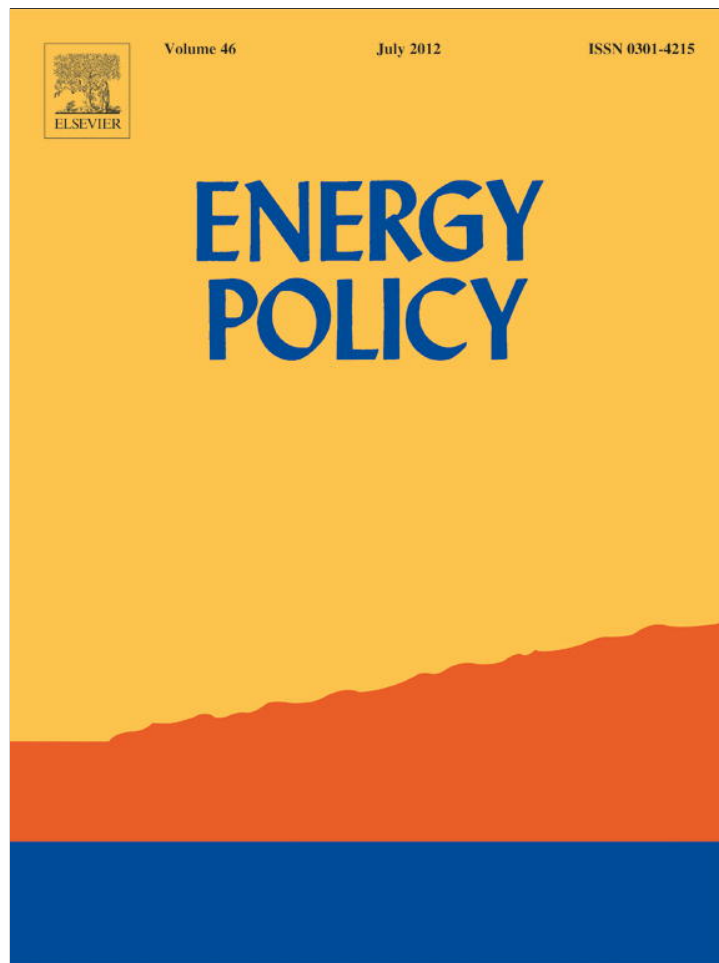


Provided for non-commercial research and education use.
Not for reproduction, distribution or commercial use.

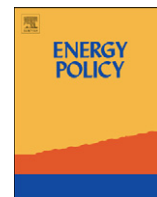


This article appeared in a journal published by Elsevier. The attached copy is furnished to the author for internal non-commercial research and education use, including for instruction at the authors institution and sharing with colleagues.

Other uses, including reproduction and distribution, or selling or licensing copies, or posting to personal, institutional or third party websites are prohibited.

In most cases authors are permitted to post their version of the article (e.g. in Word or Tex form) to their personal website or institutional repository. Authors requiring further information regarding Elsevier's archiving and manuscript policies are encouraged to visit:

<http://www.elsevier.com/copyright>



Viewpoint

Politics—not OPEC interventions—explain oil's extraordinary price history[☆]Marian Radetzki^{*}

Luleå University of Technology, S-97187 Luleå, Sweden

ARTICLE INFO

Article history:

Received 19 March 2012

Accepted 29 March 2012

Available online 19 April 2012

Keywords:

Oil prices and costs

OPEC

State owned enterprises

ABSTRACT

Oil prices in 2008–10, measured in constant money, were almost eight times the level of 1970–72. The prices of minerals and metals, another exhaustible resource group, increased by a mere 45% in the same period. The paper contends that the actions of OPEC, primarily production quotas, cannot account for this stark difference in price performance. Neither can the evolution of oil prices be rationalized by cost developments, for costs have remained far below the prices. The price evolution is better explained by capacity constraints caused by the inefficiency of state owned enterprises that dominate the oil industry since the 1970s, and that, additionally, have been deprived by their owners of financial resources to invest in capacity maintenance and growth. A capacity-destroying “resource curse” afflicting many oil producing nations, has been a further factor driving prices upwards.

© 2012 Elsevier Ltd. All rights reserved.

1. Introduction

Oil price developments over the past 40 years have been truly spectacular. Fig. 1 compares oil prices in constant money with an index of metal and mineral prices, a group of materials which, like oil, are exhaustible. A detailed inspection of the numbers behind the graph reveals that oil prices in the most recent 3-year period (2008–10), averaging \$79 per barrel, were almost eight times higher, in constant money, than the average of 1970–72. Metal and mineral quotations had risen by a mere 45% between the two periods. The graph reveals huge fluctuations in oil prices, caused by one-time events like the Arab–Israeli war of 1973–74, the Iranian revolution in 1978–79, and the global financial crisis of 2008. But ever since the first oil crisis of 1974, the price levels have remained far above those of 1970–72, an experience hugely different from that recorded by metals. The purpose of the present paper is to seek the causes to the long-run price performance in oil and to account for oil's contrasting experience with the metals group.

2. The oil cartel and its behavior

A widespread popular opinion, shared by a majority of market specialists, holds that OPEC's market interventions since the early 1970s have made all the difference in price performance between oil and other commodity groups. While there is no denial that

OPEC policies, predominantly production quotas, have had some impact on oil prices in the shorter run, skepticism must be expressed about the sufficiency of the cartel's supply manipulations for explaining the huge difference in the development of the two price series contained in Fig. 1.

A number of careful analytical studies on OPEC has expressed serious doubts about the efficacy of the group's market management. Some even contend that referring to it as a cartel is a misnomer. Thirty years ago, MacAvoy (1982) argued that the observed trend of oil prices can be adequately explained by a competitive model. Somewhat later, Griffin (1985) tested the validity of alternative market models, and concluded, with several caveats, that a partial market sharing cartel model provides the best fit to the actual behavior of OPEC members. Alhajji and Huettner (2000) went even further, and contended that statistical tests fail to support a cartel model of OPEC behavior. Furthermore, their comparison of market characteristics for oil with those for diamonds, coffee, bauxite, tin and rubber, in which temporary price raising cartels occurred, points to the weak preconditions for establishing and running an oil cartel. For instance, they found that OPEC's share of global supply, a fundamental factor for successful market management, varied between a minimum of 31% and a maximum of 56% over the period of their study, compared to 73% and 81% for bauxite and even higher for the other products, while the price elasticity of oil demand was not exceptionally low. And yet, oil prices rose much more and OPEC persevered for far longer than in the products with cartel histories under their review. Alhajji and Huettner's surprise at this outcome is matched by Griffin's observation that economists typically view cartels as fragile entities with limited power to raise price appreciably and, if successful for a time, the cartels are unable to sustain the higher prices. Why, then, is his unanswered question, given the

[☆] Valuable comments from Lill Aafos, Jim Griffin, Hans Eisler, Alek Markowski and John Tilton are gratefully acknowledged.

^{*} Tel.: +46 736220771.

E-mail address: marian@radetzki.biz

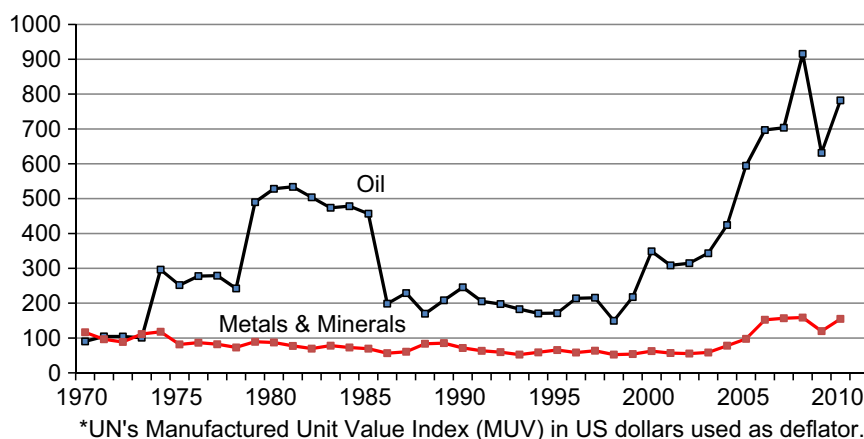


Fig. 1. Price indices in constant money*, 1970–72=100. *UN's Manufactured Unit Value Index (MUV) in US dollars used as deflator. Sources: UNCTAD and UNSTAT on the internet.

oil group's weak cartel characteristics (Griffin, 1989), have (Milton) Friedman's predictions about OPEC's early demise proven so wide off the mark?

More recently, Smith (2005) has asserted that the 'evidence' of OPEC behaving as a price raising cartel is inconclusive. The current availability and quality of data on demand and costs in the world oil market is inadequate for distinguishing competitive from collusive behavior. OPEC has indeed operated a formal production quota system since 1982, but given widespread cheating, the price impact of quotas is unclear and cannot be overly strong. In fact, data over the past decades (IEA, monthly) reveal that except Saudi Arabia, Kuwait and UAE, virtually full technical capacity utilization has been the rule among OPEC members. Formal constraints on capacity expansion have never been applied by the cartel.

The above analyses paint OPEC as a producer group able to extract prices somewhat above the competitive level for limited periods of time. However, this characterization is completely inadequate for explaining the spectacular achievements reflected in Fig. 1, if the difference between oil prices and the prices of metals is taken as an indicator of OPEC's market power. Also, the characterization runs counter to the perseverance of exceptional oil price levels over a period of almost 40 years, compared to an average longevity of 7.3 years in 54 commodity cartel cases studied by Griffin (1989). It is clear that perspectives other than efforts by colluding producers to manage supply are needed to satisfactorily explain the evolution of oil prices since the early 1970s. The sections which follow, attempt to provide such alternative vistas.

3. Rising cost of supply

It could be that costs have increased and reached levels that explain and justify the oil price developments, but then the differing performance of both prices and costs between metals and oil remains a mystery. Costs are hard to document and information from oil producers, the most common source, is often exaggerated, in efforts to ameliorate the industry's fiscal burden and as an excuse for the prices charged. When inspecting costs, one must be careful about what is included, since cost data are presented in many different formats. The costs of the marginal project, instrumental for price determination, are seldom available.

The price and cost data in this paragraph relate to the 2000s decade, and they are all expressed in 2010 dollars per barrel, using UN's MUV (US\$) index as deflator. The numbers are purported to reflect total cost of supply, including capital costs, normal capital return and standard taxes, but they do not comprise special fiscal

dues nor transport costs. Investigations by the IEA (2001), when the price of oil was \$31 assess the costs of major Middle East producers at around \$5.1, those of the international majors in a range between \$7.7 and \$14, and of Canada's unconventional resources at \$6.4–20.4. An ambitious dissertation from 2006 (when oil prices hovered around \$70) summarized in the *Energy Journal* (Aguillera et al., 2009) sets the cost of some 90% of world conventional oil resources at up to \$16.5, the cost level of Canada's oil sands (Iraqi and Saudi costs are given in a range of \$1.2–\$3). With 2008 oil prices at \$93, the Canadian Energy Board (2008) assessed the cost of oil sands between \$29 and \$33, but the IEA (2008) put the range at \$32–62, and the cost of ultra-deep water reserves like Brazil's sub-salts, at below \$60.

Two observations on these cost findings are warranted. *First*, it would appear that prices drive costs in considerable measure. Elevated prices relax cost control and encourage the mobilization of high cost units. The obverse is true when prices are low. After an extended period of exceptionally high prices, IEA (2011) notes that "Over the past ten years, worldwide costs of developing production capacity have doubled, largely due to increases in the cost of materials, personnel, equipment and services." In contrast, after the price excesses of 1980–85, the much lower prices of the 1990s led to impressive cost declines. According to IEA (2001), "Worldwide finding and development costs... declined from an average of \$21 in 1979–81 to under \$6 in 1997–9", while worldwide lifting costs fell by over half, to \$3.9 in the same period (money of the day). Current costs likely represent a cyclical peak, and cost adjustments similar to those of the 1990s could well occur if and when the exceptional oil prices of 2006–10 moderate. Superimposed on the cost waves caused by prices, is a cost increasing tendency as the industry moves to higher cost resources, and a cost reducing tendency of technological progress. A persevering increase in costs, signifying economic depletion, has not been vindicated. *Second*, all the cost figures, including those for exploiting expensive unconventional resources, work out far below the simultaneous oil prices. Cost developments provide only limited support to the evolution of prices.

4. State ownership and government greed

In the 1970s, widespread nationalizations swept across the minerals and oil industries. Though the phenomenon was worldwide, much of it was a post-colonial reaction focused on the Third World. State enterprises emerged as a dominant phenomenon in consequence. In world copper mining, state ownership attained 51%

in 1975 and peaked at 85% in 1985. In iron ore state involvement rose from 42% to 71% in the same period. Then the tide in metals and minerals turned sharply, so that by 2005 the shares were down to 20% in copper and 14% in iron ore (RMG, 2009). The initial evolution was similar in oil—by 1979 state control had risen to 55% (Vernon, 1983), but the phenomenon did not experience a backlash, and public ownership has continued to expand.

State owned enterprises in raw materials industries come in many shapes, but a majority share some distinct characteristics (Radetzki, 1985). Cost control, economic efficiency and output levels often suffer from the requirement that the state owned firms pursue multiple objectives like employment creation, expansion of local content or regional development, in addition to profitability. Efficiency is further suppressed by the practice of political rather than professional management appointment. Nationalizations often involved mutual resentment, with the former owners unwilling or unwelcome to share their knowhow with the new ones. Hence, there followed a prolonged post-nationalization period of inefficiency while the state-appointed management acquired the needed skills. New investments present the most complex managerial tasks, so the ability to build capacity took an extended beating. These, in summary, were the causes to the disillusion and the widespread privatizations in the metals and minerals industries beginning in the 1990s. A plausible reason for absent privatization in oil is a more forgiving attitude towards inefficiency nurtured by the high profitability of the oil industry (Radetzki, 2008).

Superimposed on the state owned oil enterprises' persevering incompetence for investing in capacity maintenance and expansion has been a systematic robbery of their financial resources by the state budgets. By 1990, Petroperu had been reduced to a conduit for oil revenues to the government, even at the expense of maintained exploration and field development (Auty, 2003). Pemex in Mexico is forbidden to borrow on the international market, or to employ foreign expertise, essential for the complex development of the nation's deep-water resources. All surpluses generated by Pemex are transferred to the government, and the politically determined investment allocations are inadequate even to maintain capacity (EIA, 2007). The failing performance of Iran's national oil company is primarily due to similar public extraction, not

sanctions imposed by the US (IEA, 2011). In all these ways, state ownership has been a severe constraint on capacity expansion.

There are exceptions to the constraint on capacity growth caused by incompetence and greed, discussed above. Saudi Arabia, Kuwait and UAE have held back the expansion of capacity in their extremely economical resource base seemingly to assure higher prices, not because of the absence of expertise.

Fig. 2 reveals that past nationalizations have left governments and their companies in virtually complete control of worldwide oil reserves. Private multinational oil companies are left with unattractive marginal deposits and cannot compensate for the inadequate state owned capacity trend. Furthermore, new high cost ventures may appear risky, since they would be vulnerable to expansionary policy shifts by low cost producers, prompted by an expanded private market share. Further disincentives to the privates' production expansion comprise the highly onerous fiscal terms imposed by increasing numbers of producing governments. An example from Russia illustrates (IEA, 2011). In 2010, the production cost of an undeveloped field was assessed at \$12, with an additional \$6 for transport to the export harbor, a seemingly attractive deal, given prices at \$79. But with Russian mineral tax of \$14 and export tax of \$40, a surplus of only \$8 remained, insufficient to warrant the investment. Similar examples no doubt explain the ongoing withdrawal of the private majors from the North Sea.

In conclusion, the combination of state ownership and government greed have imposed a lasting strait jacket on capacity expansion with persevering price effects likely to be much stronger than those caused by OPEC's output quotas or by rising costs.

5. The resource curse

There is a further factor, somewhat related to that of deficient state enterprises, that has inhibited capacity growth. Resource dependent nations often suffer from conflicts, both internal and international, frequently with a military element, as different interest groups position themselves to appropriate the benefits derived from exploitation. Economists refer to this phenomenon as the "resource curse".

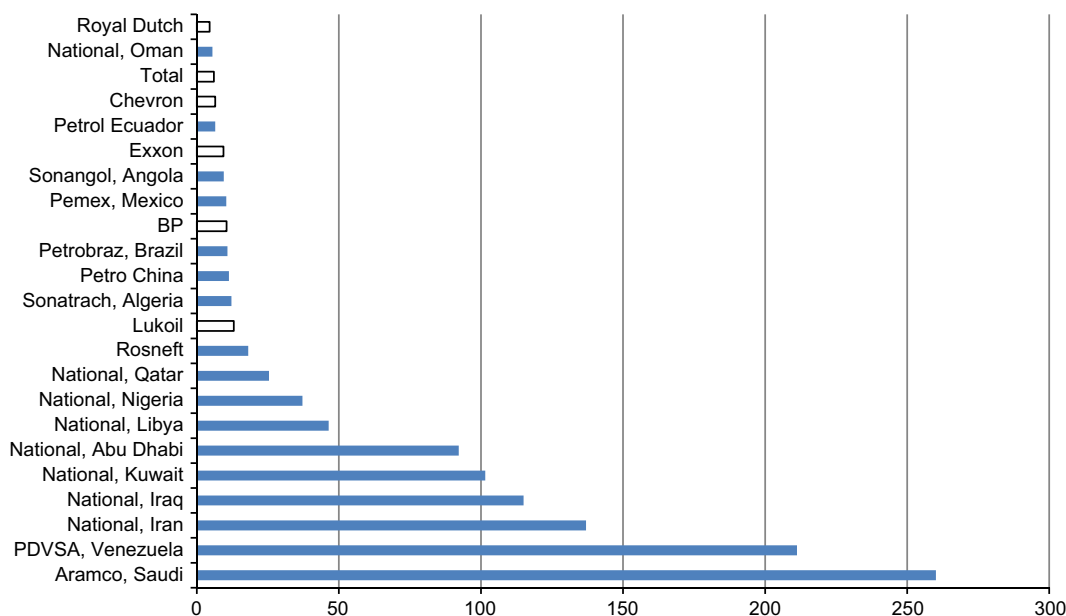


Fig. 2. Proved oil reserves by company, 2010, billion barrels. State controlled companies in blue. (For interpretation of the references to color in this figure legend, the reader is referred to the web version of this article.)

Source: Oil and Gas Journal, 2011.

Table 1

Resource curse and oil production.
Source: BP (Annual); IEA (monthly).

	Maximum production		Production capacity 2010		R/P ^a 2010
	Year	Volume (million tons)	Volume (million tons)	Reduction from maximum (%)	Years
Iran	1974	303	194	36	88
Iraq	1989	172	127	26	> 100
Libya	1968	160	87 ^b	46	77
Venezuela	1970	197	121	39	> 100

^a Reserves/production.

^b Capacity prior to the 2011 civil war.

The extreme profitability of oil makes the oil producing nations especially vulnerable. The resource curse not only restrains capacity growth—in many cases it results in capacity destruction. Table 1 lists the countries whose capacities have been most severely hurt by the curse. Their resource base would easily have permitted an expansion of capacity from the recorded maximum production, taken as an indicator of capacity at the time, and no OPEC policies would have prevented them from doing so. The sum of the recorded declines from earlier peaks solely in the four countries listed, equals almost half current EU27 consumption, and has clearly resulted in a substantial and long lasting upward price impact.

6. Conclusions

The extraordinary price performance of oil, up by more than 780% in real terms in the past 40 years, compared to less than 50% for the metals and minerals group, is primarily due to politics, not economics. OPEC is a weak cartel, and its supply restraining actions are inadequate as an explanation to the price evolution. Neither can the price performance be explained by the cost of output. Costs have persistently remained far below the price level, assuring high surpluses even in marginal production units. No clear signal of depletion can be detected in the cost data.

State owned enterprises established through the 1970s nationalizations, have come to dominate the oil industry ever since. Their inadequate technical proficiency, persevering for long periods in many cases, has restrained capacity expansion. Their owner

governments have extracted the surpluses generated by oil production, leaving inadequate financial resources for investment in capacity growth, in some cases even for maintenance of existing capacity. Since these companies control virtually all oil reserves, there has been little prospect for private multinationals to compensate for these deficiencies.

A number of oil producing nations have suffered from upsetting internal conflicts, causing havoc to oil production capabilities. The 2010 capacity in four countries most severely hurt, all with an ample resource base, was 300 million tons below their maximum output that occurred decades ago.

The OPEC collaboration has had some impact on oil prices. However, the longer-run oil price performance has not been caused by OPEC's interventions. Instead, it is due to an inadequate growth of production capacity, mainly caused by the deficiency of state owned enterprises, by greedy governments that leave the companies with inadequate investment resources, and by the stagnation or decline of capacity caused by the resource curse.

References

- Aguillera, R., et al., 2009. Depletion and the future availability of petroleum resources. *Energy Journal* 30 (1).
- Alhajji, A.F., Huettner, D., 2000. OPEC and other commodity cartels: a comparison. *Energy Policy* 28.
- Auty, R.M., 2003. *The Geopolitics of Mineral Resources*. UNCTAD, Geneva.
- BP (annual), *Statistical Review of World Energy*.
- Canadian National Energy Board, 2008. *Canada's Oil Sands, Opportunities and Challenges to 2015*, NEB Energy Reports, 31 October 2008.
- EIA, 2007. *International Energy Outlook 2007*, Washington DC.
- Griffin, J., 1985. OPEC behavior: a test of alternative hypotheses. *American Economic Review* 75 (5).
- Griffin, J., 1989. Previous cartel experience: any lessons for OPEC?. In: Klein, L.R., Marquez, J. (Eds.), *Economics in Theory and Practice: An Eclectic Approach*. Kluwer, Norwell MA, USA.
- IEA (monthly), *Oil Market Report*, Paris.
- IEA, 2001. *World Energy Outlook*, Paris.
- IEA, 2008. *World Energy Outlook*, Paris.
- IEA, 2011. *World Energy Outlook*, Paris.
- MacAvoy, P., 1982. *Crude Oil Prices as Determined by OPEC and Market Fundamentals*. Ballinger, Cambridge MA.
- Oil and Gas Journal*, 3 October 2011.
- Radetzki M., 1985. *State Mineral Enterprises: An Investigation into their Impact on International Mineral Markets, Resources for the Future*, Washington DC.
- Radetzki, M., 2008. *A Handbook of Primary Commodities in the Global Economy*. Cambridge University Press, Cambridge.
- RMG, 2009. *Raw Materials Group Database*, Stockholm.
- Smith, J.L., 2005. Inscrutable OPEC? behavioral tests of the cartel hypothesis. *Energy Journal* 26 (1).
- Vernon, R., 1983. *Two Hungry Giants*. Harvard University Press, Harvard, MA.