private. The Council on Environmental Quality told Reagan that 'the optimists' had been proven 'correct', since 'oil price deregulation and a return to market allocation' had 'stimulated both energy conservation and production'.[17]

The most dramatic apparent confirmation of Reagan's policies was the price collapse of 1985–6. In an April 1986 radio address, Reagan said that 'my mother used to tell me, "It's not nice to crow", but maybe this once I can't help it', proclaiming that his oil price 'decontrol was a success' because it 'let freedom solve the problem through the magic of

the marketplace'.[18] The Reagan administration underlined its rejection of Carter's energy policies later that year when it removed the solar water-heating system from the White House roof that had been installed by Carter.[19] The *Wall Street Journal* hailed the decision, suggesting that the panels be placed in a museum 'as a reminder to Americans that any number of futile methods of solving the "energy crisis" were attempted before the right one, price decontrol, was finally adopted'.[20] As a result, the price collapse appeared to validate Reagan's policies and reinforced the US turn to free-market economics in the 1980s.

Reagan's most committed supporters would later claim that his role in engineering the 1985–6 price collapse went beyond the liberalisation of the US domestic oil market. Conservatives like journalist Peter Schweizer and movie producer Stephen Bannon (subsequently a leading adviser to Donald Trump) have suggested that the Reagan administration convinced Saudi Arabia to flood the market with oil in order to undermine the Soviet Union.[21] They argue that by providing military and diplomatic support to Saudi Arabia, and particularly by ordering a 1981 sale of Airborne Warning and Control System (AWACS) surveillance aircraft to the kingdom, Reagan won the Saudis' support for lower oil prices.[22] Ironically, considering its adoption by right-wing figures in the United States, belief in a US–Saudi conspiracy on oil was previously more closely associated with foreign critics of both Washington and Riyadh, like the Islamic Republic in Iran. In March 1986, for example, the State Department reported that 'the effort of Saudi Arabia and the Gulf states to recapture market share, thereby driving prices down further, is seen by the Iranians as a plot to weaken them, supported if not instigated by the US.'[23]

There is little evidence, however, to support the idea that US pressure was decisive in convincing Saudi Arabia to increase production. By 1985, Saudi Arabia had cut its production to around 2 million barrels per day in order to support the official OPEC price. That was only around one-fifth of Saudi capacity, far below the level that the kingdom needed to balance its budget. In October 1985, the CIA estimated that Saudi Arabia

was running an annual budget deficit of around $20 billion and had already exhausted roughly a third of its liquid international financial assets.[24] The Saudi leadership thus had ample reasons of their own to increase production and regain market share, punish other OPEC member states for exceeding their production quotas, and suppress competition from non-OPEC producers like Norway and Great Britain.

There is also little reason to believe that US arms sales to Saudi Arabia could have convinced the kingdom to act against its own economic self-interest. The United States, after all, had been selling weapons to Saudi Arabia for years before the mid-1980s. The most notable example from before the Reagan administration was Jimmy Carter's sale of 60 F-15 fighters to Saudi Arabia in May 1978. The Carter administration pushed the sale through Congress only after an extensive lobbying campaign and a great expenditure of political capital.[25] Even that costly demonstration of support for Saudi Arabia, however, failed to secure enough Saudi cooperation on oil pricing and production levels to prevent the massive price increases of 1978–9. For that matter, Reagan's 1981 sale of AWACS aircraft to Saudi Arabia also did not result in Saudi help on oil prices in the short term. Over the next several years, Saudi Arabia instead cut its production dramatically to support the OPEC price level. Only in 1985, with the kingdom's budget in dire straits, did Saudi Arabia begin increasing production to regain market share.

The Economic Impact of the Oil Price Collapse

Another reason to doubt that the Reagan administration deliberately engineered the price decline of 1985–6 was that the rapid price collapse was a mixed blessing for the US economy. It is true that, in general, the American economy tended to benefit from cheaper oil. During the 1970s, high prices had contributed to economic 'stagflation' in the United States and other industrialised nations. The stabilisation and gradual decline of oil prices in the early 1980s helped the US economy, and most US officials believed that further price decreases would be beneficial. In early

1983, for example, the Central Intelligence Agency (CIA) and the Treasury Department estimated that a 40 per cent decline in the price of OPEC oil would add around 1.5–2.0 per cent to the US GNP, cut the inflation rate by around 2 per cent, and improve the US current account balance by around $35 billion.[26]

The generally positive impact of lower oil prices on the US economy, however, masked significant differences between different industries and different regions of the country. The 1985–6 price collapse was disastrous for the US oil industry. Smaller, independent oil companies suffered most, since they relied on high-cost US petroleum that became uncompetitive once the world price fell.[27] A 1987 report by the Department of Energy concluded that 'independent oil and gas producers in the United States experienced especially large net income losses in 1986, and many companies failed'.[28]

The economic damage extended beyond the oil industry itself. Banks and other firms that worked with oil companies also went bust as oil prices fell. The American oil industry was concentrated in southern and western states like Texas, Oklahoma, Louisiana, California and Alaska. The high oil prices of the late 1970s and the beginning of the 1980s had brought an economic boom to many of those regions. When oil prices were near their height in 1981, for example, oil and gas extraction accounted for about 20 per cent of the entire economy of Texas and employed over 366,000 people, about 6 per cent of total non-farm employment in the state. The price collapse of the late 1980s was devastating, causing the loss of 175,000 jobs and a severe recession.[29] The economic downturn in Texas and other oil producing states depressed local real estate markets and drove local financial institutions into bankruptcy, contributing to the nationwide savings and loan crisis of the 1980s and early 1990s.[30]

Critics warned that the oil price collapse threatened not only the country's economic health, but also its national security. Low prices endangered the survival of smaller American oil companies and reduced the profitability of exploration and production in domestic American oil

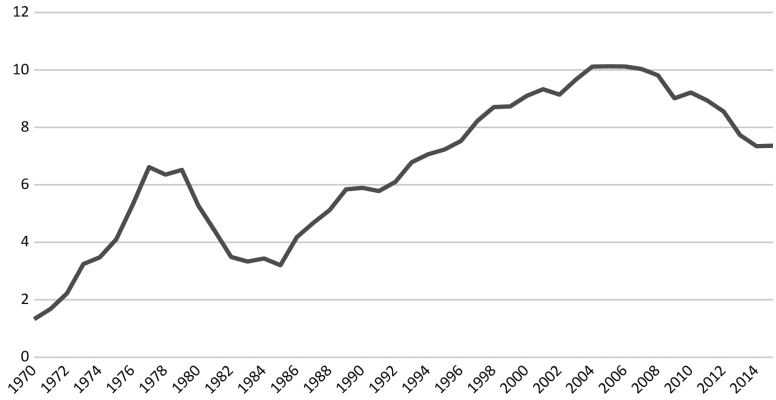

Figure 13.1 US crude oil imports, 1970–2015.

fields. In the long run, low prices would lead the country to become more dependent on imported oil, reversing the progress made since the late 1970s. Those predictions were correct; after US oil imports fell during the early 1980s, they began rising again with the 1985–6 price decline. US dependence on imports grew steadily for the next two decades, a trend that was only reversed by the fracking boom of the late 2000s.

An array of politicians, commentators, and business figures (especially from the oil producing states) called for a tariff on imported petroleum to save the domestic oil industry. They included many Republicans and Reagan supporters. The chairman of Unocal, for example, declared in April 1986: 'The United States is being offered a modern-day Trojan horse of lower prices and increased OPEC supply.'[31] That same month, the governors of Texas, Oklahoma, Wyoming, New Mexico, North Dakota and Kansas called for a tariff, warning that 'our oil and gas industry is being destroyed and national security is being jeopardized'.[32] Dick Cheney, a US Representative from Wyoming (and future Vice President), introduced a bill to establish a tariff and argued: 'Let us rid ourselves of the fiction that low oil prices are somehow good for the United States.'[33]

Some members of the Reagan administration also worried about the impact of lower prices. John Herrington, the Secretary of Energy, warned

that 'the crisis in the domestic petroleum industry, an industry that is critical to our energy security, is taking an enormous toll and is creating serious problems for the future'.[34] Vice President George H.W. Bush suggested publicly that prices might have fallen too far. Shortly before he left on a diplomatic visit to the Persian Gulf in spring 1986, Bush said that the oil price decline threatened US interests. 'I think it is essential that we talk about stability', Bush said, 'and that we not just have a continued free fall, like a parachutist jumping out without a parachute'. His 'plea' to the Gulf leaders, Bush explained, 'will be for the stability of the marketplace'.[35] Bush himself had run an oil company in Texas before entering politics, and his sons Neil Bush and the future president George W. Bush were both oil executives, so he was sympathetic to the plight of the petroleum industry. Newspapers in Saudi Arabia and Qatar enthusiastically reported on Bush's comments, with the Saudi daily *Arab News* calling Bush's statement 'a watershed in US oil policy' and declaring: 'We are glad the US has at last become concerned with "stability" in the oil market.'[36]

Bush's remarks contradicted Reagan's stance in favour of letting the free market decide oil prices, placing the administration in an awkward position. The vice president's remarks angered Americans in oil-importing states who benefited from cheap energy. An editorial in the *Detroit News* was headlined: 'Bush to Michigan: Drop Dead.'[37] Other members of the administration swiftly distanced themselves from the vice president. Reagan's deputy press secretary declared that the administration believed 'the way to achieve stability is to let the free market work', while Secretary of State George Shultz explained: 'We can't correct the price fall by government intervention [. . .] We think market forces should settle this.'[38] One White House official mocked Bush as 'poor George', calling his remarks 'a gaffe' that was 'not administration policy'.[39] Reagan himself tried to paper over the differences between himself and his vice president, claiming that 'in his own way' Bush had 'been saying pretty much what I've just been trying to say here now – that the free market is [. . .] the answer to this', but that the administration had

to be aware of the possibility that 'someone is going to destabilize the whole petroleum industry by trying to take advantage of this present situation'.[40]

The evidence suggests that Bush's attitude on oil prices was not shared by the rest of the administration. In March 1986, a political aide told Mitch Daniels, a senior Reagan adviser, that while administration officials were concerned about the plight of the oil industry, 'everyone is in agreement that the government, in its effort to assist the industry, should not do anything that causes the price of oil to rise'.[41] In its instructions to Bush before his trip to Riyadh, the State Department suggested he tell the Saudi leadership that 'the recent slide in oil prices has not changed our belief that prices and production levels are best determined by the market', that 'we believe lower oil prices will benefit the world economy as a whole', and that the United States was opposed to international talks aimed at influencing oil 'price and production levels'.[42] An official who accompanied Bush on his trip to the Persian Gulf recalled that the vice president's hope of working with the Saudi leadership to stabilise the oil market was not backed by the rest of the administration. During their meetings in Riyadh, Bush hinted at his own desire to see more stability in the oil market, but said nothing directly and did not ask Saudi Arabia to restrict production.[43] Afterwards, Bush told the press that he had 'reiterated our desire to see market forces at work'. Bush explained that 'our interests and the interests of the Saudis are not identical when it comes to the pricing of oil', since 'in their view the stronger the price for international oil, the better', which 'does not coincide with the best interest of the United States'.[44]

The United States and the Persian Gulf

While there is no strong evidence for a US–Saudi conspiracy that manipulated oil prices at will, Washington and Riyadh did strengthen their diplomatic and military partnership during the 1980s. That relationship went back decades, but US leaders began to place a higher

priority on their relationship with Riyadh during the 1970s. With the oil boom of that decade, Saudi Arabia emerged as the most important member of OPEC and became much wealthier and more influential. The Carter administration sold advanced F-15 fighters to Saudi Arabia, began negotiations with states in and around the Persian Gulf region to secure military basing rights, and established the Rapid Deployment Joint Task Force (RDJTF), designed to deploy US armed forces to the Gulf quickly in the event of a crisis.[45]

Although the Reagan administration marked a sharp break with Carter's approach in many other areas, there was a great deal of continuity between Carter and Reagan's policies in the Gulf. In large part, this was because the Reagan administration agreed that, despite the fall in oil prices and the easing of supply shortages during the early 1980s, the continued flow of Saudi oil was vital to US national interests. A 1984 National Security Council memorandum warned that the loss of Persian Gulf oil for just three months 'could plunge the world economy back into recession'.[46] Even the mid-1980s oil glut and price collapse failed to alter this conclusion. In fact, Saudi Arabia's ability to trigger the 1985–6 price collapse by increasing production only seemed to underline the kingdom's unique role as OPEC's 'swing producer'. A 1986 briefing paper prepared for Vice President Bush declared: 'Saudi Arabia and the Gulf Shiekdoms are the driving force of the world oil market.'[47]

Over the long run, the price collapse also increased US dependence on foreign oil, leading US officials to place an even higher priority on the continued flow of oil from the Gulf. In 1987 the State Department, the Pentagon, the CIA, and the National Security Council reported: 'Over the next decade, the West, including the United States, will become more dependent on insecure oil supplies, particularly from the Persian Gulf. This poses a threat to US national security interests. The decline in surplus production capacity will leave the West more vulnerable to supply disruptions, price manipulation, and attempts to use oil as a political weapon.' US officials worried that the threat of a future embargo, even if not carried out, could undermine the unity of the

Western alliance by inducing Western Europe and Japan to distance themselves from the United States.[48]

Fears of renewed supply disruptions encouraged the United States to strengthen its relationship with Saudi Arabia during the 1980s. In 1981 Reagan reaffirmed the US commitment to the Gulf states, telling reporters that Saudi Arabia and its neighbours 'provide the bulk of the energy that is needed to turn the wheels of industry in the Western world', and 'there's no way that we could stand by and see that taken over by anyone that would shut off that oil'. Reagan also declared that 'we will not permit' Saudi Arabia 'to be an Iran', suggesting that the United States would defend the Saudi monarchy against internal revolution as well external attack.[49] Soon after coming to office, the Reagan administration decided to sell advanced weaponry to Saudi Arabia, including AWACS aircraft and additional equipment for the Saudi F-15 fighters. Those sales met with intense opposition from supporters of Israel, forcing the Reagan administration to spend vital political capital pushing the arms packages through Congress.

Saudi Arabia was important not only as an oil exporter, but also as an increasingly influential player in regional politics and a source of aid to anti-communist causes in the Middle East and beyond. The most famous example was the war in Afghanistan, where Saudi Arabia and the United States joined with Pakistan to back the anti-communist Afghan mujahedeen. Pakistan itself also received arms and financial aid from the United States and Saudi Arabia. The Reagan administration supported Pakistan and the mujahedeen partly because Soviet victory in Afghanistan might pose a threat to the Gulf. The US embassy in Islamabad wrote that a leading US objective in Pakistan was to 'preserve the stability of the Persian Gulf and to ensure the continued flow of oil to the West and Japan', and emphasised the need to support Pakistan's military cooperation with the Gulf states.[50]

Other threats to Saudi Arabia and the other Arab states of the Gulf came from the Iran–Iraq war that began in 1980. By the mid-1980s the United States was increasingly concerned that Iran might win the war

and topple Saddam Hussein's regime, exposing the Gulf states to Iranian attack. In 1985, the CIA predicted that if the war spread to Saudi Arabia, the results could be disastrous for the world oil market, causing oil prices to rise between $15 and $40 per barrel and severely reducing economic growth in the oil-importing countries. The CIA concluded that 'the United States has a large stake in the continued flow of oil from the Persian Gulf'.[51]

Over the course of the Iran–Iraq war, the United States increasingly sided with Iraq and provided Saddam Hussein's regime with intelligence, supplies, and other assistance to prevent an Iranian victory. The Reagan administration also expanded US capabilities to intervene in the Gulf directly, upgrading the RDJTF into the US Central Command (CENTCOM), the first high-level US military command dedicated to the Middle East. As early as 1983, in response to an Iranian threat to disrupt oil shipping, Reagan declared: 'I do not believe the free world could stand by and allow anyone to close the Straits of Hormuz in the Persian Gulf to the oil traffic through those waterways.'[52] In 1987 the United States began reflagging and escorting Kuwaiti-owned oil tankers that month as part of Operation Earnest Will. US naval vessels and other military units clashed with Iranian forces on several occasions, culminating in the accidental downing of an Iranian civilian airliner, killing nearly 300 passengers, by the USS *Vincennes* in July 1988.

Conclusion

Reagan's foreign policy decisions had lasting consequences for the United States and the Persian Gulf. The dramatic expansion of US military involvement in the Middle East during the 1980s laid the groundwork for the Gulf War of 1990–1, the invasions of Afghanistan and Iraq in 2001 and 2003, and the broader post-September 11 'war on terror'. Reagan's strategy in the Gulf, however, was limited by political opposition from Saudi Arabia and other key local partners, who did not wish to appear too close to the United States and downplayed their

military relationships with Washington. One consequence was that the Reagan administration could not find a Gulf nation willing to host the headquarters of CENTCOM, which had to be located at MacDill Air Force Base in Florida instead of in the Middle East.[53] That lack of local support would be a major obstacle to US foreign policy in the Middle East during the subsequent decades.

Another long-term problem was the failure of the United States to make more progress on energy conservation. Although Carter's energy plan would have expanded reliance on coal, a high-pollution fuel, Carter also promoted investment in energy efficiency, solar power and other alternatives to fossil fuels. Those investments were curtailed under Reagan. More generally, Carter encouraged a conservationist ethos, whereas Reagan endorsed freewheeling energy consumption and fossil fuel production. Much of the progress toward greater energy efficiency made during the 1970s stagnated or even went into reverse, a development facilitated by cheaper oil. With the threat of climate change becoming ever more pressing, future historians may well look back on that failure to make greater progress on energy conservation as one of the most significant consequences of the 1980s oil price decline.

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Back to the Future: Changes in Energy Cultures and Patterns of Consumption in the United States, 1973–86

Elisabetta Bini

On 14 April 1986, *Time* magazine devoted a long article to the oil plunge of the 1980s. Titled 'Cheap Oil!', the article was accompanied by a dramatic front cover, which highlighted the contradictory effects the counter-shock could have, namely that the lowering of oil prices could be at the same time good and bad news. The author, Stephen Koepp, pointed out that 'last week consumers, businessmen and traders around the world watched in awe as the price of crude dipped below $10 per bbl. for the first time in almost a decade. Oil, which as recently as January was selling for $26 per bbl., was on a breathtaking – and dangerous – ride down a slippery slope'.[1] He went on to argue that while lower prices benefited consumers around the world, they could translate into higher unemployment rates, bankruptcy for small businesses and political turmoil. Furthermore, they could lead to a growing dependence of the United States on foreign oil, a possibility that – in light of 1970s energy crisis – seemed particularly dangerous, also for the domestic oil industry. On the other hand, Koepp noted, cheap oil prices might boost the

American economy, along with that of Western European countries and Japan. In his conclusion, the author argued reassuringly that, compared to the 1970s, the United States would not become hostage to the Organization of Petroleum Exporting Countries (OPEC). Rather, 'in contrast to how it fared in the difficult decade of the 1970s, the US now stands as a winner in the energy game. [. . .] It should aim to preserve its oil independence so that the economy can keep cruising down the road instead of sputtering to the curb once again.'[2]

In Koepp's view, the counter-shock seemed to offer unlimited possibilities for American consumers, almost a return to the forms of conspicuous consumption that had characterised the post-World War II decades. The article was part of a much wider discussion about the meaning and consequences of the counter-shock, and on the possibility for Americans of continuing to have access to mass motorisation – a symbol of freedom and democracy. These debates involved politicians, advertisers and consumers, and intersected with a wider series of confrontations not only about energy transitions, but also about national identity, America's place in the world, and the relationship between the government and citizens.

This chapter examines the cultural representations of gasoline consumption in the United States between the 1973 'oil shock' and the 1986 counter-shock. It focuses on the ways in which companies, advertisers, politicians and consumers promoted or challenged gasoline consumption, at a turning point in the history of international oil politics. I argue that the growth of gasoline consumption that followed the counter-shock should be understood as part of a longer history of changing paradigms of energy consumption, which characterised the United States between the mid-1970s and the late 1980s. While the 1973 ' oil shock' was accompanied and followed by a critique of the forms of conspicuous consumption experienced by Americans for most of the twentieth century, in the first half of the 1980s Ronald Reagan's administration promoted an energy culture (a 'petroculture') centred on the idea that every American should have the right to low gasoline prices.

This change, which intersected with the rise of the New Right, was partly a result of a consumer culture that emerged in the second half of the 1970s, which gave new legitimacy to individualistic forms of conspicuous consumption. While most studies have interpreted the 1970s as a decade of lost opportunities in the energy sector, this chapter argues that the US government, companies and consumers largely supported continued access to low oil prices, which they viewed as part and parcel of American definitions of national security, identity and personal freedom.

Oil Cultures

From a methodological point of view, this chapter draws on recent studies that have highlighted the importance 'oil cultures' have had in American history. In June 2012, the *Journal of American History* devoted an entire issue to the topic of 'Oil in American History'.[3] The over 20 articles that were included addressed a variety of themes, such as the relationship between oil and empire, the importance oil has had in shaping the American century and US foreign policy, and labour and environmental protests against the oil industry. Several essays also examined the cultural aspects and implications of oil, and the forms of conspicuous consumption made possible by the oil economy. That same year, the *Journal of American Studies* published a whole issue on 'Oil Culture', with essays on the visual and written representations of petroleum during the twentieth century, in works of art, documentaries, museums and other institutions. By adopting a variety of methodological approaches, the articles 'elucidate[d] the complex role that imaginative representations have played in establishing and contesting oil's status as the primary commodity underpinning modern economic expansion and a fundamental ontological construct shaping social and political life in the United States and beyond'.[4]

The two journal issues intersected with a wider set of studies coming from the 'energy humanities', which have pointed out the important role the humanities might (and should) have in providing useful answers to

the current geological era – the Anthropocene – dominated by climate change and resource scarcity. Drawing on, and intersecting, different disciplines, the 'energy humanities' have been arguing for 'the essential contribution that the insights and methods of the human sciences can make to areas of study and analysis that were once thought best left to the natural sciences'.[5] They have highlighted the need to recognise 'that today's energy and environmental dilemmas are fundamentally problems of ethics, habits, values, institutions, belief, and power – all traditional areas of expertise of the humanities'.[6] In recent publications, scholars have analysed the intersection between energy and modernity, the relationship between energy, power and politics, and philosophical, literary and aesthetic interpretations of energy.[7]

With few exceptions, oil culture has remained on the margins of studies about the 1970s energy crisis and the 1986 counter-shock, which have tended to focus on international or business relations. This chapter highlights the importance of considering oil not only in terms of the economy and politics, but also as 'a cultural material', whose presence is felt in our everyday lives, social relations and cultural practices.[8] It builds on Ross Barrett and Daniel Worden's definition of oil culture as a 'dynamic field of representations and symbolic practices that have [···] helped to produce the particular modes of everyday life that have developed around oil use', to examine the different meanings Americans assigned to oil consumption during the 1970s and 1980s.[9] Furthermore, drawing on studies of automobility, as a '"multilinear ensemble" of commoditites, bodies of knowledge, laws, techniques, institutions, environments, nodes of capital, sensibilities, and modes of perception', this chapter emphasises the importance of analysing the cultural and social practices that have accompanied the spread of mass motorisation, and the emergence of 'a highly specific conception of what it means to be modern and free'.[10] As Cotten Sellers has argued, automobility was (and is) particularly central to the American experience, an essential component of 'the dominant meaning of "America" and "American" in the twentieth century'.[11] In this framework,

access to cheap gasoline – and the meaning different actors assigned to it during the 1970s and 1980s – reinforced the importance of automobility in American politics, culture and society.

Redefining the Consumer's Republic

It is hard to overestimate the importance gasoline has had in shaping the American economy, society and culture after World War II. Between 1950 and 1973, Americans had access to some of the cheapest gasoline in the world ($2 per barrel), and the price of energy decreased steadily by 5 per cent each year. As Thomas Borstelmann has put it, 'for two generations, Americans [. . .] considered easy access to inexpensive gasoline as almost a birthright, a defining feature of what it meant to be American'.[12] All this changed quite rapidly with the 1973 'oil shock', which represented a turning point for what Lizabeth Cohen has defined as the Consumer's Republic. As the spendable real income of a family of four declined by 1.7 per cent between 1969 and 1979 (mostly due to inflation), 'for the first time in the postwar period, the Consumer's Republic as a prescription for an economy and political culture no longer seemed viable'.[13]

The American government responded to the 'oil shock' in a variety of ways.[14] One of them was to pass a series of laws aimed at reducing gasoline consumption. While this shift in American politics and oil culture is usually associated with Jimmy Carter's administration (the first US president to put solar panels on the White House), most reforms received full bipartisan support and several preceeded Carter's presidency. Starting in the mid-1960s, single states and the federal government introduced a series of laws to regulate pollution and offshore drilling, after several major blowouts occurred on offshore platforms in the Gulf of Mexico and California. While the state of California passed legislation aimed at limiting car emissions, President Lyndon B. Johnson's administration promoted clean-air regulation. In August 1973, just a few weeks before the outbreak of the Yom Kippur War,

President Richard Nixon increased funding for public transportation and, in November 1973, introduced the daylight saving law. In the aftermath of the 1973 'oil shock', Congress strengthened these forms of regulation: it passed the 55 mile-per-hour speed limit law, the right on red law, and the Energy Policy and Conservation Act, which introduced efficiency standards for cars and appliances. In 1977, the Carter administration approved the creation of the Department of Energy (DDE), while federal tax incentives promoted the use of renewable sources of energy. At the same time, the Environmental Protection Agency (EPA) – which was established just a few years earlier in 1970 – banned the use of leaded gasoline and enforced fuel efficiency standards.[15]

While these laws aimed at limiting gasoline consumption, during the 1970s American prices continued to be much lower than those of the world market, given that the American government remained committed to providing consumers with cheap gasoline. The Nixon, Ford and Carter administrations all promoted policies aimed at keeping the price of oil low, while Congress challenged efforts to discourage gasoline consumption. As a result, oil consumption in the United States increased from 11.5 million barrels per day in 1965 to 18.8 million barrels per day in 1980. In this context, car manufacturers adopted a dual strategy: while they started producing and advertising more fuel-efficient cars, they also marketed a new vehicle, the light truck, which was not subject to the forms of regulation enforced by the Corporate Average Fuel Economy (CAFE). When CAFE was introduced, it defined light trucks as work vehicles for businessmen and farmers, rather than as normal vehicles, even though they were mostly used by families for their private transport. Under this category, light trucks did not have to comply to fuel efficiency or environmental standards. As David Campbell has argued, 'it was a consumer politics of identity that motivated the distinction between cars and light trucks', and intersected various interests, such as those of consumer groups, companies and Congressmen.[16] Car manufacturers thus developed a market segment that was not only protected through legislation and a

tariff on imports, but was also highly requested by American consumers. As a result, the gains made possible by the legislation on fuel efficiency came to be undermined by the spread of increasingly large, heavy and inefficient cars.[17]

Despite these efforts to continue promoting gasoline consumption and mass motorisation, the 1973 'oil shock' did affect the US system of automobility in several important ways. As OPEC challenged companies' activities on the international oil market and in oil producing countries, the landscape of gasoline consumption changed rapidly. By 1979, more than half of US gas stations had been shut down or were abandoned, as oil firms moved away from non-profitable markets. Between 1970 and 1980, the number of gas stations decreased from 216,059 to 111,657, a process that affected especially the smaller independent companies. By the end of the 1970s, 85 per cent of the gasoline sold in the United States carried the brand name of a major oil corporation, since 'the majors subsidized their marketing operations from profits obtained in other segments of the industry'.[18] Firms increasingly substituted dealers with self-service stations where customers – in the name of efficiency and saving – carried out the work, while at the same time taking off the market all the free gadgets they once handed out to drivers.[19]

In this framework, Carter's administration introduced a series of changes that had important consequences on the relationship between the government and citizens and, more generally, on America's oil culture. Carter embraced the idea that the world – let alone the United States – could not continue to pursue and promote an unlimited growth and tried to enforce a post-growth model, grounded in energy taxes, lower levels of consumption, conservation and fuel efficiency. In 1977, he pointed out that, 'we must face the fact that the energy shortage is permanent, all of us must learn to waste less energy'.[20] His aim was to reduce oil consumption and imports by promoting various forms of conservation, and developing alternative sources of energy, such as coal, nuclear and solar power. A turning point in Carter's presidency was undoubtedly his so-called 'malaise speech', which criticised the forms of

conspicuous consumption that characterised American society. According to Carter, mass consumption was not a sign of success, freedom or democracy, but rather created a sense of 'emptiness' and 'fragmentation'. In this view, one of the causes of Americans' demoralisation was citizens' support of a 'mistaken idea of freedom, the right to grasp for ourselves some advantage over others'.[21] He called for material sacrifice rather than fulfillment, and pointed out that, 'too many of us now tend to worship self-indulgence and consumption'.[22]

Carter's 'malaise speech' was in many ways prophetic, but it did not appeal to Americans. As Gary Cross has argued, 'few saw the problem as overconsumption. Instead, Americans blamed American oil companies for "contriving" the crisis and Arab nations for "holding America hostage"'.[23] While some – especially environmentalists – embraced Carter's conservation ethic, the US Senate repeatedly undermined his proposals, pointing out that high prices would damage American consumers. During the 1970s, Americans actually increased their use of electricity by 50 per cent, while oil companies carried out an aggressive campaign portraying the government and environmentalists as the cause of the energy crisis, and a threat to the American way of life. The level of resistance and opposition Carter encountered was such that he wrote in his diary that 'it was like pulling teeth to convince people that we had a serious problem'.[24] Americans were not ready – nor used – to embrace austerity, which seemed so distant from the idea that access to goods represented the heart of American democracy and freedom.[25]

Criticism of Carter's policies came not only from Congress, the Senate and oil companies, but from citizens and consumer groups as well. This aspect of the story deserves to be examined in some detail, and sheds light on a series of wider changes in America's oil culture and culture of consumption, which help explain the rise of neoconservatism and Ronald Reagan's victory in 1980.[26] Following the economic crisis of the 1970s, many Americans and consumer movements embraced a new form of consumerism, which was more individualistic and fragmented (and fragmenting) than in the past. It was grounded in the idea that every

American should have access to consumer goods provided by corporations in a free market, and became part of the gospel promoted by the New Right and the Reagan administration. This new emphasis on individual forms of consumption marked a shift away from post-World War II interpretations of the relationship between government, business and consumer citizens, and put an end to a longer history of consumer activism dating back to the 1930s.[27]

The forms of consumerism that emerged in the late 1970s undermined many of the results of the consumer movement which were achieved using new political tools to push the federal government to regulate the market. Many of these changes were the outcome of the grassroots forms of mobilisation that characterised the counterculture of the 1960s, and of longer-term forms of consumer activism, symbolised by the National Consumers' League. While a federal consumer agency never came into being, the production, marketing and distribution of consumer goods became the object of regulation, and new agencies enforced safety in the workplace, on highways and in the environment.[28]

Ralph Nader embodied the new set of political issues promoted by these consumer movements. By demanding greater legislative and regulatory protection for citizens, especially drivers, Nader played a crucial role in organising citizen consumers. His 1965 bestseller, *Unsafe at Any Speed: The Designed-in Dangers in the American Automobile*, encouraged consumers to use court cases to increase safety, and laid the groundwork for the passage of legislation such as the Vehicle National Traffic and Motor Safety Act. By defining the consumer movement as a 'people's movement', he offered a new political language that could appeal to many constituencies across class, racial and ethnic divides. As Cohen has put it, 'in an increasingly postindustrial era of service sector growth and more pervasive middle-class identity [. . .] invoking the rights of consumers ideally cast a wide net over the populace, and specifically offered a more incluse discourse about the exploitation of consumers in place of the more divisive industrial-era discourse about the exploitation of labor'.[29]

These movements intersected with, and contributed to shape, the debates that accompanied the energy crises of the 1970s, which represented a turning point for American consumers and consumer movements. As Brian Black has recently argued, the conservation ethic that emerged during the 1970s introduced 'a new paradigm for consumption', embodied by green capitalism and green consumption, which 'proved to be a crucial catalyst for the energy transition from petroleum dependence'.[30] In Black's view, the debate over *The Limits of Growth* had profound implications for consumer behaviour, and was accompanied by a new 'interpretation of the nature of energy supplies [and] the application of a new environmental perspective into everyday life and also into regulative policy'. However, the 1970s were also characterised by the emergence of forms of consumption and consumerism that were not associated with green capitalism, but rather with new forms of market-oriented individualism. These substituted the emphasis on public interest that had characterised earlier consumer movements and became increasingly popular in the second half of the 1970s, paving the way for the re-emergence of conspicuous consumption under the Reagan administration.

This shift had a lot to do with a wider set of transformations in the relationship between the government, consumer-citizens and consumer movements, and contributed to narrow the definition of consumer citizenship. The consumer culture that emerged in the second half of the 1970s encouraged consumers to think of themselves as individuals pursuing their own self-interest in a free market, or as subcommunities of people bound together by shared consumer practices and interests. In this view, 'identifying as a consumer meant thinking of oneself not in the broad identity terms originally intended by the promoters of consumer citizenship in the 1930s [. . .] but rather in narrower ways, as part of distinct constituencies of consumers'.[31] As the market acquired more importance, and in the context of a growing gap between the rich and the poor, 'consumer became more a claim to personal entitlement than a commitment to society's collective well-being'.[32] By the late 1970s, personal

identity was associated with individual spending, a shift symbolised by the impressive increase in credit card spending and low-cost brokerages.

This interpretation of consumerism went hand in hand with, and gave legitimacy to, the rise of neoliberalism.[33] A growing number of individual consumers and consumer groups attributed inflation and high oil prices to government spending, social services and labour unions, and accused multinational oil companies ('big oil') of controlling the world market. As most polls showed, Americans firmly believed that the energy crisis was caused either by oil companies, by the government or by producing countries, and that if the market was left alone it would make cheap gasoline available to consumers. Those supporting these ideas came mostly from the suburbs (the very symbol of American oil culture), and represented Nixon's 'silent majority', as well as the new middle classes moving to the regions of the Sunbelt. As Matthew Huber has argued, 'for most Americans, the energy crisis was less about geopolitical confrontation and foreign policy and more about the "shock" of gasoline lines and limits to everyday geographies of social reproduction'.[34] In the context of discussions about US decline, consumers refused to accept that the American way of life could be challenged, and emphasised their rights as consumers, in the framework of meritocratic individualism and free market ideology.[35]

The New Right and the Rise of New Forms of Conspicuous Consumption

In cultural and social terms, the 1979 energy crisis probably carried more meaning than the 1973 'oil shock'. The re-emergence of lines at the gas pumps was accompanied by panic among American consumers, and by the organisation of strikes in the suburbs, which symbolised the essence of the motorised American way of life. Truck drivers as well as citizens protested the high price of gasoline and the forms of regulation introduced by the government, in ways that were more intense and radical than in previous years.[36]

The importance companies, advertisers, politicians, consumer movements and individual consumers assigned to low gasoline prices during the 1970s shaped citizens' reaction to the 1979 energy crisis and laid the groundwork for Reagan's victory in 1980. The new president – who was elected partly thanks to the support of the oil industry – embraced the idea that by cutting taxes, reducing the government deficit, and increasing defence spending, he could assure Americans a limitless economic growth. In his view, the market was by definition virtuous, allowing consumers to choose among a variety of different products. As Director of the US Office of Consumer Affairs Virginia Knauer argued in 1982, 'when businesses are allowed to regulate themselves, competition will ensure that savings will trickle down to consumers'.[37] Regulation, on the other hand, slowed down economic growth and challenged competition in the free market, instead of promoting public interest, as the consumer movement of the early 1970s had argued. Deregulation had clear and positive effects on consumers, allowing them to make 'their own choices in the free marketplace'.[38] Therefore, the government 'should not second-guess such choices with laws that regulated packaging, advertising, or sale of harmful products'.[39] Reagan's view of the relationship between government and consumer citizenship was particularly clear in his 1987 *America's Economic Bill of Rights*, which defined economic freedom as an individual's 'right to contract freely for goods and services and to achieve [their] full potential without government limits on opportunity, economic independence, and growth'.[40]

The interpretation of consumption advanced by the Reagan administration was far from universalistic. According to it, consumption should not be accessible to everyone, but only to the worthy, and it should not be accompanied by notions of collective rights and social cohesion. The relationship established between consumption and worthiness was typical of the political ideology of the New Right, which pointed out that access to consumption should be the result of hard work and discipline. As such, it 'accused liberals of promising access

to the American bounty to people who had contributed too little to prosperity and blamed the Left for raising impossible expectations of a bottomless cornucopia'.[41] This interpretation revived a series of tropes typical of the Victorian era, and adapted them to the context of the 1980s. According to public opinion makers such as Irving Kristol, the counterculture of the 1960s had undermined the balance between freedom, discipline and democracy that had characterised American culture and society for most of the nation's history. As a *Washington Post* editorial put it, 'We'd gotten too fat, too comfortable, too uncompetitive.'[42] In this view, Reagan was supposed to enforce a new discipline, by promoting Americans' sense of sacrifice and turning away from the excesses of the 1970s. In a free market, desire should be channelled into entrepreneurship and the family.

At the same time, though, the New Right promoted a new, and partly contradictory, form of consumer citizenship, embodied by yuppies (young urban professionals). While yuppies were chastised by the Right as well as the Left as *nouveaux riches* whose only preoccupation was to spend money, they actually incarnated the New Right's emphasis on the link between worthiness, discipline and consumption. Far from being idle, they combined work and leisure, by working out while watching business news or competing with each other through forms of conspicuous consumption. They also considered spending a form of work, and pursued highly individualistic forms of consumption, depending on their age, gender and lifestyle.[43]

All these social and cultural changes constituted the backbone of a new oil culture introduced by the Reagan administration. During the first half of the 1980s, Reagan abandoned Carter's emphasis on the importance of conserving energy or pursuing energy efficiency. He supported the exploration of new oil fields, and gave new legitimacy to oil corporations, choosing a former oil executive – George W. Bush – as vice president. In July 1981, he submitted to Congress the National Energy Policy Plan, which promoted the idea that the government's 'primary objective is simply for our citizens to have enough energy, and it

is up to them to decide how much energy that is, and in what form and manner it will reach them'.[44] Furthermore, he cut funding for the EPA and deregulated the price of oil and natural gas, in order to increase production and lower prices for consumers. As a result, by the early 1980s the gasoline taxes Americans paid were only one eighth of those paid by consumers in other industrialised countries.[45]

One of the most significant outcomes of these changes was the popularity light trucks achieved in the mid-1980s, just before the counter-shock. In 1984, the American Motors Corporation (AMC) started producing the Jeep Cherokee and, two years later, Ford began marketing the Ford Explorer. By doing so, car manufacturers established a niche for Sports Utility Vehicles (SUVs), which by the early 1990s took over the American market. As David Campbell has argued, the success of the Jeep Cherokee resulted from companies' and advertisers' ability to meet American consumer desires. When the AMC started marketing the Jeep – a vehicle used in World War II – to Americans in the early 1970s, it appealed to 'affluent families in urban areas who respected Jeep's military heritage and wanted to be associated with its outdoor image'.[46] By the mid-1980s, consumer desires had changed and firms, as well as advertisers, responded to a growing 'paramilitary culture that emerged after, and in response to, America's defeat in Vietnam', and characterised many baby boomers. Mass motorisation was not associated with family consumption or forms of leisure, but rather with a new definition of masculine individualism, symbolised by a desire to 'feel a bond with the great outdoors and the American frontier'.[47] Not surprisingly, in their study of consumers' desires, Ford designers noted that, 'many people were wearing cowboy hats and other Western attire', and emphasised the attention the media was giving to 'the two Jeeps that Reagan kept in his ranch near Santa Barbara, California'.[48] Despite this initial emphasis on a rugged form of masculinity, in the following years light trucks (and later SUVs) came to be considered an urban luxury vechicle, which was more and more catered to young families, who

wished to associate themselves with an adventurous way of life in the outdoors.[49]

By the time oil prices plunged in 1986, Americans were ready to pursue a new form of conspicuous consumption that resembled that of the post-World War II period, but was much more individualistic, selfish, and damaging for the environment. During and after the counter-shock, the Reagan administration pointed out that the decrease in oil prices represented a clear sign of the success of the free market, and highlighted the triumph of the American way of life, embodied by privatised forms of consumption. In the context of the counter-shock, the forms of conservation that characterised the 1970s were marginalised even further, while Americans built larger houses, expanded their suburbs, and bought more cars (increasingly less fuel efficient).

By the early 1990s, American consumers were ready for SUVs, the embodiment of 'a form of radically individualistic citizenship'.[50] From the mid-1980s, SUVs became the fastest growing category in motor vechicle sales, while sales of Jeep Cherokees skyrocketed. Between 1987 and 1995, the percentage of light trucks on the total of passenger vehicles grew from 30 per cent to 41,5 per cent, reaching a high of 63 per cent in 2001. Over the years, advertisers increasingly associated SUVs with individual and national security, especially after the September 11, 2001 attacks and in the context of the Iraq war. With the production and marketing of the Hummer and of the High Mobility Multipurpose Wheeled Vehicle (Humvee), which was used during the First Gulf War, SUVs came to symbolise 'militarized frontiers'.[51] It is significant that by the 1990s those expressing a desire to buy an SUV were mostly women and, in particular, mothers, who became 'military figure[s], confronting, but safe from, an insecure world'.[52]

In cultural, social and economic terms, the effects of the counter-shock were not univocal. During the 1990s, several important regulations introduced after the 1973 'oil shock' continued to remain in place, while advertisements kept emphasising the importance of fuel and car efficiency. Car manufacturers, on the other hand, started producing

electric vehicles and, a decade later, hybrid cars, which were embraced by a consumer culture sensible to issues of conservation and reached a high level of popularity in the United States and abroad.[53] Nonetheless, the centrality of oil in American life remained in place and acquired a new centrality during the 1980s and 1990s. Two years after the counter-shock, Stephen Koepp wrote another article for *Time* magazine, which argued that one of the consequences of the continued centrality of oil in American life was that consumers found themselves increasingly stuck along congested highways, as they moved farther away from their workplace in remote suburbs. According to Koepp, 'gridlock is more than just an irritant. The epidemic of slow-motion sickness is costing the US billions of dollars in lost productivity and wasted fuel. It is polluting the atmosphere with hydrocarbons, spoiling some Americans' taste for travel and influencing where families choose to live and work.'[54] By the late 1980s, the consumer culture that emerged in the second half of the 1970s, coupled with companies' desire to keep gasoline prices low and the New Right's emphasis on free market individualism, had produced a series of distopic effects which would define American oil culture for years to come.

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PART V

ENERGY AND ENVIRONMENTAL CHALLENGES

15

The Rise of Environmentalist Movements and the Debate on Alternative Sources of Energy During the Oil Crisis in the United States

Angela Santese

Introduction

During the 1970s modern environmentalism rose around the world leading to 'the emergence of global-scale environmental anxieties and awareness' and to the birth of environmentalist campaigns and movements.[1] Although the mobilising issues varied from place to place, environmentalism arose as response 'to the environmental disruptions that came with pell-mell economic growth in the Age of Exuberance'.[2] In particular, the huge quantities of energy and materials that had fuelled the postwar unprecedented economic growth and the wastes and pollution generated in the process, together with oil spills and accidents at nuclear and chemical plants, combined 'to raise public concerns about negative externalities of economic growth', highlighting the increasing decay and devastation of the environment.[3] From the 1970s, environmental concerns spread on a global scale leading to the

creation of environmental campaigns, often characterised by NIMBY style tactics of protest, and to the development of environmental policies in both the United States and Europe. Although these campaigns had frequently a local connotation, contesting for example a single chemical or nuclear plant, they had at the same time a transnational dimension. This latter element was related to the emerging awareness, shared by protesters around the globe, that the world was integrated and interdependent from the ecological viewpoint and that issues such as population growth, energy consumption, industrial pollution and resources depletion could not be addressed as national problems.[4]

In the United States, the genesis of the modern environmental movement can be located in between the publication of *Silent Spring* in 1962 (the popular book in which biologist Rachel Carson exposed the damages produced by pesticides both on the environment and human health) and the celebration of the first Earth Day in 1970.[5] This latter, promoted by the Wisconsin Senator Gaylord Nelson, was meant to emphasise how 'the obsession with industrial growth and consumerism was straining the environment to the breaking point', introducing many Americans to the problem of the negative effect of human activities on the ecosystem and the possible depletion of natural resources.[6] The year before, in 1969, there was another decisive moment for the birth of the US modern environmental movement, the Santa Barbara oil spill. The accident highlighted 'the danger of oil production and insufficient regulation of industries with a potential for environmental threats', helping to popularise the environmental cause.[7]

The mounting concern over the environment and pollution intertwined with the energy crisis. 'The historic event most central to environmentalism' – writes Robert Paehlke – 'was the energy price shock of 1973 and 1979'.[8] The skyrocketing prices of oil were indeed accompanied by fears about the likely depletion of natural resources. In 1972 the Club of Rome published the study *The Limits to Growth*. Based on computer modelling, it suggested that 'if the present growth

trends in world population, industrialization, pollution, food production, and resource depletion continued unchanged, the limits to growth on this planet will be reached sometime within the next one hundred years'.[9] The study thus helped to broaden the debate on the negative effects of an unrestricted economic growth and on the environmental consequences of industrial systems characterised by high rate of energy consumption. At the same time, focusing on the question of the future depletion of natural resources, it amplified concerns about the possible exhaustion of oil reserves.

In the United States, during the oil crisis period, energy and the environment, albeit sometimes in conflicting ways, entered powerfully the public discourse. The need to reduce the share of energy deriving from oil led to the consideration of both conservation measures and alternative energy sources. Different options to replace petroleum were taken into account: hydro-electric power, coal gasification, solar energy, coal liquefaction, nuclear energy. While conservation measures and the need to obtain energy savings were in line with the newfound environmental awareness, nuclear power, relaunched as a viable energy option by the oil crisis, collided with the concerns of the rising environmentalist movement that, since mid-1970s, was contesting the construction of new nuclear power plants, achieving a considerable degree of public support. Starting with the oil crisis, the US environmentalist movement became a political force strong enough to influence the public debate on ecological concerns and to shape environmental regulations.

This paper seeks to analyse the role of the US environmentalist movement, looking in particular at Mobilization for Survival, a coalition of 49 peace organisations and environmentalist groups, in the discussion aroused on the energy shortage and the potential substitutes for oil, addressing some specific questions.[10] What was, if any, the role of the new environmental awareness in the reduction of energy demand? Why environmentalist activists chose as their target nuclear power instead of equally polluting sources of energy like oil and coal?

Converging on Conservation Measures: US Governments, Movements and the Energy Crisis

The merger of energy needs and environmental concerns, presented as two interrelated issues, had entered US political discourse before the official burst of the first oil crisis. In June 1971, President Richard Nixon, in sending the Congress the first comprehensive message on energy matters, spoke of his 'twin goals of supplying adequate energy and protecting the environment in the decades ahead'.[11] To deal with the upward trend in oil prices and avoid the possible fuels shortages threatened during the previous winter, Nixon announced a programme to promote research and development for clean energy, to encourage energy conservation and develop national shale oil resources. The programme would have to ensure 'the blessing of both a high-energy civilization and a beautiful and healthy environment'.[12]

After the outbreak of the energy crisis, on 7 November 1973, the President presented 'Project Independence' intended to boost the use of alternative sources of energy and conservation, in order to meet the energy needs of the country and reach independence from foreign energy sources by the end of the decade.[13] Although in that address Nixon paid attention to environmental issues, these seemed somehow subordinate to energy needs when he told that the proposed legislation on energy 'would provide the necessary authority to relax environmental regulations on a temporary, case-by-case basis, thus permitting an appropriate balancing of our environmental interests, which all of us share, with our energy requirements, which, of course, are indispensable'.[14]

The measures planned included efforts to convert power plants from the use of oil to the use of coal, to encourage energy savings and to speed up the licensing and construction of nuclear plants. Among the available options, Nixon, as well as his successor Gerald Ford, saw in the further development of nuclear power a viable solution for tackling both the cost of energy and the future exhaustion of fossil fuel.[15] In January 1975,

President Ford proposed his energy plan, which became law as the Energy Policy and Conservation Act in December of the same year. The plan focused more on oil than energy in general, but still identified some fuel efficiency measures and actions to 'speed the development of other domestic energy sources, such as coal, geothermal, solar and nuclear power'.[16]

Both Nixon and Ford had pinned their hopes in a new technological development of the nuclear industry, the liquid metal fast breeder reactor. In June 1971 Nixon described the breeder reactor as 'our best hope today for meeting the Nation's growing demand for economical clean energy', while in August 1972, the chairman of the Atomic Energy Commission, James R. Schlesinger, announced the building at Oak Ridge, in Tennessee, of the first demonstration plant, the Clinch River Breeder Reactor.[17]

Unlike his predecessors, Jimmy Carter was more cautious on nuclear power and he would later oppose the breeder project. Nevertheless, energy policy was his top priority on taking office and, on 1 March 1977, he presented Congress his proposed energy reorganisation legislation, which created the Department of Energy (DOE) to record and regulate energy use.[18] On 18 April 1977, he announced his energy plan based on strict conservation, renewed use of coal and renewable energy sources. Carter underlined that reducing energy 'demand through conservation' was the 'cornerstone' of his policy since conservation was 'the quickest, cheapest, most practical source of energy' and a way to solve at the same time energy and environmental problems.[19] While Nixon and Ford had focused on increasing domestic energy supplies, Carter's National Energy Plan placed greater emphasis on reducing consumption, changing consumers' behaviour to decrease energy demand, implementing conservation measures and developing alternative technologies to produce energy.[20]

The three administrations that since 1970 had to face the upward trend in oil prices and then the first and the second oil shock chose to tackle the energy problem with strategies based on a mix of energy-saving

measures, the revival of nuclear power and coal, and projects for the development of renewable energy sources.

The environmental movement and the administrations, especially Carter's, agreed on the measures to save energy, through the implementation of the conservation and energy-saving standards promoted by the DOE, and on the need to develop renewable sources. Notwithstanding this convergence, the environmental movement, unlike the White House, strongly opposed the stimulation of new domestic energy supplies.[21] This dynamic can be explained by looking first at the intellectual and cultural basis of modern environmentalism that was rooted in a critique of economic growth, large-scale industrial complexes, unrestrained consumerism and the role of science and technology in supporting this kind of economic system. For environmentalists reducing energy consumption was not just a practical necessity, deriving from the need to reduce the country's dependence on imported oil. It was also a way to promote a new paradigm of development that challenged the idea of an ever-expanding consumerist society and unlimited opportunities of economic growth. Secondly, each type of energy source carried with it a potential for environmental danger and renewable sources required time to be developed, while conservation was a safe and quick way to fight against the energy shortages. This convergence between the environmentalists and the government on the need to develop conservation measures is evinced also by Ralph Nader's testimony before the House Rules Committee: in 1975, the leading environmentalist told that 'without a doubt the top priority for Congress today should be saving energy' because – he said – '[this] is the quickest new energy source we have'.[22] Like the environmental movement also 'the public generally opposes new energy development' and no energy source can be considered popular.[23] But unlike environmentalists, public opinion was not an enthusiastic supporter of conservation measures that actually affected more individuals than great corporations. Some of them were indeed perceived as limiting their individual rights as both consumers and citizens, making more apparent the contradiction

between the environment and the imperatives of economic growth and consumerism. Nixon himself, who had incisively contributed to the environmental legislation and to the creation of the Environmental Protection Agency (EPA), especially toward the end of his first term, believed that 'his pro-environment actions had yielded few political dividends', underlying the unpopularity of measures that affected the daily life of the average American citizen.[24]

For Mobilitation for Survival's (MfS) activists instead a 'Sane energy policy' must be based on

> a strong emphasis on conservation and renewable energy' since these could 'provide us with safe, renewable, non-inflationary sources of energy; create thousands of jobs [. . .]; begin the process of converting our military, nuclear and oil-dependent economy to safe and socially useful production [. . .].[25]

According to their perspective 'a shift of national energy resources from nuclear, coal and oil to renewable resources over a period of years would contribute to our national security by fighting inflation, providing needed jobs, and removing a prime excuse for foreign intervention'.[26]

Thus for environmentalists conservation measures and the development of renewable sources were the best options to address the contingent problem of high energy prices and to further, in the long term, a new paradigm of economic development that it had to rely as little as possible on fossil fuel. Despite this, and in a somewhat surprising manner, the convergence between the environmentalists and the government was not limited to conservation measures and alternative sources but concerned also one of the possible substitutes for oil.

The two most obvious alternatives to petroleum were coal and nuclear power. Both could potentially harm the environment: the first one because of the effects of mining and of air pollution and carbon dioxide produced by coal burning; the second one because of radiation emission and the problems related to nuclear wastes disposal. Despite

that, the environmental movement considered coal as a valid transitional alternative to supply energy before developing renewable sources of energy on a commercial scale. As stated in the movement's publication 'realistically, over the next ten years there is no option but to depend on coal'.[27] They recognised the environmental hazards of coal mining and burning but at the same time stressed that 'you could increase the amount [of coal] burned and maintain or reduce total emission by requiring older plants to install better pollution control technology' since 'the new coal technology promises to be environmentally better'.[28]

This confidence in the possibility of a technological fix to lessen the environmental impact of coal was instead reversed in the case of nuclear power. The last technological development in this field, that is the breeder reactor, requiring more fuel to be operated than the light water reactor, was perceived as worsening the risks both for the environment and for human health.

The Worst Possible Alternative: Nuclear Power

The first protests against nuclear power plants started before the energy crisis. In particular, in California antinuclear power groups began to criticise nuclear power development at the end of the 1950s. The organisations involved in these early campaigns were basically conservationist groups worried not so much about the environmental danger of nuclear technology but rather concerned about the siting of nuclear power plants and their negative effects on pristine landscapes. For instance the Sierra Club, the most important conservationist organisation, was pro-nuclear since it conceived nuclear power as clean form of energy and as a best alternative to oil, since both petroleum drilling and transportation could seriously harm the environment.

The shift in the tone of criticism against nuclear power came in the 1970s when concerns over radioactive contamination replaced those over landscape's destruction. This change was also symbolised by the internal conflict within the Sierra Club: in 1969, the former director David Bower

resigned to protest against the decision to build a nuclear power plant at Diablo Canyon, in California. At the same time he founded Friends of the Earth, a radical environmental organisation, whose agenda included the antinuclear power issue.[29] In 1969 as well, at the Massachusetts Institute of Technology, a group of scientists and students formed the Union of Concerned Scientists that would later develop a campaign to denounce nuclear power as a 'high cost energy source with serious unresolved safety problems' which included 'the risks of catastrophic nuclear plant accidents that could threaten thousands of people with death and other nuclear radiation injuries'.[30]

After Nixon and Ford decided to rely on atomic power to decrease the share of energy deriving from oil, nuclear power plants became the target of *not in my backyard* grass-root groups as well as national antinuclear power organisations. In 1976, the Clamshell Alliance, a coalition of small environmental and antinuclear groups of New England, begun to protest against the construction of a new reactor at Seabrook, in New Hampshire, occupying the construction's site. Similar initiatives of protest were developed in Maine, Connecticut and in the Boston's area, while other no-nukes organisations were formed on the model of the Clamshell Alliance: the Abalone Alliance to protest the Diablo Canyon power plant and the Catfish Alliance, which brought together some antinuclear groups of the southern States.[31]

The assault against nuclear power developed in this period was based on three sets of concerns: environmental hazards, safety-related issues and the so-called 'nuclear connection'. From the environmental viewpoint, no-nukes activists saw a danger in the raw materials, basically uranium and plutonium, needed to fuel the nuclear cycle. For antinuclear groups 'all methods of uranium mining have serious environmental hazards' and 'uranium is radioactive, emitting alpha, beta and gamma rays', thus exposing miners to the danger of low-emission radioactivity.[32] Moreover, 'nuclear power uses a great deal of fresh water [...] for cooling, about 50 percent more than a fossil fuel plant of the same size'.[33]

The consequence of the process of cooling spent fuel was thermal pollution that 'may cause subtle, pervasive and permanent changes in the ecosystems'.[34] The longlasting environmental hazard produced by the nuclear industry was that deriving from the spent fuel: according to activists, the storage, processing and transportation of radioactive wastes, which continued to emit radiations for hundreds of years, posed a constant threat to both the environment and human health.[35]

Moreover, antinuclear groups questioned as inadequate the safety standards of nuclear reactors, the emergency procedures and the plans to evacuate the population. Their claims were shared, and in some way reinforced, by scientists' charges that the 'basic safety system in nuclear plants has never been tested under real conditions and when tested on small-scale models, consistently failed to function properly'.[36] No-nukes denounced also the peril of radioactive contamination in case of accident and its potential devastating medical consequences on the population, highlighting the impossibility of containing the danger of the radioactive fallout.

With the development of the breeder technology the criticism of nuclear power came to include also the danger deriving from what no-nukes activists labelled 'the nuclear connection'. The breeder reactor was designed to help the nuclear industry to overcome the impending shortage of uranium as nuclear fuel. As underlined in one of the analyses of the breeder technology published by MfS 'the breeder reactor would use plutonium as fuel and would actually produce more plutonium than it consumes, yielding an almost limitless supply of fuel'. In that way, this new kind of reactor 'would also contribute to the potential proliferation of nuclear weapons by increasing the amount of bomb fuel in circulation'.[37] Unlike the light water reactor, the breeder reactor produces at the end of nuclear cycle more fuel than it consumes. In particular the result of its chain reaction is plutonium-239, a weapons-grade fissile material suitable for the production of nuclear bombs. Given that characteristic, the breeder reactor eroded from a technical viewpoint the clear-cut separation between the commercial and military

applications of nuclear power. According to activists this implied the danger of horizontal nuclear proliferation since

> one of the strongest link between nuclear weapons and nuclear power concerns the relationship between the civilian nuclear industry and worldwide proliferation of nuclear weapons. Simply stated nuclear power plants spread both the technological know-how and the raw material needed to build atomic bombs.[38]

With the breeder technology, reactors started to be perceived as part of the nuclear weapons production system and this led to the convergence between the environmental and the antinuclear peace movement. For many pacifist organisations indeed the 'goal of nonproliferation of nuclear weapons' became 'virtually unattainable as long as there [was] a civilian nuclear power industry'. Starting from that premise they choose to join the antinuclear power struggle describing nuclear reactors as the 'silent bombs'.[39]

The confidence in the nuclear technology was definitely challenged by the accident at the nuclear reactor of Three Mile Island, in Pennsylvania. On 28 March 1979, because of a series of technical problems and human mistakes, the core of reactor number 2 was severely damaged, causing a leak of highly radioactive substances into the atmosphere. The near meltdown of Harrisburg was the most serious accident in the history of US commercial nuclear power. As underlined on *The Bulletin of Atomic Scientists* it brought 'long-ignored reactors safety problems into sharp focus' while 'the American public, along with the rest of the world, was treated to a quick course on what can go wrong with nuclear reactors'.[40]

The accident caused what the *Washington Post* called 'an emotional fallout', with a wave of protests against nuclear power that was not limited only to the United States but also reached Europe.[41] Especially in Denmark and Sweden the accident led to a debate about the safety of nuclear energy, while in Hannover, 35,000 people protested against the project to build a nuclear wastes dump with the slogan 'we all live in

Pennsylvania', underlying the transnational nature of the nuclear threat.[42] In the United States, on 6 May 1979, 200,000 people protested against nuclear power during the 'March to Put Nuclear Power on Trial', promoted by MfS. The rally's organisers asked the shutting of all nuclear power plants, since, as showed by the Three Mile Island's accident, reactors' security systems were not able to prevent radioactive contamination.[43] From the rally's stage, Ralph Nader urged President Carter to keep the promises made during the 1976 campaign, namely ' that nuclear power was to be the last resort and that energy conservation, solar energy and clean coal were first resorts' in order to meet the nation' s energy needs.[44] The accident clearly showed the environmental and safety liabilities of nuclear power, leading to a growth of the antinuclear activism around the country.

Shifting Paradigms?

Throughout the energy crisis, environmental organisations contributed to the public discussion on the ways to tackle the energy shortages and the future depletion of fossil fuels. Environmentalists basically supported the governmental effort to develop conservation and energy-efficiency measures and to change consumers' habits in order to decrease energy demand. They sustained coal power with adequate pollution control systems (as a transitional source of energy before developing renewable sources on a commercial scale) and alternative sources: the development of solar, wind, thermal, biomass and hydro energy, the production of methane and alcohol fuels and changes in tax law to encourage and subsidise the development of solar energy.[45] Moreover different strands of the environmental movement, together with pacifist organisations, strongly opposed nuclear power considered as the worst energy alternative since it was dangerous for both the environment and human health, expensive and linked to military technology.

After the first oil shock, the increase in the oil price was at first assumed to render nuclear energy more competitive than other fuels and

thus to produce an expansion of nuclear plant orders. As underlined by Timothy Mitchell, the environmental movement 'by insisting that nuclear power generation be forced to take account of the risks of accidents and the costs of disposing of spent fuel [. . . .] helped make nuclear energy less affordable, and thus less likely to become a lower-priced alternative to fossil fuels'.[46]

The accident at Three Mile Island, regarded by the environmentalists as a graphic representation of the atomic danger, made things worse for the nuclear industry because public opinion lost confidence in nuclear power as a safe way to produce electricity.[47] 'After the accident' – the historian Samuel J. Walker wrote – 'a significant percentage of Americans moved from ambivalence to opposition in their view on building more nuclear plants'.[48] Public support for what in the 1950s was described by the government as 'our friend the atom' declined in the 1970s probably due to the rise of environmental awareness and antinuclear power campaigns: in 1974, 59 per cent supported nuclear power, while in January 1979, before Three Mile Island, only 50 per cent of the sample favoured building more nuclear plants. Of course, there was another decline after the accident, when only 39 per cent of citizens thought that increasing the share of energy deriving from nuclear power was a good idea.[49] The near nuclear meltdown of Harrisburg in some way marked the end of the nuclear industry in the United States since there were no further nuclear plant orders and utilities abandoned some plants already under construction.

In addition to antinuclear power protests, economic factors also played an important role in the decline of the nuclear power industry. The high price of energy reduced electricity demand growth and this led to a drop of power plant orders, both coal and nuclear powered.[50] As underlined by Brendan Dooley 'the drop in consumption of electricity as a result of the energy crisis was an ironic turn of events, reducing the need for new plants of any kind'. According to his analysis the economic conditions of the mid-1970s were more significant than environmental protests in undermining the nuclear industry, and Three Mile Island

'was not the departure point for a loss of faith in nuclear power [···] but the climax'.[51] The accident happened at a time when nuclear plant orders were already declining because 'there was not enough demand for energy to justify new plants'.[52]

Renewable sources, like solar, wind and thermal energy, captured public attention during the energy crisis but, as underlined by David Nye in the 1970s and early 1980s, they 'were not yet ready to compete in the market place, and government funding for research remained meager'.[53] Given that, renewable sources were not a real alternative to fossil fuel or nuclear power. Moreover, while supportive of the development of energy alternatives in general terms, the environmental movement itself did not advance a specific agenda on the issue, and focused instead on the struggle against nuclear power. Furthermore many high-cost projects for alternative sources of energy collapsed when prices started to fall.[54]

The emphasis on the need to implement conservation and energy-saving measures in order to change the US high-consuming energy system was a permanent feature of the energy crisis, especially during Carter's tenure, although it was Nixon who put into practice the first actions in that direction. Between the first oil shock and the early 1980s something changed in the US energy pattern: if in the period 1967–73 the consumption of total energy 'was growing at an average of 3.8 per cent', between 1973 and 1981, the grow rate of energy consumption dropped to an average of 0.7 per cent per year.[55] The observed decline in energy consumption was due to at least two factors: from on the one hand, all the efforts, encouraged by both the government and the environmental movement, to reduce energy consumption and avoid waste, but on the other, the high price of energy and a slower path of economic growth also played a role in the energy demand decrease. This trend, together with the emphasis on the need to save energy, was reversed when the energy crisis was over. Since 1983 lower oil prices started to prevail and the convergence between environmentalists and the government on implementing energy-saving measures seemed over.

While for the environmental movement, reducing energy consumption was a way to further a more sustainable model of economic development based on the elimination of wasteful energy practices and on more responsible consumer habits, for the government, and especially for President Ronald Reagan, it was just an economic contingent problem. With lower energy price and with the newfound emphasis on individualism, conservation measures 'started to be seen as part of the environmental agenda, rather than an economic imperative' and for this reason they were abandoned.[56]

Indeed, when Reagan took office he launched what historian Samuel P. Hays has labelled 'the Reagan Antienvironmental Revolution', trying to restrict the environmental policies implemented in the previous decade, cutting the budget of the EPA and threatening to close the DOE. The anti-environmental attitude of Reagan was connected to his anti-regulatory and pro-business views, symbolised also by the choice to appoint Anne Gorsuch as EPA administrator. Gorsuch had a 'strongly pro-business political records' and she relaxed the environmental legislation limiting industrial developments. But Reagan's rigid anti-environmental posture backfired during his first term, strengthening in some ways the environmental movement and legitimating some of his claims. Moreover, notwithstanding his rhetorical attack against environmental legislation and conservation measures, he did not dismantle the DOE or eliminate speed limits, showing a partial continuity with the policies implemented from the Nixon's administration onwards.[57]

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16

The Role of Nuclear Reactor Technology on the Development of the Nuclear Industry and Decision-making in the Context of the Price Fluctuations of the 1970s and 1980s

Duncan Connors and Eshref Trushin

This paper focuses on economic decision-making in the nuclear industry during the petroleum crisis of 1973 and 1979 and the fall in oil prices in 1986. It will demonstrate that the path taken by countries such as the United Kingdom, the United States, Japan, France and the Soviet Union diverged depending on their relationship with the global petroleum market and that the eventual outcomes were not 'set in stone' but reliant on a number of dependent and independent factors based upon the technical choice of reactor design used and how different choices interacted with the wider economy.

Oil Price and Nuclear Weapons: Externalities and the Choice of Nuclear Reactor Technology

Arguments about the role of oil price rises in determining the success or failure of the global economy from 1973 emphasise the importance of these events on the future energy choices for those nations employing or developing nuclear power as a future energy source for the nation. There is much merit in this; for example, the United Kingdom was hit much less than other Western nations by the 1973 'Yom Kippur' oil crisis due to its already developed nuclear sector as well as a reliance on domestic, although expensive, coal supplies that provided for around 73 per cent of electricity production. Compare this to the United States, France and Japan which had 17 per cent, 40 per cent and 72 per cent of electricity production accounted for by burning oil, then the United Kingdom weathered the fuel crisis in terms of electricity supply better than its peers, yet in terms of transport the country was hindered by imported oil the same as any other. And, of course, the miners' strike of 1974 perhaps had an even more crippling inflationary effect on the United Kingdom than the rise in oil prices had on other countries.[1] The United Kingdom did have an early adopter advantage by having an atomic power sector intrinsically linked to the nuclear weapons industry with a power reactor design evolved from the very first British reactor (known as GLEEP) that produced copious amounts of plutonium for weapons use.[2] France and the United States developed a nuclear power industry later than the United Kingdom, based upon simplified commercial designs originating in the United States that were eventually adopted by both nations, although both France and the United States initially pursued a path similar to that of the United Kingdom based on reactors linked to nuclear weapon production.[3] The Soviet Union, again, had a path similar to that of other nuclear weapon states in building plutonium-producing reactors and following this with power reactors; but the Soviet Union is unique in that its technological approach continued to use a variety of reactors not just for military applications but also for a massive programme of nuclear

electricity production starting in the 1970s. This paper will focus on the Soviet programme as, whilst the creation of the Soviet nuclear programme appears to follow the same path as other nations, it appears to do so for other reasons. The Soviet Union was the largest exporter of crude oil and natural gas for most of the twentieth century and the petroleum industry was the main source of hard currency for the Soviet economy. Consequently, the fate of its economy was intertwined with the global oil price and, whilst this was to the national advantage after 1973, during the oil glut of 1986 and subsequent two-thirds drop in the price of oil the Soviet economy was severely hampered by the fall in revenue from oil and gas exports.[4] This paper will outline these trends in comparison to the three nuclear originator nations of France, the United Kingdom and the United States, as well as Japan (being highly reliant on imported fuel and therefore price shocks) to show that the nuclear path taken by the Soviets was designed to increase oil and gas exports by reducing home consumption.[5] The goal was not just to increase revenue and income – the use of oil and gas exports was an important prop to maintain Soviet influence in Eastern Europe.[6]

Before continuing, the issue of reactor technology must briefly be touched upon and two concepts will be introduced – moderation and cooling. Moderation is what makes the reactor stable whilst at the same time promoting the reaction to flourish. Two substances have been used, graphite and light or heavy water. Graphite produces the best effect but only works with what is known as natural uranium that can very easily be converted into weapons-grade plutonium and so as a moderator is frowned up by non-proliferation regimes. This has restricted the export potential of the UK-designed Magnox reactor and its evolution, the Advanced Gas Reactor (AGR), that have reliably provided electricity for over half a century and yet have serious proliferation concerns from its by-product, plutonium.[7] Light water (i.e. normal water) is the preferred moderation but it is not as effective as graphite and so requires fuel that has been enriched with higher isotopes of uranium, with the advantage that by burning up these isotopes it produces little plutonium as waste.

Heavy water functions as a middle way between the two and it gains its name from having a heavy form of hydrogen called deuterium that enhances the chain reactor. Whilst it is not as proliferating as graphite, it still causes concern (the Canadian CANDU reactor formed the basis of the Indian nuclear weapons programme) and heavy water is a very expensive substance to manufacture.

Cooling is less of an issue as the majority of reactors in service use light water, and whilst a few British reactors still use carbon dioxide to cool the reactor core to transfer heat to the generators via an exchanger, the use of light water as both moderator and coolant led to the creation of two ubiquitous reactors developed by private US companies (that received vast amounts of funding from the US military to develop power reactors), the Pressurised Water Reactor (PWR) and the Boiling Water Reactor (BWR).[8] Sponsored by the US Navy for submarine propulsion and US Army to power remote bases, the two reactors designs benefited from being simple and cheap to build and were sold by Westinghouse (PWR) and GE (BWR) in the hundreds using the commercial prowess of both firms backed up by the US government. No other design has fared as well against this sales onslaught and whilst the Canadian CANDU design which uses heavy water as a moderator has been a mild export success with a dozen sold overseas, designs such as the British MAGNOX and Advanced Gas Cooled Reactor (AGR) reactors failed miserably to gain favour overseas baring two reactors sold to Japan and Italy, the latter being part of the Italian efforts to develop a nuclear weapon in the 1950s and 1960s.[9] Indeed, the British designs also required almost immediate fuel reprocessing as the magnesium-encrusted fuel quickly corroded and the plutonium content needed to be extracted as soon as practicable. Efforts were made to use this plutonium to produce electricity in technically complex Fast and Fast Breeder Reactors that operated at a higher temperature and fuel density than conventional reactors, but due to safety concerns over the use of plutonium and the use of unstable elements such as sodium for cooling few ever operated at full capacity or for that long.[10] Mostly this was due to the need for a dense coolant such

as sodium that created additional technical problems alongside those of containing the highly radioactive plutonium fuel. Barring some experimental plants that functioned for around a decade, such as Dounreay in Scotland, Phenix in France and the Fast Flux Test Facility in the United States the technology has not been mastered. Indeed, the one attempt to create a fully functioning commercial fast breeder reactor, the one gw Franco-Swiss Super Phenix reactor, was an abject failure and was decommissioned after producing only 63 months of electricity at less than 25 per cent capacity over an 11-year period between 1986 and 1997.[11] There is, however, an outlier in all this which is the Russian BN-600 fast reactor, which has operated relatively reliably (whilst being somewhat leaky in terms of sodium now and again) since 1981. This reactor has demonstrated that alternative nuclear technologies can work and its sister power plant, the BN-800 is currently in commission after achieving criticality in 2014.[12]

Some argue that the PWR and BWR technology developed in the United States during the 1950s has become the orthodoxy through a process of technical lock-in similar to that of the Otto Cycle engine used in the majority of automobiles to the present day.[13] There is, perhaps, some merit in this in the context of 'successful' non-orthodox systems such as the British and Canadian designs, but the fact remains that the simplified American designs requiring no reprocessing (the used fuel was stored) and with few, if any, proliferation concerns provided an easy cost-effective route to nuclear power production. The strong relative merits of the light water designs can be seen in its adoption in a number of nations before and after the 1973 oil crisis – countries such as Sweden and Switzerland abandoned mature domestic designs in favour of the Boiling Water Reactor design around 1970, particularly as the new Non-Proliferation Treaty finally forced many small to medium nations with nuclear ambitions to close weapons programmes down with the consequence they would have to do the same for their local plutonium-producing reactors.[14] Finally, indigenous reactor design was dealt a death blow by the French 'Messmer Plan' of 1974 (named after its

main advocate, Prime Minister Pierre Messmer) designed to reduce the country's dependence on imported hydrocarbons. The plan specified a massive expansion of nuclear power using American Pressurised Water Reactor technology as an easier to build alternative to the indigenous UNGG reactors and the United Kingdom followed suit in 1978, abandoning both its AGR technology as well as a domestically developed Steam Generating Heavy Water Reactor (SGHWR) in favour of the PWR. In short, reactor technology in the global nuclear industry had become relatively homogeneous by the mid-1980s.[15]

Soviet technical developments on the one hand followed a very similar path to that of France, the United Kingdom and the United States in that the earliest reactors were graphite moderated and used natural uranium to produce plutonium for bombs.[16] As with the United States, the Soviet Union also developed a programme of Pressurised Water Reactors based upon submarine technology akin to those of the United States in what appears to be a programme of parallel evolution; and these reactors, known as the VVER (Vodo-Vodyanoi Energetichesky Reaktor/ Water-Water Power Reactor or in Russian Водо-водяной энергетический реактор) were the earliest types employed by the Russian nuclear industry in the 1960s and 1970s. Then, something interesting happened in the early 1970s that provides a counterfactual for the academic but for the average atomic engineer something counterintuitive and against the orthodoxy – the Soviet Union switched to producing both the VVER PWR reactor but also a 'new' design based upon the early graphite moderated plutonium reactors, which was called the RBMK (Reaktor Bolshoy Moshchnosti Kanalnyy/High Power Channel-type Reactor – Реактор Большой Мощности Канальный).[17] The latter design, known as the RBMK, was first brought into service at the Leningrad Nuclear Power plant and this reactor type was symbolic with the Soviet obsession with gigantism, being substantially larger than the VVER reactor not only in its monolithic size, but also potential electrical outputs of up to two and a half gw. The majority of sources state that the RBMK was more expensive to build than the VVER, more complex to

run and required more staff; but there was one major advantage – it was easier to build in large numbers being made up of prefabricated blocks brought in straight from the factory and erected on a prepared site. Additionally, the reactor could run on natural uranium and produce plutonium and was therefore integral to the Soviet ambition of operating a fleet of conventional and fast breeder reactors, one of the few nations who have partially succeeded in doing so with the BN-350 and BN-600 designs.[18]

Technical choice is therefore an important consideration when analysing the economic prospects of the global nuclear industry. The Light Water Reactor represents the orthodoxy but nations that pursued nuclear weapons programmes used, for a period of time, graphite or heavy water moderated reactors that evolved from early research reactors. These reactors have very different operational characteristics, construction costs and prices for electricity when compared to light water designs as well as a tendency to produce plutonium waste. France, the United Kingdom and Soviet Union employed such plants commercially to some success and, whilst France moved onto using the cheaper and more reliable PWR design after the 1973 oil crisis, the United Kingdom and USSR continued to employ graphite-based plants. In the case of the United Kingdom it was because a crash programme from the 1950s and a continuing evolved programme running into the 1970s created the largest nuclear industry in terms of output and percentage of overall production until 1971 when the United States surpassed the United Kingdom as it cooled its heals after two decades of almost breakneck reactor construction. In the case of the Soviet Union, however, it certainly appears that whilst the VVER reactor was the better technology the RBMK could be made quickly and was therefore used to bring about a massive expansion of nuclear power with an additional benefit of making plutonium for the ongoing fast breeder programme. The following section will analysis the costs of reactors and the growth of the national industries named in this paper in terms of the relationship between their energy needs and the fluctuating cost of crude oil in the 1970s and 1980s.

The Economics of Nuclear Power

This section will give a brief overview of the economics of using nuclear power for electric generation. It will (attempt to) show the business case for an item of machinery that produces an output at times more expensive than other fuels and requires an initial capital spend substantially higher per kilowatt/hour (kw/h) than the fossil fuel alternative, although maybe not for the renewable options.[19] Nuclear reactors of any type are large infrastructure projects that are in part standardised, part bespoke and take a substantial time to construct; the global average is approximately five years from start to finish, with Japan's average almost a year lower and the United Kingdom taking more than twice as long.[20] The cost of constructing the reactors and associated lifetime costs also varies across nations and it appears that economies of scale are part of the process and as Figure 16.1 demonstrates, follow a U-shaped inverted bell curve.

Therefore, whilst nuclear power is expensive and a long-term proposition susceptible to political and environmental concerns, the 60-year or more proposed lifespan has the potential to provide an investor returns over generations. Indeed, plants constructed in the 1960s and 1970s are still in operation and are expected to continue in commercial service for up to 20 years.[21]

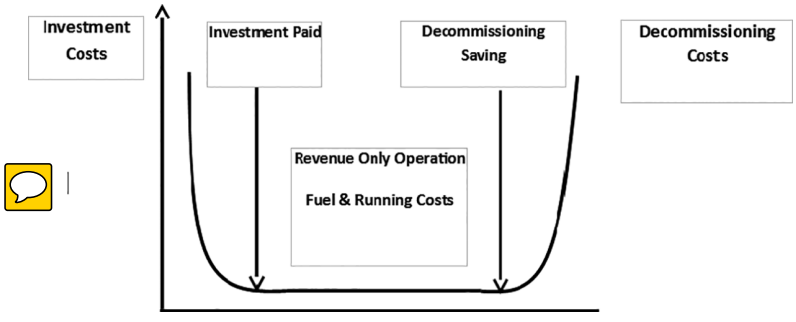

Figure 16.1 Cost of construction of reactors and associated lifetime costs over time.

Table 16.1 Cost comparison between nuclear reactors and CCGT

Cost Per mw/h	Nuclear	CCGT
Construction Capital	65 – 80%	20 – 30%
Lifetime Maintenance	10 – 20%	5 – 10%
Fuel	5 – 10%	60 – 80%

Source: Fabien Roques et al., 'Nuclear Power: A Hedge against Uncertain Gas and Carbon Prices', *The Energy Journal* xxvii/4 (2006), pp. 1–23.

The genuine advantage for a nuclear reactor comes with fuel costs, which are substantially lower over its lifetime than a comparable fossil fuel plant, as Table 16.1 demonstrates in comparison with a Combined Cycle Gas Turbine (CCGT) power station.

The fuel costs are the important attraction of nuclear power and do not suffer from the same price fluctuations caused by 'events as externalities' that affect gas and crude oil prices. However, these fuel costs are also technology specific and depend on reactor type.[22]

The big drawback for new reactor construction (particularly in recent years) even in the 1960s and 1970s was the need for upfront capital. Whilst in the United Kingdom, France and the Soviet Union this was less of an issue as electricity generation was a nationalised state enterprise, in the United States new reactors were for the most plant funded by private utilities entering favourable arrangements with Westinghouse and General Electric that reassured financial institutions. Nevertheless, there was additional Federal involvement in the industry in the field of reactor research and development that enabled both Westinghouse and General Electric to develop large commercial reactors without passing the cost onto the customer. What is also worthy of note is the fact that other energy sources received more subsidy than nuclear power – between 1950 and 2010 the Federal Government spent over $837 billion in supporting the US energy market and yet, whilst 44 per cent of this went on oil, 21 per cent on renewables and 12 per cent on coal, only 9 per cent went on nuclear power.[23]

The attraction of nuclear power is therefore not found in short-term operations nor as a reaction to an event, such as a fuel crisis caused by a sudden price rise, that might very well have only been a passing phenomenon reversed in the following days, weeks, months and years, but as a reliable way of providing base load electricity at a reasonable cost. And yet, when analysing the steady number of reactor orders in the United States since 1960 and the massive rise after 1973 with 41 reactors ordered in 1974, it is substantially correct to state this was a reaction to the rise in oil prices and an assumption that OPEC would not change its direction anytime soon. Indeed, amplified by a wide-ranging concern about price rises dating back to the mid-1960s and the effects of the closure of the Suez Canal in 1967 with the subsequent rise in transportation costs added to an awareness of scarcity, then a prompt reaction to the 1973 crisis makes sense.[24]

In short, despite nuclear power being useful as a base load as opposed to meeting fluctuations in demand, concerns about future energy security and the cost of energy influenced the flood of American reactor orders in the 1970s.

France was another example of a rush to nuclear power generation that started in the 1950s and one that continued after the Three Mile Island accident in 1979 halted further reactor orders in the United States.[25] Prime Minister Pierre Messmer's plan for the adoption of nuclear power based on Light Water Reactor technology to provide the majority of electricity in France is well known and contrasts with the commercial approach undertaken in the United States but also with the other state-owned, managed and controlled industries in the United Kingdom and the USSR. In 1973, the United Kingdom had a mature nuclear industry and ample supplies of coal and therefore was unlikely to respond in the same way as the United States or France; but the outlier and counterfactual case is that of the Soviet Union. The USSR could only benefit from the OPEC price rise, as it was the largest exporter of crude oil and natural gas and therefore energy self-sufficient, which asks the question, why did the Soviet Union massively expand its nuclear sector

after 1973? The short answer is it was not a reaction but a well laid-out plan: the Soviet planning system laid out goals for major infrastructure projects well in advance using its system of economic five-year plans. The nuclear industry was part of this and so it was the Ninth Ten-Year Plan starting in 1970 that initiated a massive expansion of nuclear power. With the Tenth Five-Year plan due to commence in 1975, it seems logical that it was a document reflective of the post 1973 rise in oil prices.[26] The Soviet economy evolved over the following 15 years to become reliant on its energy sector for hard currency and, by 1987, almost half of all Soviet exports were accounted for by the energy sector at 46.5 per cent of all exports by value.[27] There is an argument that this would be due to supporting economies in COMECON (also known as CMEA, Council for Mutual Economic Assistance) but in reality over 80 per cent of the energy exports went to Western nations.[28] It is conceivable, therefore, that the Soviet Union is an exceptional case compared to other nations by implementing a nuclear programme to replace fossil fuels to increase the size of oil and gas exports as opposed to replace energy imports from abroad.[29]

The Nuclear Reaction to the 1973 OPEC Crisis by Industrialised Nations

This section will perform a quick overview of the available data for a period of 18 years from 1970 to 1988 to show how five nations, France, Japan, the United Kingdom, the United States and the Soviet Union responded to both the 1973 OPEC oil crisis but also the fall in crude oil prices in 1986. The Soviet Union warrants particular attention as in many ways it is the exception that proves the rule by being a net exporter of energy and yet a nation that underwent a large expansion of nuclear power alongside other nations from the early 1970s onwards. Hypothetically, this would be to benefit from the rise in oil prices to improve the Soviet current account balance; access to hard currency was always an issue for the national economy over the 74-year existence of

the Soviet Union and the fate of the Soviet ruble was linked to British pound with which it was pegged.[30] Indeed, as previously mentioned the vast energy exports of the Soviet Union accounted for almost 50 per cent of the national export revenue by the mid-1980s. Any programme to improve this would be at the forefront of the mind of GOSPLAN when setting five-year plans and again, the Ninth and Tenth plans both outlined plans for a massive expansion of nuclear power in the European and Central areas of Russia and the Ukraine. The opening of 35 gigawatts (gw) of nuclear power between 1970 and 1988 and plans for a further 40 gw by 1990 reflected this, but many stations stood uncompleted by the early 1990s as the Chernobyl accident ended the development of the RMBK reactor and a waning economy could no longer afford the VVER design.[31]

The effects of both the OPEC crisis and the counter-shock on the five nations studied in this section are apparent in the two charts below. However, the United Kingdom grew at a much slower pace than other

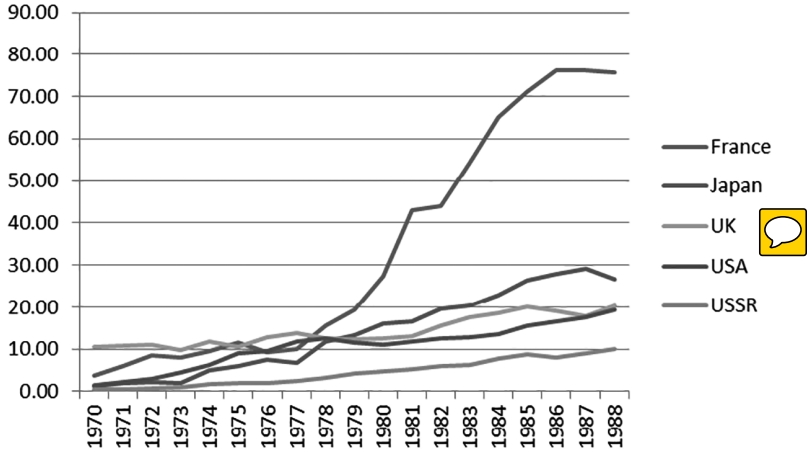

Figure 16.2 Proportion of electricity production by nuclear power in five countries, 1970–88. Source: IAEA, IEA and USA/USSR Facts and Figures, US Economics and Statistics Administration and State Committee on Statistics, 1991 and Soviet Energy Data Resource Handbook, Central Intelligence Agency, 1990.

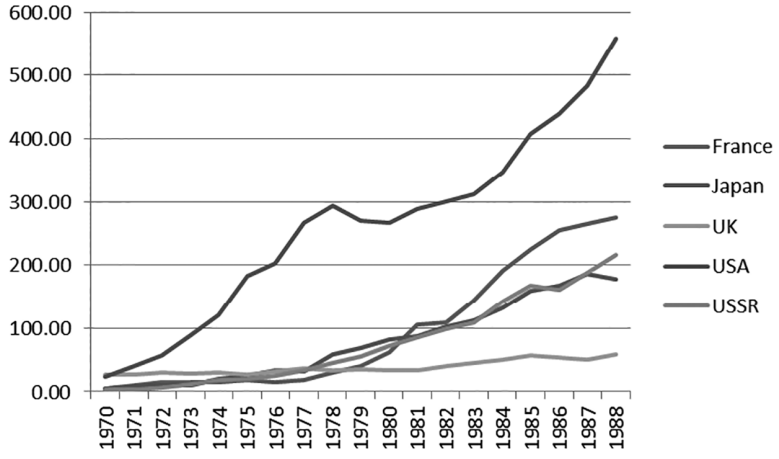

Figure 16.3 Output of nuclear industry in thousand KTOES in five countries, 1970–88. Source: IAEA, IEA and USA/USSR Facts and Figures, US Economics and Statistics Administration and State Committee on Statistics, 1991 and Soviet Energy Data Resource Handbook, Central Intelligence Agency, 1990.

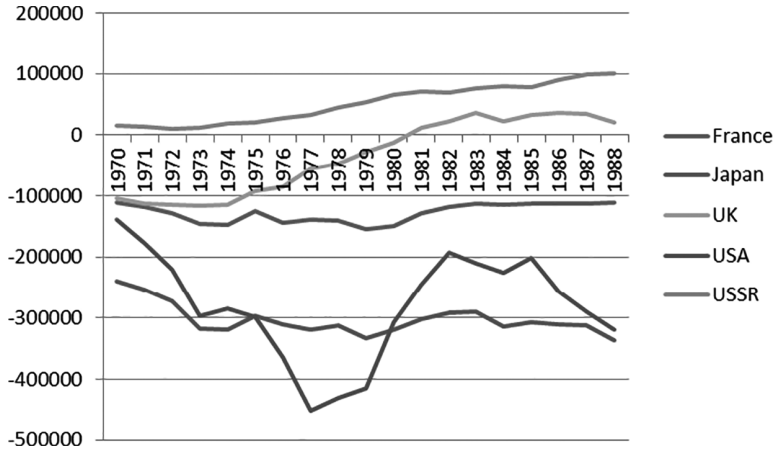

Figure 16.4 Energy balance in thousand KTOES in five countries, 1970–88. Source: IEA, OECD and Soviet Energy Data Resource Handbook, Central Intelligence Agency, 1990.

nations despite being an early adopter of nuclear power generation, and levels out at approximately 20 per cent nuclear power generation as a proportion of electricity production.

Figures 16.2 and 16.3 charts demonstrate that the major industrial economies decided to wean themselves off imported fuel and work to a new reality for fuel supply. However, ~~the~~ Figure 16.4 shows a different narrative, that some nations continued to increase their energy imports, that the United Kingdom switched to become a new energy exporter and that the Soviet Union as previously mentioned was and remained a large global supplier of crude oil and natural gas.

To determine whether the Soviet Union as a net energy exporter had a different relationship with the global market, we performed a very simple Ordinary Least Squares regression over the 18-year period between 1970 and 1988 for the five countries, using Japan as a comparator because of its symbiotic relationship with the market for oil and gas.[32]

The regression established the responsiveness of the five nations to fluctuations in the price of crude oil using the proportion of nuclear power as the dependent variable and the changes in the price of Arab light, energy exports, total electricity production, the proportion generated by fossil fuels and the proportion generated by hydro (excluding pumped storage) and, finally, dummy variables for graphite and water based reactors. Unsurprisingly all nations demonstrated a level of responses to oil prices, with the United States and Japan demonstrating a highly elastic relationship with the price of oil each with an approximate 0.7 per cent growth in nuclear power for every 1 per cent rise in oil price, with the United Kingdom being the opposite in this period by showing a low elasticity. Interestingly, the nuclear output of France and the Soviet Union, with both having a 0.41 per cent rise in nuclear output per 1 per cent rise in oil price appeared to be less responsive to oil prices than the United States and Japan even though the conventional narrative states that both nations went all out in building nuclear reactors from the mid-1970s onwards. This is not, however, a ground-breaking counterfactual but rather a reflection of the planned

system of a state-owned electricity sector that does not respond to price immediately but rather sets out and executes a goal without recourse to market forces. The regression also demonstrated that the Soviet Union with its positive energy balance had a different relationship with the oil price and exports when it came to nuclear power, energy and the price of oil and, yet, it still followed the same path as the other nations but for very different reasons; its abundance of energy resources was a source of economic and diplomatic prowess and nuclear power reinforced this. Overall, the technological dummy was undramatic showing that water reactors increased output by approximately 1 per cent per annum, which is mildly significant in the long term and perhaps a reflection of the effect of the burgeoning environmental movement in Western nations.[33]

The OLS model describes the relationship between oil price, national energy balances and the development of the nuclear sector. However, for the purposes of this paper it is merely a pointer to further work on the longer-term consequences of 1973 and 1986 not only on the Soviet nuclear sector but also, more importantly, on the affect these two events had on the Soviet exports, current account balance and state budget using over a much longer term, from 1945 to 1991. The goal is to see how much the Soviet state lost in revenue in 1985 and 1986 to see how much the government had to borrow and repay to see how this contributed to the demise of the USSR in December 1991. Looking at the ordinary, unprocessed data, we can see a trend towards higher expenditure on debt in a period of falling income for the Soviet Union after 1986 which is potentially a very important factor in the eventual demise of the USSR.

This paper has emphasised that nuclear power and the global energy market for hydrocarbons have a symbiotic relationship but that it is not a simple one of comparing the supply and demand of one product against another. The technology behind nuclear was for the first period of the industry highly diverse and based upon different designs using different materials in nations that started the nuclear adventure with the goal of producing nuclear weapons. In this environment, plutonium was the output; electricity was the by-product, and early nuclear power

industries in these 'originator' nations were based upon inefficient graphite moderated designs. The United States, however, followed a path through military spending to develop water based power reactors and this became the ubiquitous design after all nations, barring the United Kingdom, abandoned graphite reactors as too costly and with an associated proliferation risk. This was despite the potential for plutonium as fuel in a fast breeder reactor, which has never worked as a technology in any nation other than the Soviet Union (and later Russia) and as a technology has made little impact on the industry. The Soviet Union had provided a counterfactual account in this paper due to its goal of creating a substantial nuclear industry whilst also being energy independent and a major exporter of crude oil and natural gas. Indeed, its choice of a modular graphite reactor in the 1970s when nations such as France adopted the light water reactor wholesale is a reflection of this as the USSR wanted to build a series of complimentary uranium-burning but plutonium-creating reactors feeding a fleet of fast breeder reactors. This paper put forward that the Soviet Union built its nuclear energy sector to stop burning petroleum, gas and coal locally to increase its exports of hydrocarbons for hard currency in a time of rising oil prices. In the data the growth in the atomic industry is apparent and whilst it is not as responsive to price as say Japan and the United States, this is reflective of a non-market-based state planning system (the results for France are analogous to this) based on five-year plans that constrained the response of the nation to these events. This research is moving forward to study the effect of 1973 and 1986 on the Soviet state budget to determine whether its reliance on energy exports made the country particularly vulnerable to both external and asymmetric events.

Notes

1. Jingwen Fan, Patrick Minford and Zhirong Ou, 'The role of fiscal policy in Britain's Great Inflation', *Economic Modelling* 58 (2016), pp. 203–18.
2. For the development of nuclear power in the United Kingdom in particular, see Margaret Gowing's official histories: Margaret Gowing, *Independence*

and Deterrence: Britain and Atomic Energy, 1945–52 (London, 1974); and Id., *Britain and Atomic Energy 1939–45* (Basingstoke, 2001). Also: H.M. Stationery Office, *Nuclear Energy in Britain* (London, 1976); UK Atomic Energy Authority Historian's Office, *The Development of Atomic Energy: A Chronology of Events 1939–1978* (Oxford, 1979); Walt Patterson, *Going Critical* (London, 1985); and Roger Williams, *The Nuclear Power Decisions* (London, 1980).

3. The most comprehensive and informative book on the development of nuclear power in France is Gabrielle Hecht, *The Radiance of France: Nuclear Power and National Identity after World War II* (Cambridge, MA, 2009).
4. See Olga Skorokhodova's contribution to this book.
5. A similar path was proposed and partially executed in Mexico, see Jean-Pierre Angelier, 'Le secteur de l'énergie au Mexique', *Problemes D'Amérique Latine* 52 (1979), pp. 105–45.
6. R.D. Kase, 'Petroleum Perestroika', *Columbia Journal of World Business* xxvi/4 (1991), pp. 16–28. See also Per Högselius, *Red Gas: Russia and the Origins of European Energy Dependence* (London, 2013).
7. Richard Green, 'The Cost of Nuclear Power Compared with Alternatives to the Magnox Programme', *Oxford Economic Papers*, New Series xlvii/3 (1995), pp. 513–24.
8. The Pressurised Water Reactor uses heat exchangers to transfers heat to the boilers; the Boiling Water Reactor transfers the steam straight from the reactor to the generators.
9. Leopoldo Nuti, '"Me Too, Please": Italy and the Politics of Nuclear Weapons, 1945–1975', *Diplomacy & Statecraft* iv/1 (1993), pp. 114–48; and Simone Turchetti, 'A Most Active Customer: How the US Administration Helped the Italian Atomic Energy Project to "De-Develop"', *Historical Studies in the Natural Sciences* xviv/5 (2014), pp. 470–502.
10. J.P. Crette, 'Review of the Western European Breeder Programs', *Energy* xxiii/7–8 (1998), pp. 581–91.
11. Arnulf Grubler, 'The costs of the French nuclear scale-up: A case of negative learning by doing', *Energy Policy* 38 (2010), pp. 5174–88.
12. Thomas Cochran et al., *Fast Breeder Reactor Programs: History and Status* (Princeton, 2010); and J. Bouchard, 'The French Fast Breeder Programme', *Atomic Energy* cix/5 (2011), pp. 299–308.
13. See Robin Cowan, 'Nuclear Power Reactors: A Study in Technical Lock In', *Journal of Economic History* l/3 (1990), pp. 541–68.
14. Man-Sung Yung, 'Nuclear non-proliferation and the future expansion of nuclear power', *Progress in Nuclear* Energy 48 (2006), pp. 504–24.
15. Archives Nationales de France, Paris, 19770624–9 EDF, *3^e Programme maximal d'engagement nucleaire en 1974 et 1975*. Also: UK Department of Energy, Cmnd 7107, *Energy Policy, a Consultative Document* (London, 1978); and UK House of Commons, 'Thermal Reactor Policy', *Hansard 25 January 1978*, vol. 942, cc1391–1408. Available at http://hansard.millbank

systems.com/commons/1978/jan/25/thermal-reactor-policy (accessed 26 July 2017) See also Simon Taylor, *Privatisation and Financial Collapse in the Nuclear Industry: The Origins and Causes of the British Energy Crisis of 2002* (London, 2007).

16. There is a pronounced and regrettable deficit of work on the former Soviet Union and it appears time that economic historians should perform an autopsy on the failed state. However, there are two well-researched and informative texts on the Soviet nuclear industry: Paul Josephson, *Red Atom* (New York, 1999); and Sonja Schmid, *Producing Power: The Pre-Chernobyl History of the Soviet Nuclear Industry* (Cambridge, MA, 2015).
17. Schmid, *Producing Power*.
18. Cochran et al., *Fast Breeder*. For a fascinating contemporary account, see 'Fast Reactor Progress in the Soviet Union', *New Scientist*, 4 December 1975. Additionally, for contemporary post-Soviet developments in fast reactor technology, see A.V. Zrodnikov et al., 'Nuclear power development in market conditions with use of multi-purpose modular fast reactors SVBR-75/100', *Nuclear Engineering and Design* (2006), pp. 1490–502.
19. Fabien Roques et al., 'Nuclear Power: A Hedge against Uncertain Gas and Carbon Prices', *The Energy Journal* xxvii/4 (2006), pp. 1–23.
20. IAEA Database and Roques et al., 'Nuclear Power'. Japan has a mean time from start to finish of 4.7 years and the UK 10.8 years; however this is a reflection of the troubled Advanced Gas Cooled Reactor programme where some plants took over two decades from start to finish and remained in limbo for many years after completion. For example, construction started on Dungeness B in 1966 and was almost finished in 1973 and yet the CEGB waited until 1983 for commercial use, a decade later. Heysham I and Hartlepool also took a decade and a half to complete.
21. US Department of Energy, Office of Nuclear Energy, *Light Water Reactor Sustainability Program Integrated Program Plan*, April 2013. Available at http://large.stanford.edu/courses/2015/ph241/thorne2/docs/inl-ext-11–23452.pdf (accessed 26 July 2017).
22. As of 2015 fuel for a light water reactor costs approximately $1880 per kilo or over the service lifetime of the fuel, 0.52 cent per kw/h and natural uranium fuels costs a third less at approximately $1,350, which when used by MAGNOX reactors has an efficiency between 20 and 40 per cent of that found with a LWR: see World Nuclear Organisation, 'The Economics of Nuclear Power', January 2017. Available at http://www.world-nuclear.org/info/economic-aspects/economics-of-nuclear-power/ (accessed 27 February 2017).
23. Management Information Services Inc. for the Nuclear Energy Institute, *60 Years of Energy Incentives: Analysis of Federal Expenditures for Energy Development* (Washington, DC, 2015).
24. Marion Radetzki, 'Politics Not OPEC Interventions Explain Oil's Extraordinary Price History, *Energy Policy* xlvi/1 (2012), pp. 382–5.

25. Wolfgang Rüdig, 'Outcomes of Nuclear Technology Policy: Do Varying Political Styles Make a Difference?', *Journal of Public Policy* vii/4 (1987), pp. 389–430.
26. Timothy Luke, 'Technology and Soviet Foreign Trade: On the Political Economy of an Underdeveloped Superpower', *International Studies Quarterly* xxix/3 (1985), pp. 327–53; Marshall I. Goldman, 'The Soviet Union', *Daedalus* civ/4 (1975), pp. 129–43.
27. US Government Accountability Office, *International Trade: Soviet Export Data* (Washington, DC, 1990).
28. Caroline Kuhnert, 'More Power for the Soviets: Perestroika and Energy', *Soviet Studies* xliii/3 (1991), pp. 491–506.
29. William Kelly, Hugh Schaffer and J. Kenneth Thompson, 'The economics of nuclear power in the Soviet Union', *Soviet Studies* xxxiv/1 (1982), pp. 43–68.
30. Christopher Meissner and Nienke Oomes, 'Why do countries peg the way they peg? The determinants of anchor currency choice?', *Journal of International Money and Finance* xxviii/3 (2009), pp. 522–47.
31. IAEA Power Reactor Information Service (PRIS) Database.
32. One issue that arose was the Soviet Union rarely appears as a cohesive entity on standard data sites and this limited the amount of data available. Indeed, information on post-Soviet states is available for the period after 1991 but it appears the Soviet Union is no longer of interest as a cohesive entity that lasted over 70 years as part of the international economic landscape. Additionally, any data post-1992 on the Soviet nuclear or energy industry effectively does not exist and an aggregate of the 15 post-Soviet states would be disingenuous at best, as each has its own independent energy policies.
33. See the chapter by Angela Santese in this volume.

17

A Small Window: The Opportunities for Renewable Energies from Shock to Counter-Shock

Duccio Basosi

Introduction

Among energy historians there is widespread consensus that the long phase of low oil prices that started in 1985, and which lasted until the beginning of the twenty-first century, hindered the development of solar, wind, and other renewable energy technologies: few would disagree with Leonardo Maugeri's conclusion that the low price of oil was the ultimate 'killer' of renewable energies.[1]

Such a claim raises three observations. The first is that, given the overall poor contribution by renewables to energy consumption since the beginning of the period, and the negligible contribution by solar and wind in particular, such 'killing' should be understood as the killing of an opportunity, rather than the destruction of something that was already in place.[2] The second is that counterfactuals are not available and we do not know what alternative path history might have taken, had the 'killing' not occurred. The third is that a reflection on this topic

is nevertheless not an idle one, since there was indeed a chasm between the expectations nurtured in the 1970s and early 1980s, and the very limited development that renewables registered in the following three decades.

This chapter aims at answering two questions. The first concerns how big the chasm was. The available data show that substantial public and private investments were made in renewable energies in the second half of the 1970s, particularly in R&D, mainly in the United States and to a minor extent in Japan and Western Europe, with more than $20 billion invested over the period 1975–85.[3] But data alone do not tell us much about expectations. The second question concerns the actual role of the fall of oil prices in 'killing' renewables: was it the only factor or did it act in combination with other processes? Both questions have already been addressed in recent years. As the first is concerned, Daniel Yergin has concluded that by 1979 'the idea that the world needed to transition to what was then called solar energy (and later renewables) had already become a clear trend in energy thinking'.[4] While recognising that public funding for renewables was always a fraction of what governments reserved to nuclear energy and fossil fuels, Bruce Podobnik has gone as far as to represent the years following the 1973 oil price hike as a period when the convergence between the efforts of states to diversify their energy supplies and the mobilisation of grassroots environmentalism made an 'energy transition' away from oil and toward renewables a realistic option, if not one practically just beyond the corner.[5] With an eye at the challenges of the twenty-first century, Vaclav Smil has claimed that

> recent anticipations of a fairly rapid and comfortingly smooth transition to renewable energies had a notable precedent during the aftermath of the first two energy 'crises' (1934–74 and 1979–81) when those large, OPEC-driven increases in oil prices convinced many people that the end of the hydrocarbon era was imminent and that a grand transition to renewable was about to begin.[6]

As to the question concerning the role of the counter-shock, it is obvious that a low price for a certain good – oil in our case – does not necessarily imply its increased consumption. Paraphrasing Sheikh Yamani, whatever the price of stones since the end of the Neolithic, it was never low enough to relaunch the stone age.[7] But as the enabling factors are concerned, which allowed the counter-shock to deploy its effects, energy historians appear divided. Some have stressed the negative impact of the coming to power of the Reagan administration in the United States: after 1981 – thus well before the counter-shock – public research funding and other forms of support for renewables remained for some years in the budgets of Japan and some West European countries, but were effectively slashed in the world's largest economy and most technologically advanced country.[8] Others have judged that the enthusiasm for renewables in the 1970s had been excessive and eventually counterproductive: in their view, it was the unrealistic goals and the waste of public money of that decade that doomed renewables once oil prices came down.[9]

The main limitation of the existing literature is that it appears as being based on a very limited review of the public debate of the time, and mostly concentrated on the United States. By taking a broader outlook on the energy debate of the 1970s and early 1980s, this chapter reviews the main works of intellectuals and scientists as well as the official discourses on future energy scenarios made at government level, with an emphasis on how these were crystallised in official multilateral forums. As is shown in the first section, the generalised talk of 'energy transition' in the 1970s and early 1980s did open a window of opportunity for renewable energies worldwide. But the actual size of that window appears to have always been relatively small, both in the public debate and in the scenarios depicted by public authorities, as is shown in the second and third sections respectively. Furthermore, as shown in the fourth section, a close analysis reveals that the support for renewable energies – just like that for the more general concept of 'energy transition' – was often founded on the fear of an imminent exhaustion of oil reserves, which was

easily disproved by the 'oil glut' of the early 1980s. As the concluding section summarises, the counter-shock did close the window. But the clash between fossil fuels and renewables had never really been a titanic one and, to the extent that renewables had been promoted as part of the solution to a false problem, it is not surprising that interest in them declined for a while, once the misunderstanding became clear.

A Window of Opportunity, 1973–85

Doubts and misgivings had accompanied the success of hydrocarbons as primary energy sources since the late nineteenth century, both for their depletability and the environmental consequences of their combustion.[10] Historian Lewis Mumford, who in 1931 possibly wrote the first history of the world where sources and forms of energy featured prominently in shaping the characteristics of historical eras, could not refrain from expressing his desire that 'carboniferous capitalism' be soon substituted by a new civilisation based on solar energy.[11] In the early 1950s, while civilian nuclear energy found powerful sponsors in governmental circles both in Washington and in Moscow, Palmer Putnam's *Energy in the Future* was a triumphal chant to the miraculous features of the atom and a very optimistic outlook about its ability to replace oil in the not-so-distant future.[12] Though concerned mainly with demography, the following year Harrison Brown's *The Challenge of Man's Future* openly discussed the possibility of a 'transition' from hydrocarbons to waterpower, atomic energy and solar energy.[13] In 1969, the title of an essay by the same author was likely the first ever to feature the expression 'energy transition' intended as a major change in the ways societies produce and consume energy.[14]

But after 1973 the quadrupling of oil prices and the so-called 'Arab embargo' were the catalyzers for a true flood of publications in multiple languages about an energy future imagined as necessarily different from the recent past.[15] The words used to approach the topic varied depending

on taste and language. The future was often evoked in book titles, namely in *A Time to Choose* (subtitle: *America's Energy Future*) by the Ford Foundation's Energy Policy Project (soon translated into Italian), in *Energy Future* by Harvard researchers Daniel Yergin and Robert Stobaugh (soon translated into German and Spanish), and *Energy in a Finite World* (subtitle: *Paths to a Sustainable Future*), the final report of a multinational scientific programme carried out at the Vienna-based International Institute for Applied Systems Analysis (IIASA) under the direction of West German physicist Wolf Häfele and with the involvement of scientists from 19 countries from both the 'West', the 'Soviet bloc' and the 'Third World'.[16]

As early as 1974, Cesare Marchetti, an Italian physicist working at IIASA, had instead presented in Moscow the first version of his model of the working of 'primary energy substitutions' in history, in which the extrapolations of past trends led to the mechanical conclusion that natural gas would overtake oil by the year 1990 as the world's main energy source, to be then overtaken by nuclear around 2070.[17] In 1976 the columns of *Foreign Affairs* presented the English language with a more poetic alternative: inspired by Robert Frost's verses on 'the road not taken', the physicist Amory Lovins outlined a 'hard energy path' based on current trends of massive consumption of non-renewable and polluting energies, and a – preferable, in his view – 'soft energy path' based on conservation and renewables.[18] Technical works on 'energy switches' were presented in the specialised literature.[19] Radical 'energy revolutions' were never out of sight.[20] More cautious 'energy perspectives' were debated.[21] Works dedicated to specific energy sources that should lead the transition became actual bestsellers, including Denis Hayes's celebrated *Rays of Hope*, which indicated both the potential for a 'post-petroleum economy' by the third decade of the twenty-first century and the measures necessary to achieve it.[22] In German, the term *Energiewende* first appeared in 1980 in a volume by three researchers of the newly founded Öko-Institut, which laid out the path to achieve 'a world without nuclear and oil' by 2050.[23]

The phrase 'energy transition', with which today we are accustomed to define substantial changes in the ways energy is consumed and produced, was also a product of those years, probably becoming the most popular of all the expressions used in the energy debate of the time: in the United States, Roger Naill's *Managing the Energy Transition* in 1977 was most likely the first book to carry the full phrase in its title (soon to be followed by *Energy: Managing the Transition*, published in 1978 under the auspices of the Trilateral Commission).[24] But the use of the phrase quickly spread to the rest of the world. By the late 1970s and early 1980s it was both used by non-native English speakers in their publications in English,[25] and in translation in various languages since the early 1980s.[26]

In spite of the different expressions in use, a common characteristic of all these works was the acceptance of a viewpoint that had belonged only to marginal minorities so far: the relationship between humankind and energy had changed in the past and could – indeed should – change again in the future. From this standpoint the post 1973 years marked something more than just the emergence of societal responses to high energy prices in the form of policies and 'country-level initiatives'.[27] In any case, as can be easily verified, the number of publications dedicated to these topics dramatically fell after 1985.[28]

The Role of Renewables in the Intellectual Debate on the 'Energy Transition'

Renewables were indeed part of the energy debate of the late 1970s and early 1980s. But whatever the enthusiasm of grassroot environmental groups for them, they were never at the heart of the public discourse, and their development was often left to a rather undefined future. Of course, the centrepiece of both intellectual works and pronouncements by public authorities was usually energy conservation. Where substitution of oil was recommended in terms of national policies, some influential works published in the United States took the sides of renewables: Hayes's *Rays of Hope* was obviously a case in point, whose reason of interest consists

also in its attempt to plan for a 'global' transition.[29] Globality of approach and renewables were also crucial in Lovins's recommendations for 'soft energy paths', where a transitional period based on coal and conservation would prepare the full development of soft technologies – namely solar – by 2025.[30] A complete, radical and hopefully global shift to renewables was also at the heart of the works of biologist Barry Commoner, whose 1971 book *The Closing Circle* had already been saluted worldwide as a foundational stone of political ecology, and who developed an influential ecological critique of existing energy policies first in *The Politics of Energy* (1979).[31] A more cautious support for the solar path came from Yergin and Stobaugh's *Energy Future*.[32]

However, there are two major caveats that need to be taken into account in weighing the importance of these works. The first is that even in the United States these indications always competed with powerful indications in different directions, in which national oil, coal, natural gas and nuclear were indicated as the best alternatives. The Institute for Contemporary Studies, a conservative think tank based in San Francisco, quickly published *No Time to Confuse* – a patent response to a *Time to Choose* – a pamphlet where notable energy economists discouraged the US government from undertaking any active energy policy in favour of diversification, on the basis of the notion that the marketplace would solve any problem with the oil supply.[33] And yet, even *A Time to Choose*, often indicated as favourable to renewables for its support to government funding of their development, actually expressed the certainty that, within the context of greater efforts at conservation, 'the oil and gas resource base in this country is far from exhausted and can supply over half the U.S. energy supply [...] for the remainder of the century'.[34] Not unsurprisingly (if one thinks of the developments in Alaska, Mexico and the North Sea), several publications of the time were not suggesting a transition away from oil, but a more limited one away from 'OPEC oil'.[35]

The second caveat is that outside the United States the energy debate was even less focused on renewables. For example, there was little about renewables in the Italian context except for the translation of Barry

Commoner's work. Of course, one would have a very hard time finding references to solar or other renewable energies in the long list of publications by Marchetti, who was always a devoted suppoter of the atom.[36] Even less so in the French energy debate, which was largely focused on nuclear energy.[37] Similarly, in the Brazilian debate, *a energia do futuro* was an undefined phrase stretching from nuclear fusion to hydro and solar, the road to which in any case should be paved by a clear choice for nuclear fission.[38] Even in its longer-term indications the Trilateral Commission recommended the development of 'new LDC resources' in order to ease the pressure on OPEC supplies, as well as a closer dialogue with OPEC itself. To the extent that it considered alternatives to known oil reserves, the Trilateral supported 'joint nuclear policies', while 'bilateral and multilateral research and development initiatives' should be directed toward a set of fields where solar energy was mentioned only in passing, between nuclear fusion and 'advanced deep sea drilling technology'.[39] To the extent that it recognised that its preferred source – nuclear energy – would not suffice in the short term, IAASA's 1981 report confidently stated that 'a return to coal as a major energy source is not only necessary but also inevitable'.[40] A peculiar combination was that suggested in the *Energie-Wende* scenario, which did promise to cover half of Germany's needs from renewables, but also suggested that the other half be covered from coal.[41] The one Soviet energy expert who did explicitly confront the 'new sources of energy' undertook this task from the perspective of a limited and progressive integration of such new sources in the mechanisms of a centrally planned economy whose dependence on fossil fuels was never questioned.[42] The picture did not change much even when the 'energy transition' was seen through the lenses of international political economy: Rajendra Pachauri, later to become the head of the International Panel on Climate Change, was certain that 'in the medium term the role of new and renewable sources of energy is likely to be closer to "a mosquito bite on an elephant's fanny" than "forty percent of our energy"'.[43]

Renewables in the Institutional Views of the 'Energy Transition'

An important role in drawing future world energy scenarios was played by governments. While all over the world new ministries were endowed with crafting 'energy policies', international forums were involved in the task of finding an elusive equilibrium between energy conflict and energy cooperation.[44] Renewables were also part of these efforts and in 1978 the UN Secretary General convened a special conference on 'New and Renewable Energy Sources' for 1981.[45] But if the scientific-intellectual debate was what has been described above, it is not surprising that renewables were a minor addendum when it came to governments and international organisations. By 1987, John Blackburn described the 'establishment view' of such institutions as the International Energy Agency and the World Bank as virtually deaf to renewable energies.[46]

Of course, there were episodes in which they were emphasised in policy (such as in Japan's 'Sunshine project', Denmark's wind power projects and Brazil's investments in bio-ethanol), but in terms of representations of the future, renewables had a major role only in a set of announcements and gestures by US President Jimmy Carter. Between 1977 and 1980, Carter created the Solar Energy Research Institute (entrusting the chairmanship to Hayes), had a solar water-heater system mounted on the rooftop of the White House, and announced that by the year 2000 the US would receive 20 per cent of its energy from the sun.[47] However, recent writing on the subject has often concealed a basic fact that was extremely clear to contemporary critics: it is true that Carter sponsored solar energy, but did this at the same time when he was promoting – with much greater incentives – almost any other form of energy, provided it did not come from OPEC.[48] Nowhere is this more visible than in his first televised energy speech to the nation, known as the 'cardigan speech' for the president's calculated decision to wear a sweater so as to promote the virtues of energy conservation. On that occasion, the president was most likely the first politician in the world to

associate the terms 'energy' and 'transition' – though not in a single phrase – when he claimed that 'twice in the last several hundred years, there has been a transition in the way people use energy', adding that 'we must prepare quickly for a third change'. But in an odd synthesis of Lovins's two-tempo prescriptions, he concluded that the future would bring the 'renewed use of coal' together with 'strict conservation' and 'permanent renewable energy sources like solar power'.[49] Within three years, a renewed emphasis on natural gas and national oil, as well as a brand new enthusiasm for synthetic fuels, had already ascended the ladder of the administration's priorities.[50]

With all his contradictions, of course the Carter administration was still in the avant-garde of change. The final declarations of the so-called 'G7 summits' present us with a significant corpus of texts representing what, year after year, the heads of state and government of the most industrialised Western countries believed was a legitimate collective synthesis of their respective positions.[51] The summits had had energy at their core since their inception in 1975. Even though no such formula as 'energy transition' was ever used, the final declarations traditionally abounded with commitments to energy policies which *de facto* depicted a different energy future for a group of countries that consumed half of the world's primary energy.[52] Those indications had little to do with renewables. On the one hand, the final declarations of the various summits randomly shifted between the pledge to reduce 'dependence on oil' (such as London 1977, Tokyo 1979 and Venice 1980) and that to reduce the 'dependence on imported oil' (Rambouillet 1975, Bonn 1978). On the other, coal and nuclear emerged by far as the winners of the competition to replace what oil left to the alternatives, being regularly emphasised at every successive summit. In that context, even the celebrated pledge undertaken in 1980 at Carter's insistence, to 'decouple' economic growth from growth in oil consumption can hardly be seen as a step toward a post-fossil world. In the Carter years (1977–80), a cameo for renewables could be detected only with great difficulty under the 1977 disguise of 'new energy sources' and the 1979 formula of 'new

technologies'. The 1978 declaration, pledging 'to hasten also the development of new, including renewable, energy sources' was the one where pro-renewables enthusiasm was at its highest. After Ronald Reagan took over the White House, references to renewables were simply dropped and the very notion of governments handling an 'energy policy' was watered down by the ever-present reminder that the 'price mechanism' would be the polar star of energy choices.

Though important as both energy consumers and producers, the Western industrialised countries did not exhaust the number of relevant actors. In the context of the 'bipolar world' and in that of the 'Third World's quest for a New International Economic Order, it is not even possible to assume that, had 'the West' led the way, the rest of the world would have followed suit.[53] From this standpoint, the reality of the Soviet bloc (contributing to roughly one-fifth of world energy consumption)[54] cannot be overemphasised: while Soviet scientists were indeed involved in the global energy debate, for the Kremlin the actual 'energy transition' of the 1970s was to be intended as the completion of the movement *towards* oil.[55] As for the Third World, an overall picture of what Third World governments' believed to be acceptable public stances – actually mediations among countries with very different conditions and priorities – can be derived from an analysis of the final declarations of the summits of the Non-Aligned Movement (NAM).[56] The NAM repeatedly expressed its interest in the development of renewable sources since the late 1970s. The final declaration of the 1979 Havana summit read that the NAM 'welcomed' the upcoming UN Conference.[57] In reference to the measures agreed upon at the UN Conference – quite vague according to all reports – the New Delhi summit of 1983 lamented that 'little progress' had been made in the implementation.[58] In Harare in 1986 the NAM's heads of state and government even evoked the goal of ensuring 'an orderly transition from the present pattern of energy production and consumption to one that will be based increasingly on new and renewable sources of energy'.[59] Outside of the NAM framework, in September 1979 José López Portillo, then the president of an oil-

producing heavyweight, gave an ambitious speech at the UN General Assembly, laying down Mexico's government proposals to make as smooth and non-conflictual as possible what it saw as the 'energy transition' in course: a 'world energy plan' should be adopted under the umbrella of the United Nations, promoting energy conservation and

> the exploitation of potential reserves of all types, traditional and non-conventional [...]. These include the sun that heats our tropics and burns so many deserts; the water that runs uselessly down so many mountainsides eroding the soil along its path; the ignored heat within our earth; the unused energy of the wind, and that of the sea, of the atom and of life itself.[60]

But two caveats should be kept in mind in weighing these pro-renewable stances. The first is that often they came within a broader envelope, remindful of Carter's approach: to mention renewables did not imply to focus only – not even prevalently – on them. Thus, not only the declarations in favour of the right for each state to pursue its civilian nuclear plans regularly preceded those about renewables in the NAM documents, but the latter were also complemented by the punctualisation that 'in the short and medium term alternative sources of energy could not replace the traditional energy sources in economic and social development' or by similar formulas.[61] The second is that the interest for renewables needs to be understood in a context in which most Third World countries actually consumed prevalently renewable energies (in the form of biomass) and their governments tended to identify the consumption of energy intensive fossil fuels, or nuclear, as a necessary passage of the drive toward modernisation.[62] In short, such openings were part of a general diplomatic strategy in which restating the need for technological transfer from North to South – a major element of the desired New International Economic Order and a major object of contention with the industrialised West – was possibly more important than the energy subject per se.[63]

Why Transitioning?

The two previous sections should have made clear that renewables were, in most formulations, only a minor ingredient of 'transition' plans whose endpoint was not necessarily away from oil – even less so away from fossil fuels – at least for the foreseeable future. However, to the extent that renewables were one of the elements of the energy debate of the 1970s and early 1980s, this section will highlight a further and often overlooked weakness of the discourses on the 'energy transition' of the 1970s which involved also most – though not all – of the formulations of the need for the development of renewables.

In general, it was the very way in which the window of opportunity was opened that also determined the way it would be closed: there was virtually no scientific work or official stance, among those recommending active policies to reach the desired future energy scenarios, that was not premised on the notion that oil prices would remain high. But more specifically, a large part of the debate on future energy scenarios was based on the premise of the imminent exhaustion of the world's (in some case non-OPEC) oil reserves, in a particularly virulent version of what, in reference to the US case, Roger Stern has called 'the oil scarcity ideology'.[64] By the mid-1980s, these forecasts were proven wrong, crippling all arguments in favour of an 'energy transition'. Of course, as Matthieu Auzanneau has emphasised, the most renowned speaker for the quick exhaustion of oil was Jimmy Carter, when based on data from the CIA, the US president proclaimed that oil would be gone by the mid-1980s, only to be ridiculed afterwards.[65]

However, the argument had a much wider audience. That of the depletability of fossil resources was far from being a new theme in the 1970s.[66] To be sure, its implications over the longer term are still open and delicate questions.[67] But the 'oil shock' of 1973 simply turned out to be an irresistible catalyzer for doomsday prophecies, as is easily verifiable in the quick change in the language of the Club of Rome, a private association of business people and academics whose reports became true

bestsellers worldwide: what in *The Limits to Growth*, the first report published in 1972 had been presented as possible 'scenarios' for the future exhaustion of raw materials, the second report published in 1974 presented as the certainty that oil would be gone by 2025 (and possibly even by 1985).[68]

Several observers, starting from those of the Ford Foundation's Energy Policy Project, did caution the public that higher prices – and possibly targeted policies – could also imply greater incentives for new explorations (which had instead stalled during the 1950s and 1960s), which in turn would likely deliver new reserves.[69] It is also interesting to note that the oil exhaustion scare did not concern Amory Lovins and Barry Commoner, two of the most consequential supporters of renewable energies, who were much more concerned with the emissions of CO2 in the atmosphere and, more generally, the 'thermodynamic carnage' of the precious energy accumulated in the subsoil in hundreds of millions of years.[70] However, some form of the imminent exhaustion theory could be found in almost all the publications on the energy issue. Denis Hayes confidently wrote in 1978:

> Oil and natural gas, which now account for about three-fifths of the world's annual fuel consumption, will almost certainly have been re-duced to subordinate roles in the global energy picture by 2025. Indeed, world oil production could begin to decline before 1990.[71]

Don Hedley's 1981 *World Energy* began with the claim that 'the world is running out of the fuels with which it built the technological world of today' and the Oko-Institute's *Energie-Wende* started by mentioning the foreseen *Erschöpfung von Mineralöl* made patent by events of the 1970s.[72] Betraying the spirit of the original, the Italian edition of *A Time to Choose* did not refrain from putting exhaustion at the top of the list of energy challenges.[73] Other authors focused on the local exhaustion of oil

resources: according to a typical phrasing of this kind of works, in 1980s the resources the United States consumed the most were not those with which it was more endowed, which raised a question of 'national security'.[74] A more ambivalent approach was that chosen – maybe not chosen – by the IIASA, whose 1981 publication discussed at length 'the energy problem' but was very shy in defining it: when it did, it oscillated between putting 'rising prices' and 'dwindling resources' at the core of the issue.[75]

Conclusion

The years between 1973 and 1985 saw the development of a debate on the world's energy future. It originated largely in the United States but had global ramifications. Within that context, it is undeniable that renewable energies had a window of opportunity. However, most of the scenarios depicted at the time – either by intellectuals or by governmental and intergovernmental agencies – saw renewables only as minor elements of future energy mixes, and left their development mainly for a rather undefined longer term. Besides conservation, diversification toward non-OPEC oil, coal, natural gas and nuclear energy were by far the privileged solutions to the 'energy problem' of the time. This is perfectly consistent with the numbers, that show that even in the IEA countries, where the debate on the 'energy transition' thrived, renewables never received more than 20 per cent of public R&D funding (and got close to that threshold only in the year 1980).[76] Further, in line with much of the debate on the 'energy transition' of the time, the case for renewables was often stated as a response not only to the high prices of oil (which of course made the argument vulnerable to the effects of the counter-shock), but also to the foreseen imminent exhaustion of oil reserves. Alternative forms of criticism of the reliance on oil (and fossil fuels more generally) did emerge, based on the concern for the accumulation of CO2 in the atmosphere and on questions about the long-term sustainability of a model of development

based on depletable sources. Two decades later, the concern for the greenhouse effect produced by the burning of fossil fuels – a problem related to relative abundance rather than to scarcity or energy prices – would indeed become the crucial element in a 'renewed' debate on renewables.[77] But in the period covered in this chapter this argument remained marginal and – much to the dismay of those who had expressed it – in the early 1980s it was drowned by the 'oil glut' together with the rest of the visions of the 'energy transition' that had come alive after 1973.[78]

Notes

1. Leonardo Maugeri, *Con tutta l'energia possibile* (Milano, 2011), p. 26.
2. Renewable energies are virtually unmentioned in the main histories of world energy, as the 1970s and 1980s are concerned: Vaclav Smil, *Energy in World History* (Boulder, 1994); Jean-Claude Debeir, Jean-Paul Deléage and Daniel Hémery, *Histoire de l'énergie* (Paris, 2013). They accounted for little more than 5 per cent of the world's commercial primary energy consumption in 1970 and had not made any significant advance by 1985, in a context in which high oil prices had led to a neat decreased consumption of oil and to slower growth of overall energy consumption. By the time of the oil price counter-shock in 1985, fossil fuels still covered some 90 per cent of total consumption, although oil had ceased a small part of its original portion to coal and natural gas. Virtually the whole quota covered by renewables came from hydro-power. Source: BP, *Statistical Review of World Energy* (London, 2017), p. 11.
3. IEA, *Key Trends in IEA Public Energy Technology RD & D Budgets* (Paris, 2016), p. 11. Values are expressed in 2015 US dollars.
4. Daniel Yergin, *The Quest: Energy, Security and the Remaking of the Modern World* (New York, 2011), p. 523.
5. Bruce Podobnik, *Global Energy Shifts: Fostering Sustainability in a Turbulent Age* (Philadelphia, 2006), chapter 6.
6. Vaclav Smil, *Energy Transitions: History, Requirements, Prospects* (Denver, 2010), p. 129.
7. Ahmed Zaki Yamani, Saudi Minister of Oil between 1962 and 1986, once declared to a British newspaper: 'The Stone Age came to an end, not because we had a lack of stones, and the oil age will come to an end not because we have a lack of oil' ('Sheikh Yamani predicts price crash as age of oil ends', *Telegraph*, 25 June 2000).
8. Yergin, *The Quest*, p. 531; Podobnik, *Global*, p. 135; Hermann Scheer, *Autonomia energetica. Ecologia, tecnologia e sociologia delle risorse rinnovabili*

(Roma, 2006) [*Energieautonomie* (München, 1999)], p. 18; Federico Butera and Gianni Silvestrini, *Il futuro del sole* (Milano, 1990), p. 30.

9. Smil, *Energy Transitions*, pp. 130–1; John Deutch, *The Crisis in Energy Policy* (Cambridge, MA, 2011), pp. 13–14.
10. Scheer, *Autonomia*, p. 36.
11. Lewis Mumford, *Technics and Civilization* (London, 1934), pp. 222–4.
12. Palmer Putnam, *Energy in the Future* (New York, 1953).
13. Harrison Brown, *The Challenge to Man's Future* (New York, 1954).
14. Harrison Brown, 'Population, Food, and the Energy Transition', in S. Behrman, L. Corsa and R. Freedman, *Fertility and Family Planning* (Ann Harbor, 1969), pp. 180–96.
15. Kathleen Araùjo, 'The emerging field of energy transitions: Progress, challenges, and opportunities', *Energy Research & Social Science* 1 (2014), pp. 112–21.
16. Ford Foundation Energy Policy Project (FFEPP), *A Time to Choose: America's Energy Future* (Cambridge, MA, 1974); Robert Stobaugh and Daniel Yergin (eds), *Energy Future* (New York, 1979); Wolf Häfele et al., *Energy in a Finite World: Paths to a Sustainable Future* (Cambridge, MA, 1981). Also: Academy Forum, *Energy: Future Alternatives and Risks* (Cambridge, MA, 1974); Don Henley, *World Energy: The Facts and the Future* (London, 1981).
17. The model was formalised in Cesare Marchetti, 'Primary Energy Substitution Models: On the Interaction between Energy and Society', *Technological Forecasting and Social Change* x/4 (1977), pp. 345–56.
18. Amory Lovins, 'Energy Strategy: The Road Not Taken?', *Foreign Affairs* lv/1 (1976), pp. 65–96.
19. Jim Skea, 'Switching from oil to coal firing for steam raising. A case study at a large industrial site', *Energy Policy* ix/3 (1981), pp. 205–16; Vangelis Magirou, 'Switching away from oil. A game-theoretic approach', *Resources and Energy* vi/4 (1984), pp. 397–410.
20. André Varagnac, *La conquête des énergies* (Paris, 1972); Alieto Aldo Guadagni, 'La revolución energética: el rol de la sustitución del petróleo y la conservación de energía', *Desarrollo Económico* xxiv/95 (1984), pp. 339–66; James Hilbert Anderson, 'Ocean Tidal Power: The Coming Energy revolution', *Solar & Wind Technology* ii/1 (1985), pp. 25–40.
21. Michel Boudy, 'Perspectives énergétiques entre 1980 et 2000', *Norois* 108 (1980), pp. 497–511.
22. Denis Hayes, *Rays of Hope: The Transition to a Post-Petroleum World* (New York, 1977).
23. Florentin Krause, Hartmut Bossel and Karl-Friedrich Müller-Reissmann, *Energie-Wende. Wachstum und Wohlstand ohne Erdöl und Uran* (Frankfurt am Main, 1980).
24. Roger Naill, *Managing the Energy Transition* (Cambridge, MA, 1977); John Sawhill, Keichi Oshima and Hanns Maull, *Energy: Managing the Transition* (New York, 1978).

25. Ali Ahmed Attiga, 'Global Energy Transition and the Third World', *Third World Quarterly* i/4 (1979), pp. 39–56; Rajendra Pachauri, *The Political Economy of Global Energy* (Baltimore, 1985), Chapter 2.
26. Yuri Kononov, *E`nergetika i e`konomika: problemy perehoda k novym istoĉnikam ènergii* (Moskva, 1981); Rubens Vaz da Costa, 'A transiçao energetica: tempo, capital e tecnologia', in H. Jaguaribe et al., *Leituras de Política Internacional* (Rio de Janeiero, 1981), pp. 47–55; Ali Ahmed Attiga, Ibrahim Ibrahim and Ahmed El-Saadi, *Impacto de la transición a fuentes energéticas no petroleras en los países árabes* (México, 1981); Manuel Romaní Quilis, *La Industria del gas en España: el gas natural, energía alternativa para la transición* (Madrid, 1982); Istituto di economia delle fonti di energia (IEFE), *Energia: una transizione difficile* (Milano, 1983); Nations Unies, Commission économique pour l'Europe, *La Transition énergétique dans la région de la C.E.E.* (New York, 1984).
27. Araújo, 'Energy', p. 113.
28. This conclusion has been reached after a multi-language search for the keywords listed above in WorldCat.
29. Hayes, *Rays*.
30. Lovins, 'Energy'.
31. Barry Commoner, *La politica dell'energia* (Milano, 1980) [*The Politics of Energy* (New York, 1979)], pp. 165–202.
32. Daniel Yergin, 'Conservation: the key energy source', in Stobaugh and Yergin, *Energy*, pp. 130–49.
33. Morris Adelman et al., *No Time to Confuse* (San Francisco, 1975).
34. FFEPP, *A Time*, p. 332. The report also saw a minor, but encouraging role for renewables 'after 1985' (but it is interesting to note that the Italian edition was introduced by a vitriolic preface deploring the report's downplaying of nuclear energy): see Mario Silvestri, 'Premessa', in Fondazione Ford, *Tempo di scelte* (Milano, 1975) [FFEEP, *A Time*], pp. 7–22. For a broader picture of the anti-renewables literature, see Scheer, *Autonomia*, p. 34.
35. This was the prevailing indication from the participants in the Academy Forum, *Energy*. Unexpected recommendations came by authors for whom the United States should solve its energy problems simply by importing more oil: Naill, *Managing*. In any case, these were not transitions away from oil.
36. A useful bibliographic reference is the Cesare Marchetti Web Archive at http://cesaremarchetti.org/publist.php (accessed 21 July 2017).
37. Debeir, Deléage and Hémery, *Histoire*, Chapter 9.
38. Vaz da Costa, 'A transiçao', p. 47.
39. Sawhill, Oshima and Maull, *Energy*, p. xiv. Also: P. Odell, 'World energy in the 1980s: the significance of non-opec oil supplies', Scottish Journal of Political Economy xxvi/3 (1979), pp. 215–31. In a similar vein, in 1983 the Italian Istituto di Economia delle Fonti di Energia (IEFE) still

595 recommended that European countries enact policies for 'the development of oil sources (even high cost ones) out of the OPEC area': IEFE, Energia, p. 14.

40. Hafele et al., *Energy*, p. 28. Similar indications came from Hedley, *World*, p. 17; Richard Lamb, 'Making the Energy Transition', *Energy Policy* x/1 (1982), pp. 3–14; Wallace Tyner, 'Our Energy Transition: The Next Twenty Years', *American Journal of Agricultural Economics* 62 (1980), pp. 857–964. Also see Peter Odell, 'Conference report. Second Bat-Sheva International Seminar on Energy: Transition to the Post-Oil Era, Israel, 3–8 January 1982', *Energy Policy* x/3 (1982), pp. 256–7.
41. Krause, Bossel and Müller-Reissmann, *Energie-Wende*, p. 163; Kurt Schmitz and Alfred Voss, *Energiewende?* (Jülich, 1980).
42. Kononov, È*nergetika*, pp. 142–52.
43. Pachauri, *The Political*, p. 28–9.
44. Francisco Parra, *Oil Politics* (London, 2004), pp. 189–93.
45. R.S. Odingo, 'Prospects for New Sources of Energy: A Report on the United Nations Conference on New and Renewable Sources of Energy, Nairobi, Kenya, 10–21 August 1981', *GeoJournal* 3 (1981), pp. 103–8.
46. John Blackburn, *The Renewable Energy Alternative* (Durham, 1987), p. 2.
47. Yergin, *The Quest*, pp. 523.
48. Commoner, *La politica*, pp. 5–10.
49. Jimmy Carter, 'Address to the Nation on Energy', 18 April 1977, in University of California at Santa Barbara American Presidency Project (APP). Available at http://www.presidency.ucsb.edu/ws/index.php?pid=7369&st = energy&st1 = (accessed 21 July 2017).
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51. The full text of all the relevant final declarations of the G7 summits can be easily found on the website of the University of Toronto's G8 Information Center, at http://www.g8.utoronto.ca (last accessed 21 July 2017). All the information included in this paragraph is based on textual analysis of this material.
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57. 6th Summit Conference of Heads of State or Government of the Non-Aligned Movement (Havana, Cuba, 3–9 September 1979), p. 112.
58. 7th Summit Conference of Heads of State or Government of the Non-Aligned Movement (New Delhi, India, 7–12 March 1983), p. 79.
59. 8th Summit Conference of Heads of State or Government of the Non-Aligned Movement (Harare, Zimbabwe, 1–6 September 1986), p. 221.
60. José Lopéz Portillo, speech at the United Nations General Assembly, 27 September 1979. I owe special thanks to Dr. Claudia Piña Navarro for providing me with this document.
61. Quotation from the 7th Summit's (New Dehli) final declaration, p. 95. Similarly, as shown by the quotation above, Lopéz Portillo's plan endorsed the development of 'all types' energy sources, 'traditional and non-conventional'.
62. To be sure, coal and nuclear energy were considered the only viable 'substitutes' for oil by those in OPEC who wanted to link oil prices to the price of alternative fuels. See Ragaei El Mallakh (ed.), *OPEC: Twenty Years and Beyond* (London, 1982).
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