

# **INTRODUCTION TO THE INFINITY CARTESIAN SPACE**

By

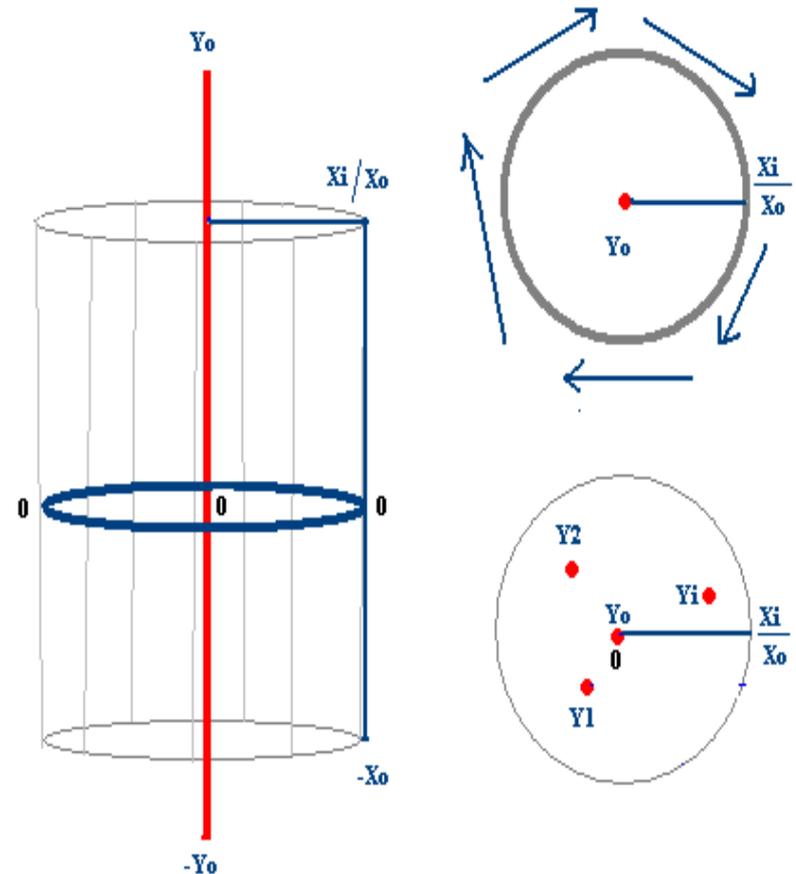
Mario Arturo Ruiz Estrada

Econographic Virtual Laboratory (EVL)

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# THE INFINITY CARTESIAN SPACE

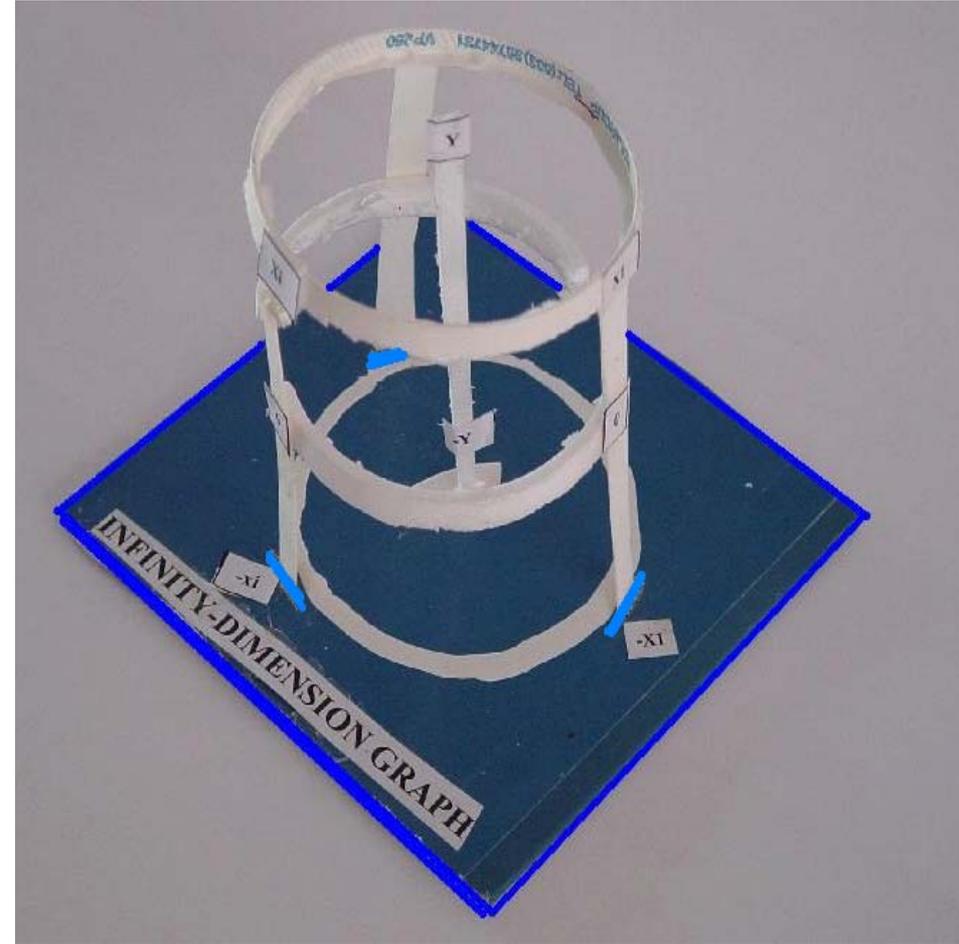
- The Infinity Cartesian Space (I-Cartesian Space) will be an alternative Cartesian Space to visualize different type of graphs from different perspective. The I-Cartesian Space is formed by  $n$  independent variables ( $x_1, x_2, x_3 \dots x_n; n = 1 \dots +\infty$ ) and one dependent variable that is “ $y$ ”.
- But “ $y$ ” can have positive and negative values. The new modality of “ $y$ ” is that this variable can be located in different positions into the circle parametric of the infinity Cartesian Space. The circle parametric is formed by join all  $x_i$  ( $x_1, x_2, x_3 \dots x_n$ ) until to create a cylinder. We assume that “ $y$ ” has high mobility into the circle parametric.
- The position of “ $y$ ” in the circle parametric is depends on the analysis we are interested to develop or demonstrate. We can observe that the final graph is a cylinder with different levels of dimension in the time and space. The graphs in the infinity Cartesian Space can generate different figures, but the analysis of this type of graphs is based on the criteria of the researcher and application interested to demonstrate (See Graph 4 and Prototype 3). The Function of the infinity Cartesian Space is follow by  $y = f(x_1, x_2, x_3 \dots x_n); n=1 \dots +\infty$



# THE INFINITY CARTESIAN SPACE PROTOTYPE

## Characteristics:

- Researchers can input any quantity of dependent variables in the Cartesian Space.
- The dependent variable ( $y$ ) can be located in different positions into the Cartesian Space.
- The generation of new type of graphs in different dimensions in the time and space.



# **CASE STUDY**

## **Crude Oil Prices Analysis**

**By**

**Mario Arturo Ruiz Estrada**

# CRUDE OIL PRICES ANALYSIS

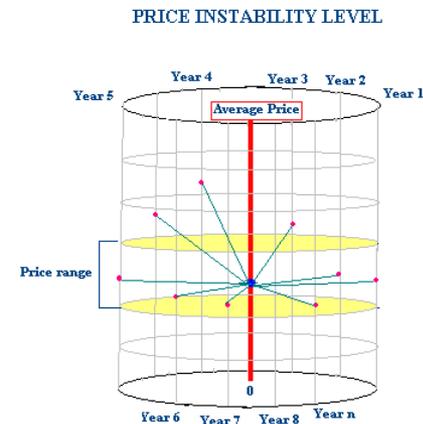
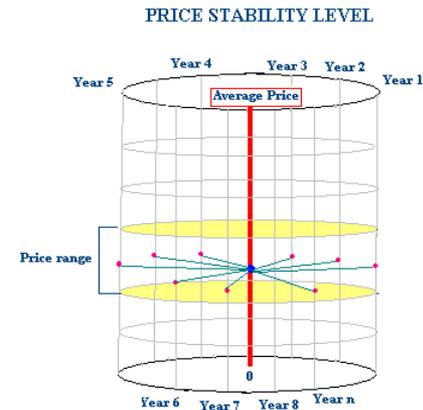
The Infinity Cartesian Space shows the behavior of different prices into the same Cartesian Space from a new graphic view, at the same time, the average price in the same period of time. The Infinity Cartesian Space can show two scenarios are:

## Stable Price Level:

All prices values are located in the same price range

## Price Instability Level:

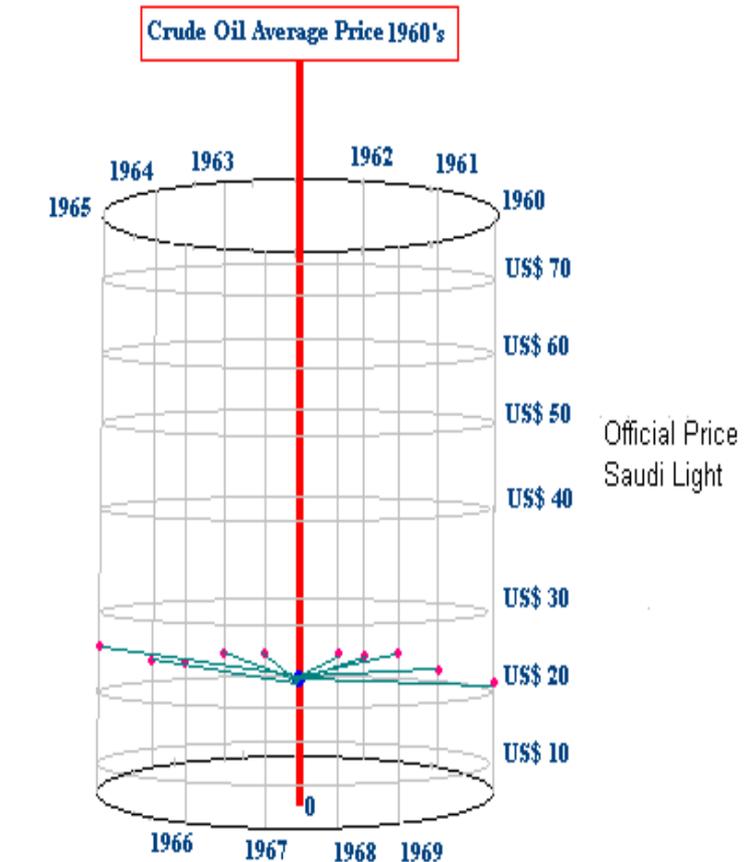
Some prices are located inside and outside of the price range



# CRUDE OIL PRICES ANALYSIS IN 1960's

## ANALYSIS:

In the 1960's the average crude oil price was US\$ 23 per barrel. The world oil price was highly stable during this period. All oil prices were kept within the same price range between US\$ 10 and US\$ 20.

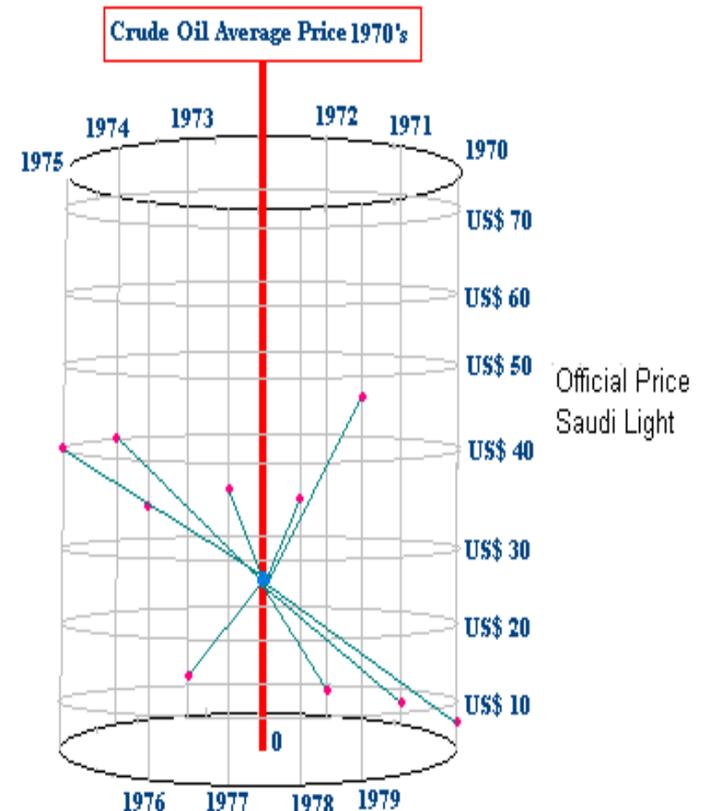


Source: Energy Information Administration -EIA- (U. S. Dept. of Energy)

# CRUDE OIL PRICES ANALYSIS IN THE 1970's

## ANALYSIS:

In the 1970's the average price of crude oil was US\$ 27 per barrel. Between 1973 and 1974 the crude oil price increased from US\$ 11 to US\$40 per barrel. Such a shift in oil price was originated by the Arab Oil Embargo in 1973. In fact, the 1970's started to witness instability in crude oil prices, with prices in certain years located outside the price range.

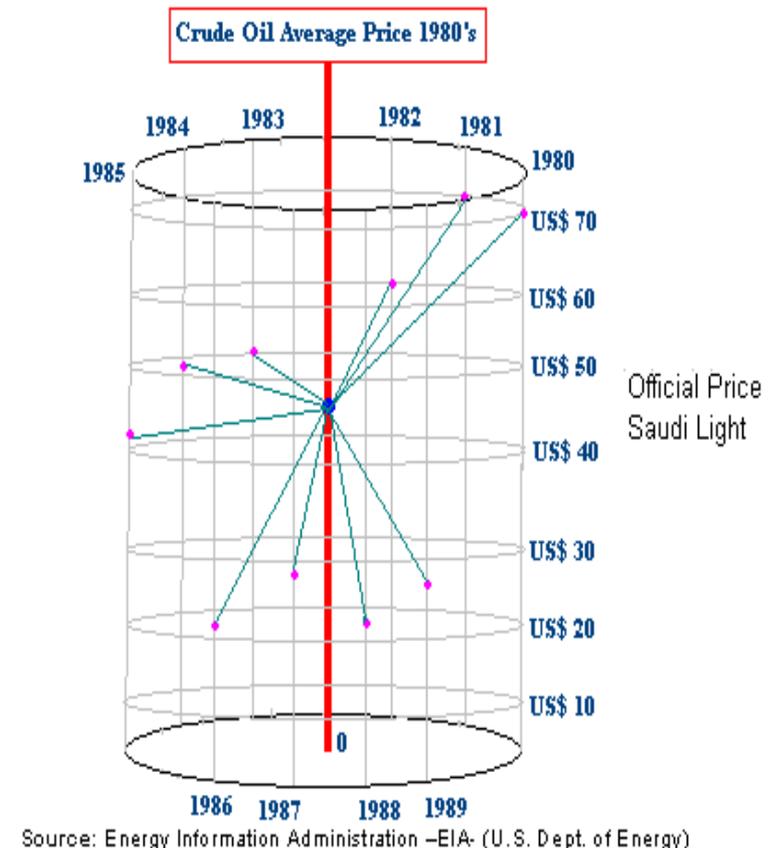


Source: Energy Information Administration –EIA- (U.S. Dept. of Energy)

# CRUDE OIL PRICES ANALYSIS IN THE 1980's

## ANALYSIS:

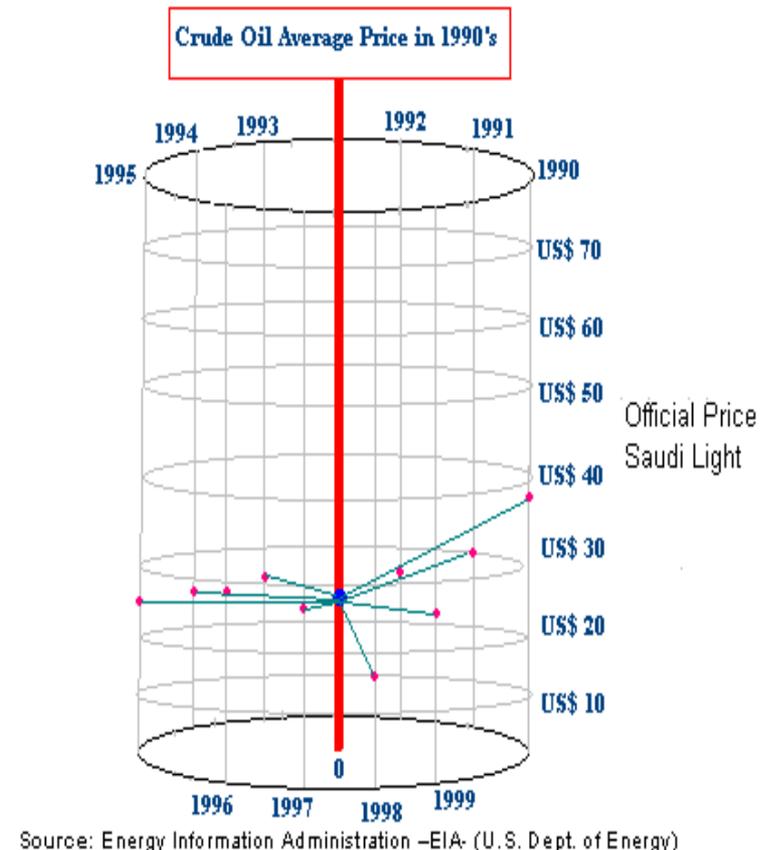
In the 1980's the average price of crude oil was US\$26 per barrel. However, we can observe that between 1980 and 1981, the price was at a disparate US\$ 70 per barrel. Indeed, this decade witnessed the highest level of instability in crude oil prices. The hike and instability of crude oil prices during this period were caused by the Iran-Iraq War and the Iranian Revolution (1980-1988).



# CRUDE OIL PRICES ANALYSIS IN 1990's

## ANALYSIS:

Compared to the 1970's and 1980's, in the 1990's crude oil prices were less unstable. On the Cartesian Space, the average crude oil price in this decade can be seen to be located on US\$ 26 per barrel. Prices in most years during this period are located in the same price range that is between US\$ 20 and US\$ 30.

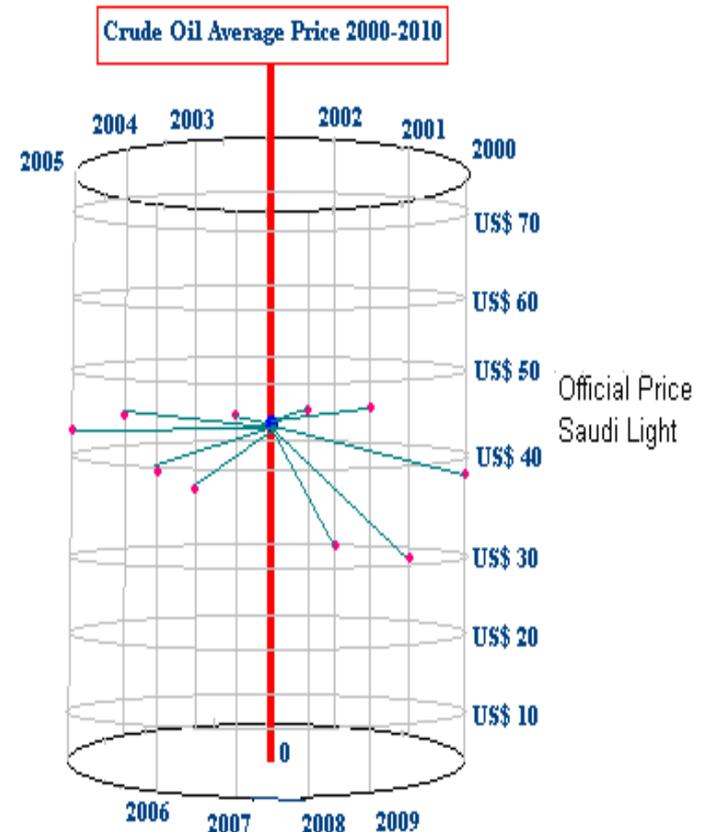


# CRUDE OIL PRICES ANALYSIS BETWEEN 2000-2010

## Analysis:

Between 2000 and 2010, the average crude oil price is US\$ 45 per barrel. This is the highest average price of crude oil so far. There is actually an upward shift in the price range in this decade. Three reasons involve at the price instability level in this decade, there are:

- The terrorist attack in September 11, 2001 on U.S.
- U.S. – Afghanistan War
- U.S. – Iraq War



Source: Energy Information Administration –EIA- (U.S. Dept. of Energy)

**END**