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Oil Prices and Democracy

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Abstract

Oil was by far the most important strategic product of the 20th century and will remain such for the foreseeable future. Low oil prices, which have dominated until the present day, are responsible for three fateful developments in the modern world: they encouraged energy-intensive, unsustainable worldwide growth, they forced the destabilization of the global climate and they became a decisive instrument for the redistribution of oil rents to the benefit of the consuming states. The typical neoclassical response that supply and demand determine oil prices is tautological and provides merely a justification for low oil prices. The neoclassisists have failed to produce a coherent explanation for the paradox of long-term oversupply of oil and persistent price decreases, as well as for the price surges in the last 30 years. However, a comprehensive theory of oil prices that accommodates the complexities of the topic is necessary. Such a theory helps to overcome selective perspectives and allows for an impartial discussion of the basic conditions for a self-sustaining global energy supply. Four empirically and scientifically provable factors are critical to the formation of oil prices: 1. marginal costs, 2. scarcity costs, 3. interest rates on the international financial markets and 4. the national sovereignty of and democracy in the oil producing states.

Using political intervention and cooperation with dictatorial oil states, industrialized nations succeeded in the 20th century in overriding market laws, thus preventing the formation of economically-grounded oil prices. In addition, industrialized nations were able to subordinate the supply policy of the oil states to their own short-term national interests. The consideration of democracy as a regulating factor of oil prices may seem surprising; however it results from the basic assumptions of all economic doctrines. In light of the US project “Democratization for the Greater Middle East”, this topic should also gain political explosiveness – so long as this project is meant in earnest.

1. Principles, properties, and the long-term trend of oil price formation on the global market

1.1 Marginal costs, scarcity rent and fair prices in the oil sector

Presuming the presence of functioning markets, it is important to note that current oil prices are regulated not by the cheapest, but rather by the most expensive type of oil; in other words, current oil prices are regulated by the cost and revenue expectations of the marginal supplier (marginal or opportunity costs). This market mechanism, under which all non-renewable resources function in the same pattern, has been convincingly proven by experts such as Ricardo and Marx through *the theory of rent*. This theory states that oil market prices rise with increasing demand and the increasing depletion of supply, with dependence on the use of new and costly oil reserves, for instance in the North Sea and Alaska, or oil resources in Canada.

On one hand, therefore, the level of oil prices are dependant on opportunity or marginal costs P_{oil} = MC (marginal costs), which, according to Ricardo, rise with increas-

ing demand and the use of new oil sources with higher production costs as shown in Graph 1.[1] On the other hand, the Marxist theory of rent states that oil prices are also influenced through rents according to the actual resource price of the oil (P_{RE}) that is still in the earth. This is because under capitalistic conditions, all non-renewable resources, including oil, take the form of commodities and can be traded as finance capital, even before they are harvested from the ground.[2] Therefore, according to Ricardo's and Marx's theory of rent, the level of oil prices is dependant on at least two cost factors: marginal costs and oil rents ($P_{oil} = MC + P_{RE}$). The owners of the oil sources can therefore by virtue of their monopoly demand a rent that is determined by the laws of supply and demand in exchange for their capital P_{RE} – whether or not they produce their own oil or leave the production to others. Marx states that the price results from two components: differential rent (DR), which are obtained by the owners of high-quality and more productive low costs sources, and absolute rent (AR), which all owners attain, even those with the most expensive type of oil, as shown in Graph 1.

Under this model, perfect competition prevails – perfect competition between both the suppliers and the consumers. Neoclassical economists define perfect competition as markets in which market actors are able to maximize their individual marginal utility. Perfect competition also requires that total costs be minimized; thus, it is possible for all actors to attain optimal efficiency. This definition of competition and the ability to maximize marginal utility, however, is based on the assumption that all market participants are sovereign and act independently – be they individuals, small businesses, multinational corporations or states. Under such competitive conditions – especially the sovereignty of all market participants – equilibrium prices (for example at E') are also fair prices, because the goods are sold at its actual value. The equilibrium price E' for non-renewable resources occurs at the intersection of the given demand curve D and the supply curve of the owners of the marginal resources S'. This price point gets pushed above the Marginal Cost Curve S by the rent charge of the marginal owners (AR). This is because each marginal owner withholds the use of his resources until a profitable price level is reached. The competition among the resource owners determines the level of the rent (AR). Under the conditions of perfect competition and increasing demand, but stable technology and depleting natural resources, the price of resources should rise.

According to the classic theory of rent and on the assumption of a competition as described above, the oil producing states in the Persian Gulf owe their relatively high rent incomes to the naturally high productivity of their oil reserves, which result in very low production costs.[3]

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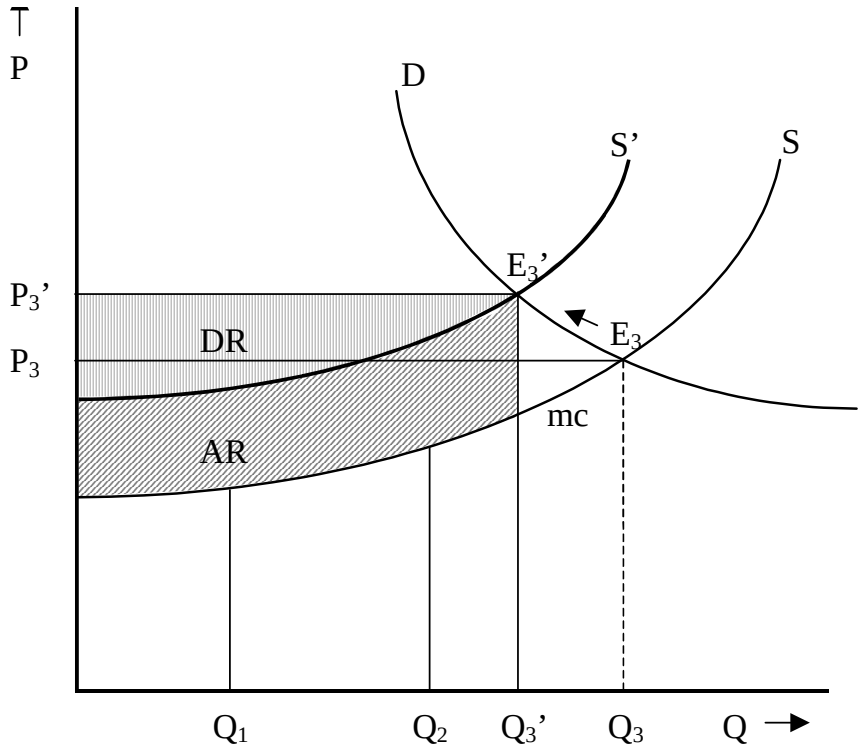
1 Ricardo, David, 1817: Principles of Political Economy and Taxation, 2nd chapter.

2 Marx, Karl, 1969: Das Kapital, Dritter Band, 6. Abschnitt [The Capital, 3rd volume, 6th chapter], Berlin.

3 Ricardo, Marx and other classical theorists of the 19th century formulated their theories of rent according to the capitalistic mode of production in agriculture, but not on other natural sectors such as the fossil fuels. This is likely due to the fact that fossil sectors played a small role in comparison with agriculture.

Graph 1: Taking into consideration marginal costs and rents in supply and demand for non-renewable resources



1.2 Scarcity time costs: Hotelling's neoclassical theory

The price of oil also depends on a third factor: it is supposed to increase even more under the influence of interests rates on the financial markets. Because oil is considered investment capital even before it is removed from the earth, oil owners have two acting options at their disposal: they can remove the oil from the ground immediately (assuming the presence of production capacity), or they can delay production until a later time.

With high interest rates in the financial markets, owners want to sell the black gold quickly and in large amounts, in order to invest this money in the global financial markets. When low interest rates dominate, owners prefer to dampen production levels in order to raise them again once market prices rise, thus increasing their income accordingly. Assuming a functioning market, this plausible "optimizing conduct" forces the producers of non-renewable resources such as oil to restrain production levels. This connection led the US economist *Harold Hotelling*[4] to declare in 1931 that the market price for non-renewable resources would increase exponentially in the long-term, and that this increase would minimally encompass the rising value of capital investments according to the law of interest rates $\boldsymbol{P_{RE} \bullet e^{rt}}$ **,** whereby P_{RE} represents the actual value of the oil under the earth, r is the interest rate and t is time.

[4] Hotelling, Harold, 1931: The Economics of Exhaustible Resources, in: The Journal of Political Economy, vol. 39, no. 2, pp. 137–175

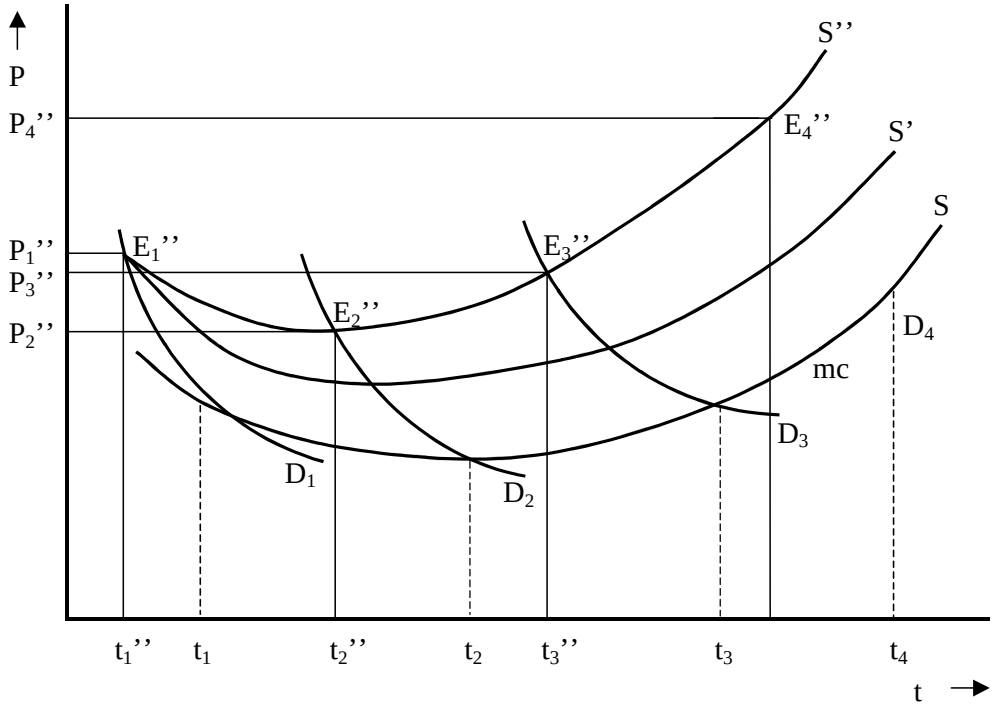
For simplicity's sake, Hotelling formulated his model under the assumption of constant extraction costs. This simplification is methodologically necessary in order to isolate and explain the influence of financial market interest rates on the price formation for non-renewable resources, especially in the context of the selection of other factors that have an equally influential role in price development. The fact that extraction costs rise or sink depending on technological development and natural productivity, as shown in Graph 2, does not cast doubt on Hotelling's Law. While the drastic decrease in oil extraction costs in the 20th century was actually caused by both technological advances and the discovery of new, highly productive oil fields in the Middle East, neoclassicists took the decrease as cause to fundamentally question the validity of Hotelling's Law. However, Hotelling's Law remains valid independent of these factors.

1.3 The Ricardo-Marx-Hotelling theory

Now we should discuss all of the determining economic factors of oil prices and their interrelation. The three cost factors described above were shaped by Ricardo, Marx and Hotelling (three classical and neoclassical theorists) independently of one another. While Marx refers to Ricardo, Hotelling refers neither to Marx nor to Ricardo. Each of these factors alone describes a partial cost factor. Only when they are brought together do they build the basis for a comprehensive price theory for non-renewable resources (Scarcity Price P_s), which takes all cost factors into account. In this spirit I have integrated all of the price elements (e.g. of oil) for non-renewable resources into a new *Ricardo-Marx-Hotelling Theory:*

$$\mathbf{P_s = MC + \mathit{P_{RE}} \bullet \mathit{e}^{rt}}$$

Graph 2: Increasing prices for oil and other non-renewable resources



Under this price theory[5] – which holds true for all exhaustible resources – the price P rises as a function of time along the supply curve S“ (Graph 2) and also moves with every point in time $t“_1$, $t“_2$, $t“_3$, $t“_4$ above the respective marginal costs (the area between S“ and demand rates D_1, D_2, D_3 und D_4). It is also notable that marginal costs sink as the result of more efficient technology or the discovery of new and more fruitful sources, which in turn invokes a decrease in price – as shown in Graph 2 at the balance point $E“_2$. Depending on the technology, these price decreases can be very drastic. However, this influence abates accordingly when productive sources are depleted and marginal costs and prices rise again to $E“_3$, $E“_4$, etc. despite new technology.

The exhaustibility of natural resources must ultimately be categorized as a physical occurrence. However, as an economic occurrence, this exhaustibility requires a societal definition. The point of exhaustion is dependent not only on today's markets, but also on the markets of future generations. This intertemporal nature could lead to the repudiation of the definition of scarcity as a present-day economic category. This is due to the fact that future consumers and suppliers are *ipso facto* unable to be present in today's markets. It is my opinion that the current definition of scarcity is selective and divorced from history. In reality, different generations deal with their own specific economic scarcity problems, subject to available technology: In the 18th and 19th centuries, coal soon became scarce as a means of energy. The generations of the 20th century discovered oil, which in turn has become a scarce resource in present day. This scarcity condition holds true if future generations continue to exhibit a ravenous appetite for fossil energies, and also holds true if they manage to switch to regenerative energy sources. Only with these continuously regenerative resources will ownership and scarcity rents cease to exist, and therefore also the reasons to wage war.

This analysis of the three cost factors assumes that the market mechanisms are in full effect. Above all, this assumption implies freedom of choice for all suppliers and consumers. For price formation, therefore, a fourth factor even plays an important role – and for the formation of oil prices, this factor plays a determining role.

1.4 Sovereignty and democracy in oil producing states

Market laws are only valid, however, when all market players are in the position to act sovereignly on their individual optimization criteria and preferences. This is the implicit fundamental assumption of all neoclassical market, price and balance theories. The sovereignty of market players is, however, unimaginable without freedom of choice, self-determined optimization criteria and competition for the optimization of interests. In other words, sovereignty is inextricably linked with democracy, and this linkage applies to both domestic and between national economies. This holds true both within and between national economies. Accordingly, market laws in democratically-constituted societies and between democratic nations are reflected in fair trade relations. The question then becomes topical whether or not these basic social conditions for functioning market laws in the oil sector have always been present and why, then, contrary to the theory described above, the oil prices have consistently

[5] See Massarrat, Mohssen, 1993: Endlichkeit der Natur und Überfluss in der Marktökonomie, Marburg, especially chapter 2 (Time Dimension), and Ricardo-Marx-Hotelling-Theorem, in the same, 2000: Das Dilemma der ökologischen Steuerreform, Marburg, pp. 46 ff.

decreased since 1920, the year the global oil market emerged – instead of exponentially rising, as the price of land has.

2. Oil price formation on the world market since 1920

2.1 Solow's claim of the non-depletable nature of natural resources

In order to work through the above question both empirically and logically, we must differentiate between two stages in the history of the oil sector: First, since the beginning of oil production from 1861 to 1920 – that is the period when oil was produced and consumed primarily in the United States; second, the period after 1920, in which oil production expanded beyond the USA and oil became a global commodity.

The actual development of oil prices in the first phase (Graph 3) shows that the oil price trends during this time followed the Ricardo-Marx-Hotelling theory described above. Oil prices decrease rapidly after the first discovery of oil in the USA through the development of new drilling and extraction technology between 1861 and 1880. Prices then begin rising due to increased demand and marginal costs, a trend which lasts until 1905. With both the discovery of new oil reserves at the end of the 19th century and an oversupply of oil, prices sink, only to increase again at the end. Undoubtedly, price developments in this period are determined by the rules of exhaustibility – as shown by the Ricardo-Marx-Hotelling theory. After 1920, when the oil price trends reached a turning point and the global oil market arose, oil prices either decreased continually or stabilized at a low $1 to $2 per barrel. Prices did not experience a renewed increase for almost half a century until 1979 (Graph 3), even though the worldwide demand for oil rose by 1300% in the same time period.

This global trend of decreasing oil and raw material prices prompted US economist and Nobel prize winner Robert Solow to declare in 1974 in a widely-read article that natural resources were forever renewable.[6] Solow – like the mainstream neoclassisists before him – claimed the Hotelling theory to be therefore invalidated. However, Solow's conclusions resulted from a selective and ahistorical observance of oil price trends. He ignored both the oil price trends in the USA in the first period from 1861 – 1920, as well as the lack of market sovereignty and democracy in the southern oil producing states in the period after 1920. The thesis of the endless supply of oil provided the justification for the progression of unbridled and lavish consumption of fossil energy. This thesis was ecologically irresponsible and proved in the end to be a monumental misinterpretation. What, then, were the empirically and logically comprehensible reasons behind the sinking prices that influenced the course of history and the energy-intensive consumption and production patterns in the capitalist states?

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[6] Solow, Robert M., 1974: The Economics of Resources or the Resources of Economics, in: The American Economic Review, vol. LXIV, no. 2, pp. 1–14.

2.2 Theory of Dumping Prices

Solow's article also overlooked the fact that at the time of the globalization of the oil industry, over 75% of the global population still lived in the pre-industrial era, and therefore had yet to enter the markets as consumers. The article therefore failed to realize that the oversupply of oil in the Persian Gulf was only a temporary situation, and not a lasting state of affairs. In addition, the lack of market sovereignty and democracy in the states of the Persian Gulf and South America contributed to the paradoxical development of continuously sinking oil prices – a cause and effect that will be discussed more closely later in this article. In order to precisely elucidate this theory, two additional historical periods also after 1920 must be defined: The first period runs until the beginning of the 1970's and is defined by the self-interested use of the Golf region oil supply by large oil groups. The second period begins in the early 1970's, with the area-wide wave of nationalization of the oil sector in all OPEC states (see chapter 3).

Until the beginning of the 1970s, oil owning states in the south literally gave their sovereignty as market players to a handful of multinational oil groups for a negligible 10–20% of the profits. In this way, powerful actors on the demand side take control of the supply and are able to manipulate the behavior of the suppliers in their own interests and the interests of the demand side – the industrialized nations. Out of fear that these unfair contracts could collapse at any moment, the multinational oil groups pulled as much oil from the ground as they could over almost four decades without any consideration for the economic and geological rules of sustainability. They then invested the revenue in the international finance markets. In this way, the oil groups succeeded in overriding the market spine of the resource proprietors towards the long-term maximization of utility (Hotelling's Law).

The keen competition to turn cheaply-produced oil into currency turned the multinational oil groups into the most financially powerful concerns in the world. However, as shown by the graph of long-term oil price development, this competition also caused a latent overproduction with prices of US$1 to US$2 per barrel. While the flood of oil from the reserves of the Middle East became the cornerstone of mass consumption and the Fordist growth model in the USA and Europe, the peoples in the Middle East irreversibly lost a portion of their natural wealth. The elite of oil states signed slave-like contracts with oil concerns for the unrestrained exploitation of their oil reserves because they were motivated purely by their own short-term partial interests and did not act in the interest of their people or future generations. Democratically legitimated elite, on the other hand, would most likely not have entered into such contracts.

Under these conditions, scarcity prices lost their foundation and the scarcity factor of oil prices $P_{RE} \bullet e^{rt}$ was reduced to a fraction of its size $a < P_{RE} \bullet e^{rt}$ – instead of rising. Thereafter, the scarcity factor of oil prices were given to the owner states only pro-rata in the form of oil rents in return for the use of the most fruitful oil reserves in the world. In this stage, therefore, the scarcity price (P_S) is substituted by the dumping price (P_D).

$$\mathbf{P_{D\ dumping} = MC + a < MC + P_{RE} \bullet e^{rt}}$$

In general, dumping prices are subsidies for consumers or serve the aim of fostering economically weak sectors of the national economy. These types of subsidies are usually short-term benefit transfers from the majority to the minority. The dumping price for oil reserves, which are actually mankind's heritage and only through coincidence became the property of a handful of states, is really nothing more than a monumental subsidy from the minority to the majority. The present-day owners give subsidies to consumers irretrievably without return payment and at the detriment of their own people and future generations. The consequences of this type of subsidy for the future of mankind and the stability of the global climate are just as fatal as the current subsidization of domestic energy supply by most OPEC states, which primarily benefits the wealthy classes.

This fatal course of development was already noticeable in the middle of the 20th century; it was no coincidence that, in 1951, the nationalization of the oil industry became the primary goal of the first democratically elected government in Iran and in the entire Middle East. This government was tied closely to the name Mossadegh and can be cited as the first sovereign Middle Eastern actor in the international oil market. This government would have motivated other people to emulate its examples, and perhaps even started a wave of democratization in the entire region, had it not been toppled in 1953 through operations of the American secret service, the CIA, and replaced with the dictatorial government of the Shah. Eisenhauer, however, already recognized the danger of a democratized Middle East for economic growth and the American consumer model, and used the pretense of "communist danger" to give the CIA the green light to overthrow Mossadegh. Is this example not historical proof that the oil-dependent West wanted to eliminate sovereign market actors and thus render the market logic in the international oil markets null and void?

Oil is the most important lubricant of economic growth; rising oil prices therefore hinder growth and burden the consumer. The IEA calculated that growth in OECD nations slows by 0.4% when oil prices rise by US$10 per barrel;[7] considering the price difference of US$50 (2001 to 2006), this means a reduced growth of 2%, after all. However, rising oil prices bring higher rent revenues to oil supplying nations. In this way, oil prices maintain a double function: on the one hand, they stimulate and/or repress economic growth; on the other hand they act as the deciding lever for the global distribution of oil rents. Hence, the OECD states, as primary consumers, have had a fundamental interest in maintaining the lowest possible oil prices, supported by an international oil market with great flexibility of supply and stable prices at a low level. Through this construction it has been possible to achieve higher economic growth rates while also securing a steady and long-lasting redistribution of rent revenues from the supply to the demand side – a redistribution involving astronomical sums of several hundreds of billions of US dollars per year. The redistribution to the benefit of the consumer is possible because under dumping prices (P_D) the consumer pays a price well below the actual value of the oil (the scarcity price), despite gas taxes. In this way, consumer states are able to institute high gas taxes in order to siphon a piece of the price difference (of the oil rents) for the state budget. Indeed, low oil prices in OECD nations have developed into an effective instrument of domestic consensus building and stability in "affluent democracies". The structural overproduction of oil and all other fossil energies that has dominated the international oil market for the last 70 years – despite increasing depletion of oil reserves – aligns completely with the interests of the OECD states, even though this phenomenon was

[7] IEA, May 2004

a novelty in the history of capitalism and contradicted all market logic too. Normally, suppliers in the economy react to overproduction and falling prices with a decrease in production levels. Paradoxically, however, this did not happen in the oil sector; this is especially surprising considering the oil sector is exactly the type of market that demands a reduction in supply in times of relative scarcity – not overproduction.

2.3 Effects of societal change in the oil states on the price of oil

The multinational oil concerns were right in the end, and the slave-like contracts did not last. Under growing legitimacy pressure from their own peoples, even dictators were forced to nationalize the oil industry in the early 1970's (for instance, the retrieved Shah Reza Pahlewi in Iran). In doing so, these dictators were able to win back a portion of their market sovereignty. As a result, there were two oil price surges – catalyzed by the Yom Kippur War of 1974 and later the Iranian Revolution in 1979. The first surge saw prices rising from US$2 to US$10 per barrel, while the second surge brought prices to US$40 per barrel (US$80 per barrel when adjusted for inflation).

However, despite demands for formal sovereignty over oil reserves, the normalization of market forces in the oil sector was short-lived. This was due to the fact that true democratization – including open competition for path of optimal national utility of the oil business – did not take place after the nationalization of the oil fields. In addition, the ruling petrodollar monarchies were inclined to engage in horse-trading with the USA, the biggest oil consumer: *the safeguarding of their own authority in exchange for a moderate policy on oil prices.* A lack of legitimacy and control through their own people thus kept the governments of oil states open to manipulation. In his harrowing report, John Perkins describes the manner in which these governments – above all the government of Saudi-Arabia – became the executors of a politically manipulated system of oil prices. His report details the widespread secret intelligence practices (beneath the swell of resorting to violence) of the United States government, in its attempt to become the ruler of the third world and the pivotal player in the world economy.[8]

As a matter of fact, the three petrodollar oligarchies of Saudi Arabia, Kuwait and the United Arab Emirates are de facto protectorates of the USA. With a world market share of just under 20%, they managed to maintain a high production capacity as well as to provide for a latent overproduction of oil in the '80s and '90s. As a result of the substantial overcapacity in OPEC and the expansion of more costly oil and energy sources outside of OPEC, there arose henceforth a literal downward spiral of oil prices from US$40 to US$10 per barrel in the late 1990's. Even the sudden halt of Kuwaiti and Iraqi oil supplies during the Kuwait Crisis failed to incite dramatic and long-lasting oil price increases (see accompanying graph 3). Considering Kuwait and Iraq together supplied 20% of OPEC oil, a dramatic rise in oil prices should have been expected. The Saudis, however, quickly moved to utilize extant excess capacity, successfully filling the market hole left by the sudden halt of Kuwaiti and Iraqi supply. Neoclassists completely fail to repudiate the phenomenon of the overproduction of oil. However, they ascribe it to the strategic interests of OPEC, which as a cartel fails to rein in the excess capacity in order to squeeze competitors out of the market and to maintain higher prices in the long-term. It is indisputable that cartels

[8] Perkins, John, 2004: Confessions of an Economic Hit Man, San Francisco.

are anxious to maximize their long-term interests through the use of short-term dumping prices. However, this explanation is not applicable to OPEC, as dumping prices have minimized – not maximized – the utility of the OPEC members over many decades.[9]

Through doubtful contracts and later through systematic and purposeful cooperation with half-sovereign, illegitimate oil supplier governments in the Middle East, industrialized nations managed to render market laws in the oil sector void for nearly seven decades. Despite ever-increasing demand and the gradual depletion of resources, the oil market has yet to come face to face with scarcity. Rather, the oil market has been – and continues to be – characterized by low prices maintained through a structural overproduction of oil supported by political motivations. A lack of democracy in the oil states was and is the critical cause for overproduction and low oil prices. However, it is not the only cause: other political factors (such as the recycling of petrodollars in the weapons market), regional weapons proliferation (and the resulting need of foreign exchange for more Golf wars and reconstruction activities) and economic factors such as the increase of the US interest rate in the 1980's, increasing foreign debt in the oil states, and structural compliance programs of the International Monetary Fund have all contributed to overproduction.[10]

3. A comprehensive view of the development of oil prices from 1861 to the present

The oil price theory laid out above mirrors the history of oil prices in a total of three specifiable stages:

In the era of US oil dominance (1861–1920), the price of oil on the virtually internationally-independent US oil market reflected exactly the trend described in the Ricardo-Marx-Hotelling theory (compare this period in Graph 3 to Graph 2).

The second stage, from 1920 to the beginning of the 1970s, is best characterized as the dumping price period. After the discovery of plentiful oil reserves in the non-democratized, dictatorial and oligarchical Middle East beginning in the 1920's, the market mechanism for non-renewable resources no longer reigns. Instead, laws of imbalanced power dominate, brought about both by the dualistic relationship between fully-capitalistic, democratic economies and the non-capitalistic, non-democratized Middle East. Owing to neo-colonial license agreements and under the pressure of structural overproduction, the capital value of oil reserves P_{RE} trends to zero and oil prices sink to the low level of marginal costs.

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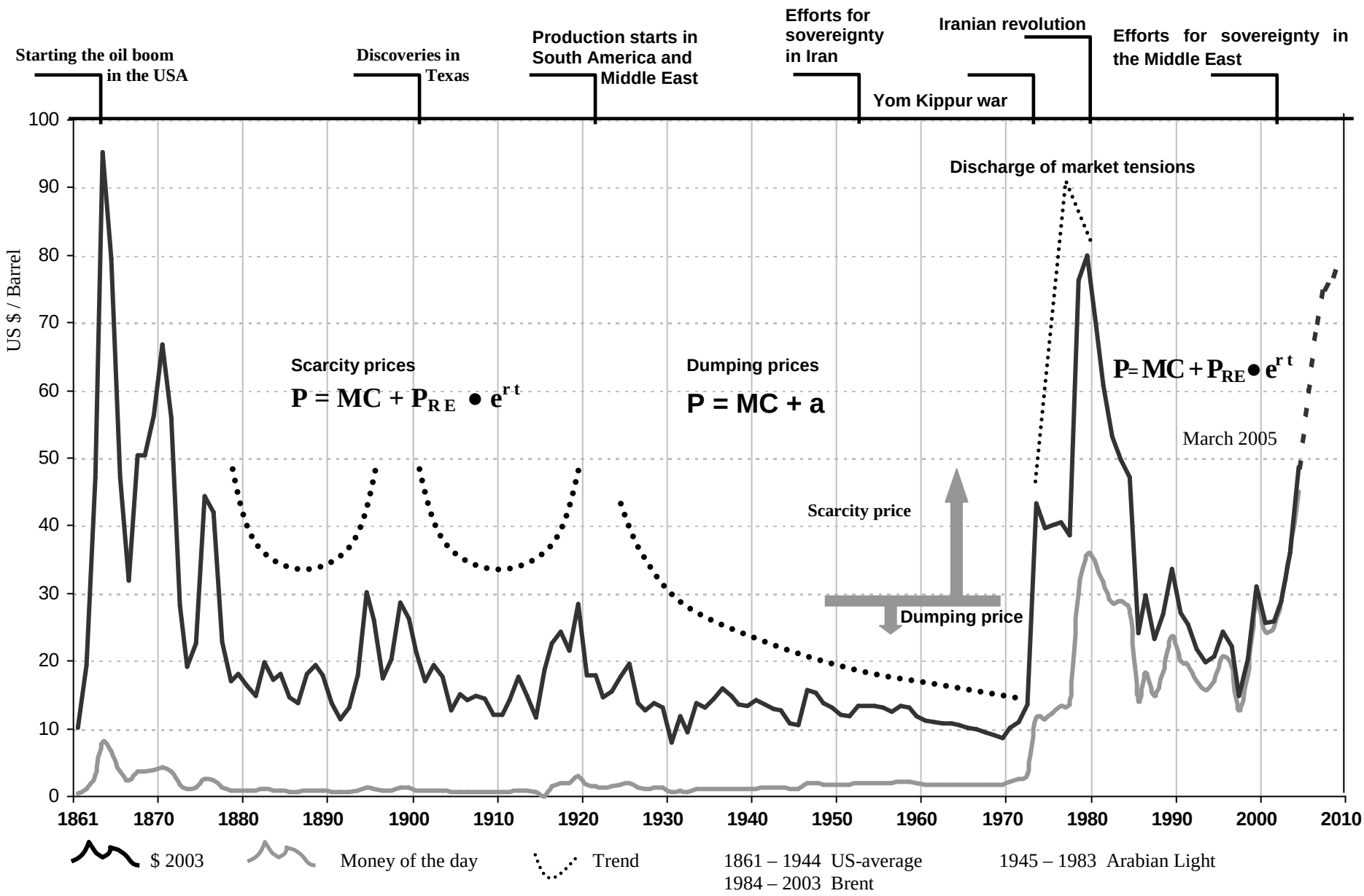
9 Meanwhile, numerous members have vehemently argued against this policy. Kamal Daneshjar, Chairman of the Energy Commission of the Iranian Parliament, even pleaded for leaving the OPEC, "because the OPEC acts in opposition to its own philosophy of hindering price decreases and striving for the maximization of utility causes of its own members … The upper limit of the OPEC's supply shouldn't be oriented around the interests of the USA, but rather around the real capacities of our oil sources. It is the task of our own resource experts and engineers to determine this." Shargh (Teheran Daily) of 17 Sept. 2005.

10 See Massarrat, Mohssen, 2000 (annotation 5), pp. 123–177, and two additional books by the author, Massarrat 1993 (annotation 5) as well as the same, 1980: Weltenergieproduktion und Neuordnung der Weltwirtschaft, Frankfurt/New York.

In this stage, the fully-developed intra-societal transformation in the oil states of the Persian Gulf and the new OPEC identity ushered in the end of low oil prices. In this period, two sudden oil price surges prevail. These could be interpreted as the release of an enormous pressure brought on by artificially low oil prices. The release rushes forth through the cracks like the springs of a water source that lies deep in the earth, bridging the difference in pressure with full force. In this transitional period, the oil consuming industrialized states succeeded in weakening the newly won bargaining power of the suppliers through effective counter-strategies such as the founding of the International Atomic Energy Agency (IEA), the extension of nuclear energy and moving production outside of the OPEC. This resulted in a return to the old situation of overproduction and dumping prices, beginning in 1985 (the height of the Iran-Iraq war) and lasting until the end of the 1990s. Finally, before our eyes, the age of oil scarcity prices is beginning, which under normal conditions will most likely prove irreversible. This is due to the fact that new, powerful demand-side states like China, India and other threshold countries are challenging the monopoly that industrialized nations have had on demand. The era in which only 20% of the world's population claimed 100% of the oil resources is gone forever. The relationship between demand and supply for oil (and for other resources as well) is beginning to normalize. Starting now, developed nations, too, must learn to recognize oil scarcity as a fact, instead of ignoring it.

Based on the above oil price theory and a political-economic analysis of the international oil market, it is to be expected that in the course of democratization the oil states will commit themselves to long-term national interests more than ever before, and will begin striving towards the goal of optimizing collective marginal utility – as neoclassical economist would put it. This, however, would entail the full expansion of market powers to replace politically motivated dictations from the demand side and the resulting increasing oil prices. This would inevitably result in rising oil prices, even without the OPEC. Truly free and independent parties in democratized oil states would hardly be able to free themselves from societal discourse around sovereignty and national interests. Thus, in order to win a majority, they would be forced to campaign on the issues of new oil quantity and oil price strategies, and provide a solution to lessen their own dependency on oil income. In the end, this would produce oil scarcity instead of overproduction. Additionally, rapidly increasing oil demand in China and India is causing a dramatic trend towards depletion, adding optimization pressure to the mix. Under this scenario, the OPEC loses its importance and eventually becomes superfluous, since the OPEC was a reaction to persistent dumping prices in the 20th century. With a sustained gap in demand in the 21st century, it is possible – and perhaps even more efficient – for the oil states to maximize their national utility without the OPEC.

Graph 3 (Graph Massarrat; Source BP)



Caption: Illustration of scarcity and dumping prices (Ricardo-Marx-Hotelling theory) at the example of the oil price development since 1861 according to BP Statistical Review 2005

4. Oil scarcity price: A requirement for the transformation to regenerative energy and sustainable development

Drastic oil price increases can only be tamed by the expansion of regenerative energy technologies, whose profitability will rise along with oil prices. The price corridor, in which a more moderate change from fossil fuels to solar power could take place, will lie well above $50US per barrel even in the long term. While rising oil prices accelerate the upgrade to regenerative energy, they also increase the profitability of the environmentally harmful oil sands in Canada at the same time. Oil scarcity prices are therefore no guarantee for the worldwide transition to regenerative energy. The world community will not be able to get by without global regulation of the supply of fossil energy resources. For this purpose, a cooperative "Supplier-Consumer-Model" might represent a viable alternative.[11] Under such a model, the worldwide fossil supply can be drastically reduced according to generally accepted climate protection scenarios. The transition to regenerative energies would, however, be left to the market. Under the market model, oil scarcity prices rise, forcing a massive build-up of regenerative energy technologies; energy prices start sinking, however, to the same degree that regenerative energy technologies are cheapened. Scarcity rents rise in accordance with diminishing fossil resources and drive the prices up. Therefore, future energy prices based on fossil energy sources will be forced to rise. On the other hand, the implementation of renewable energy technologies will cause a long-term decrease in energy prices. This decrease is driven by two factors: first, the cost factor of scarcity rents is almost completely dispensed with;[12] and second, the prices are determined primarily by the cost of technology, which in all likelihood will gradually decrease. Bound within a political regulatory system for energies, founded in the interests of humanity, market mechanisms would no longer stand in opposition to the idea of sustainable development. The democratization of the oil states would therefore be a complementary component of a strategy of a globally sustainable energy supply and climate protection.

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11 See Massarrat, Mohssen, 2006: Über Kioto I hinaus. Neuer Schub für Klimaschutzpolitik und erneuerbare Energien durch steigende Ölpreise [Beyond Kyoto I. New Incentive for Climate Protection and Renewable Energy through Increasing Oil Prices], in: Solarzeitalter 2/2006.

12 The rental fees for windmill sites or solar cells are negligible.