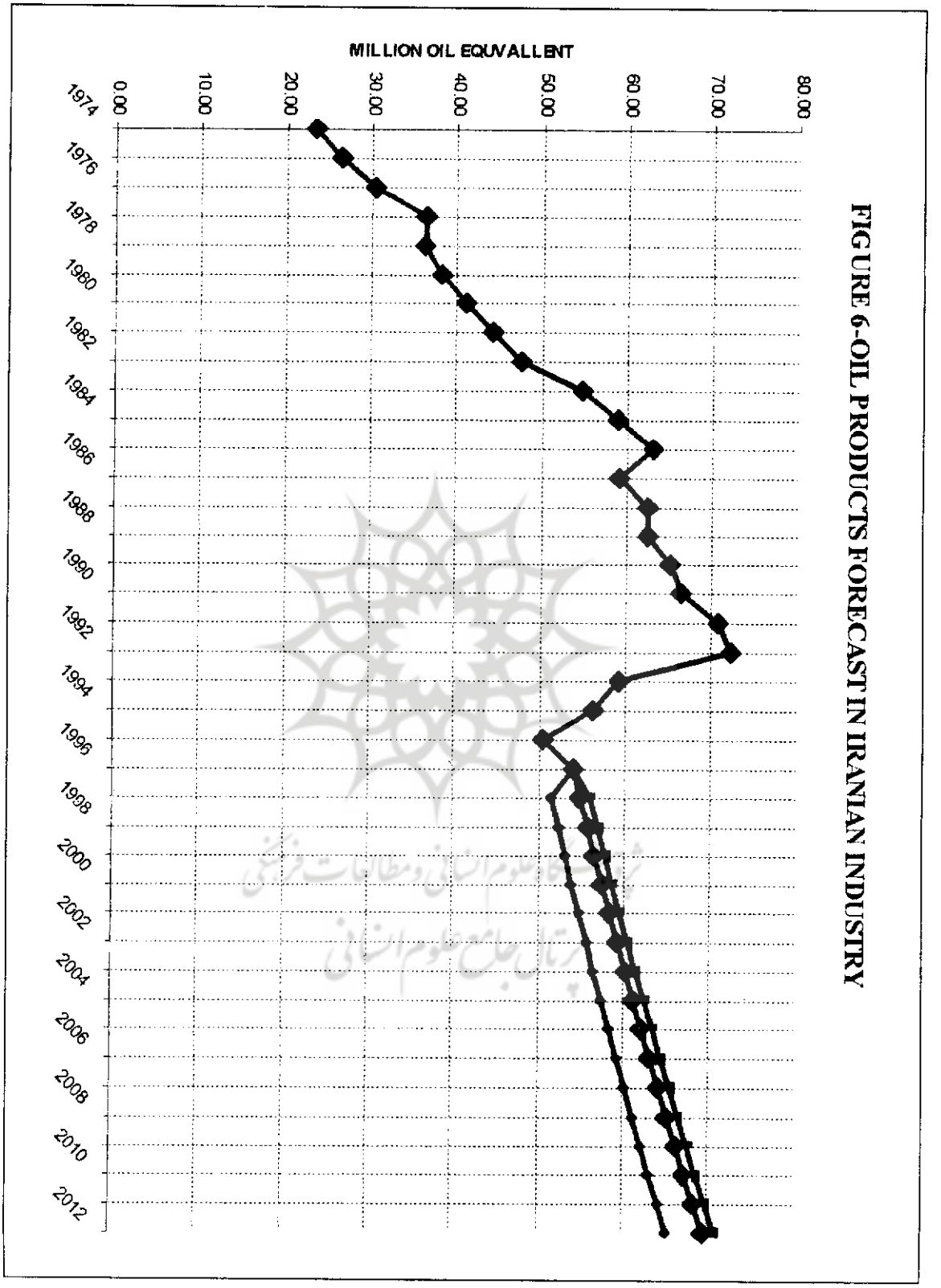



FIGURE 6-OIL PRODUCTS FORECAST IN IRANIAN INDUSTRY

**FIGURE 4- COMPARISON BETWEEN OIL PRODUCTS NOMINAL &REAL PRICE IN IRAN**

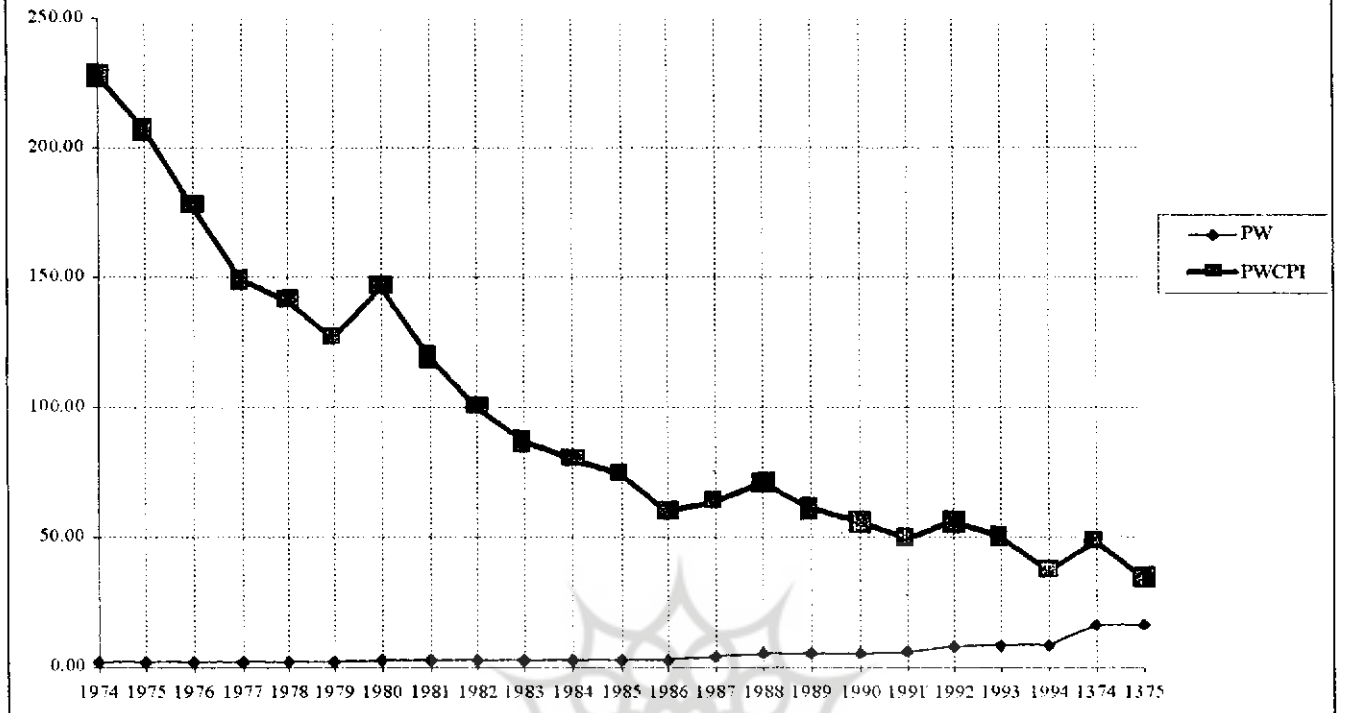



**FIGURE 5- REAL INDUSTRIAL VALUE ADDED IN IRAN**

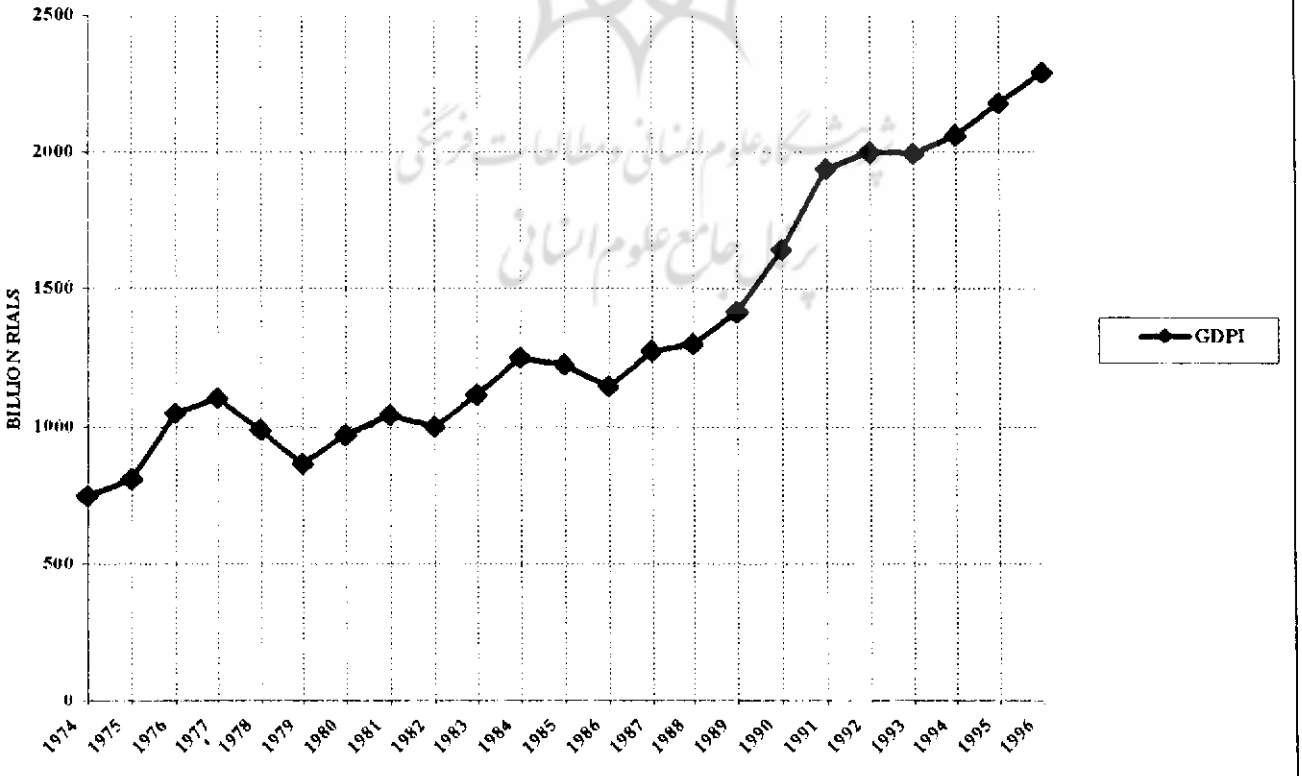


FIGURE 2- COMPARISON BETWEEN ELECTRICITY NOMINAL &REAL PRICE IN IRAN

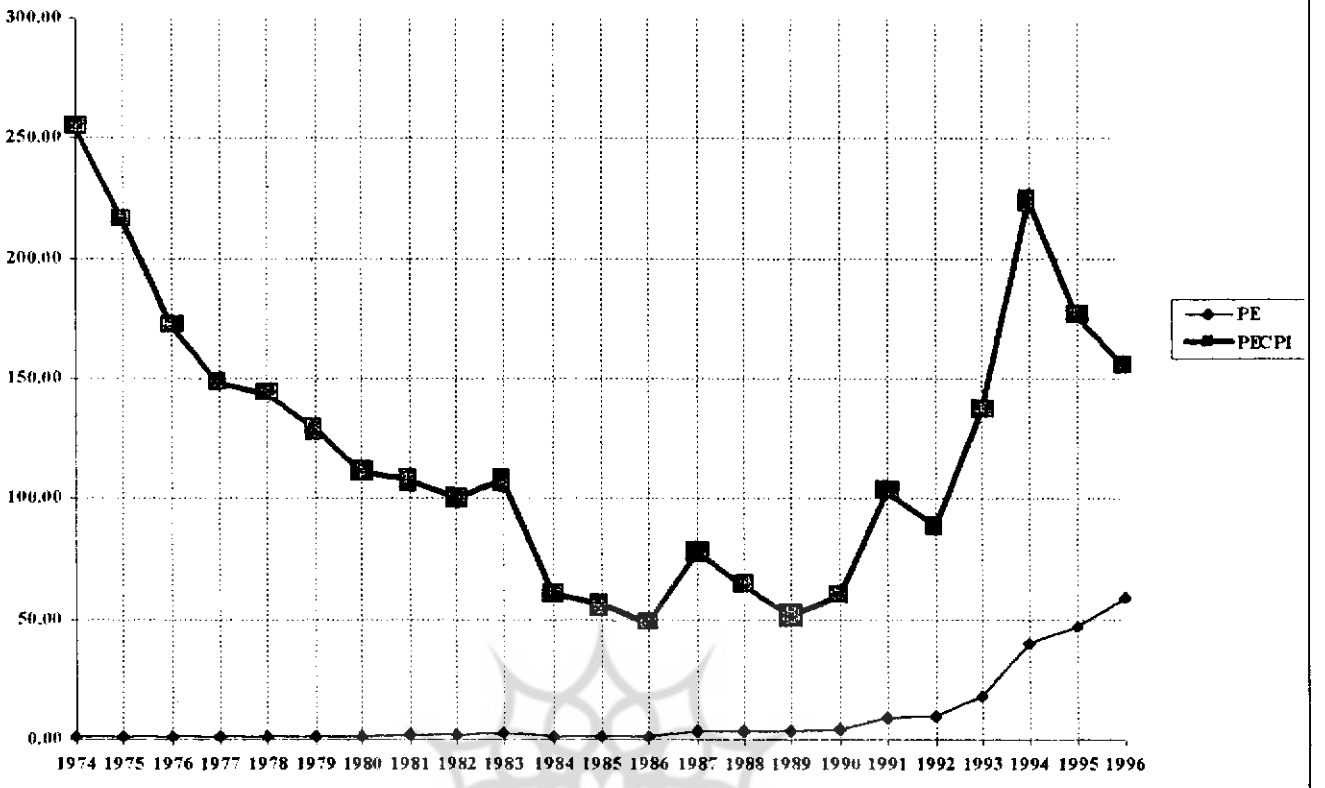
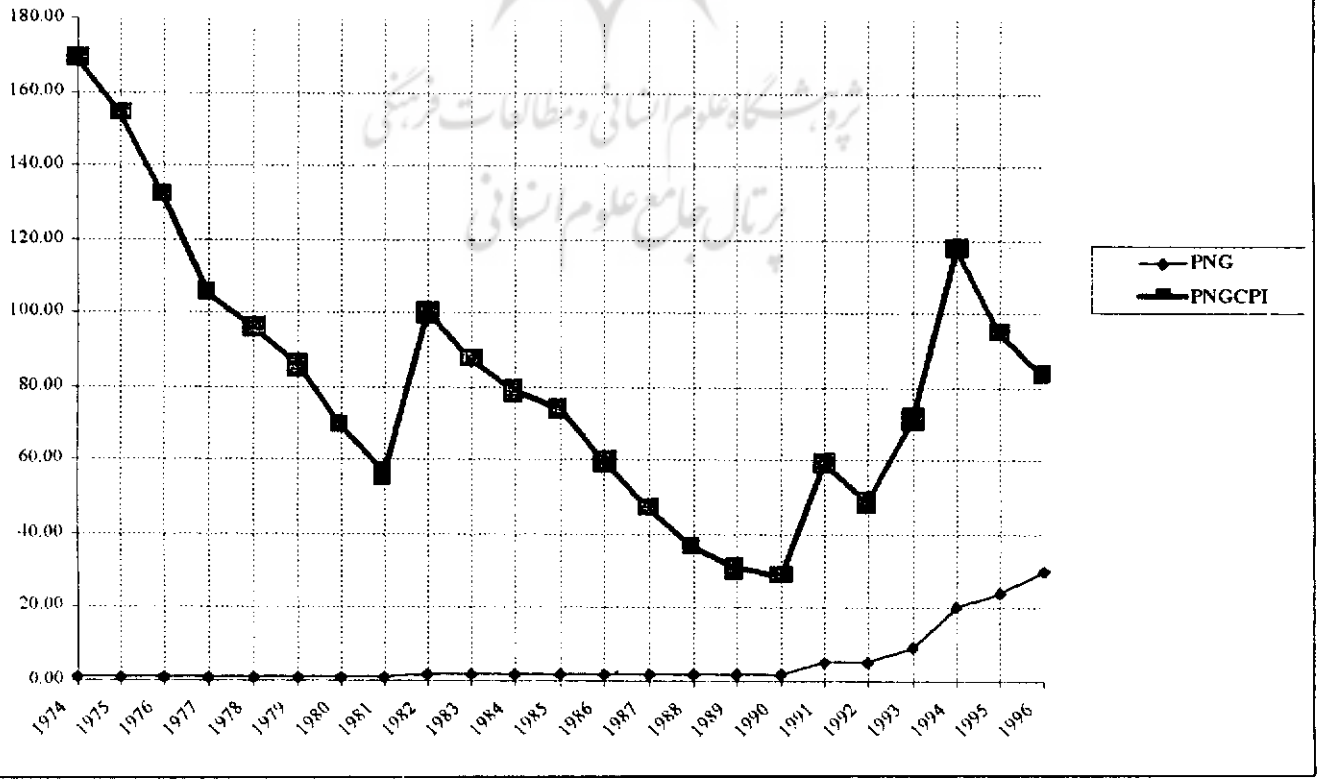



FIGURE 3- COMPARISON BETWEEN NATURAL GAS NOMINAL &REAL PRICE IN IRAN



dependency of these variables, since all variables are co-integrated. As already mentioned, we should make careful study of the error correction model (ECM) for a short-term relationship of the variables. You may find, here below, the Final Model's conclusion:

**Table 2: Long and Short Run Elasticity in the Final Model**

| Long | Run | Elasticity |
|---|---|---|
| Price | Income | Cross |
| -0.083 | +0.3413 | -0.1200 |

**Table 3: Short Run Elasticity**

| Short | Run | Elasticity |
|---|---|---|
| Price | Income | Cross |
| -0.172 | +0.369 | -0.1946 |

## Conclusion

As based on the above model, we may conclude that oil products & electricity in the Iranian industrial sector retain a complementary relationship. Therefore, the relative price coefficient of natural gas carries no real significance; since the re-development of Iran's natural gas sector was followed up following 1993. It is noteworthy that the Iranian natural gas network experienced a stagnant period of development between 1974-93.

According to the Final Model (please see Table 2 & 3) oil product consumption has been predicted for the following three scenarios (i.e. 2012 AD):

**Table 4: Iranian Oil Products Forecast (for 2012 AD)**

| Senarios | GDP Growth Rate | Oil Product Consumption in barrel oil equivalents (boe) |
|---|---|---|
| High | 5% | 73 |
| Base case | 3% | 68 |
| Low | 1% | 65 |

In 1996, oil products' consumption was 54.1-mmboe (million barrels of oil equivalents).

■

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2- R.E.Engle and C.W.Granger "Cointegration and Error Correction: Representation Estimation "Econometrics, Vol.55, 1987, pp 251-267.

3- D.Gujarati "Basic Exonometrics "Mc. Graw Hill 1995.

4- B.Bhaskarao "Cointegration for the Applied Econometrics "Macmillan 1994, pp: 50-58.

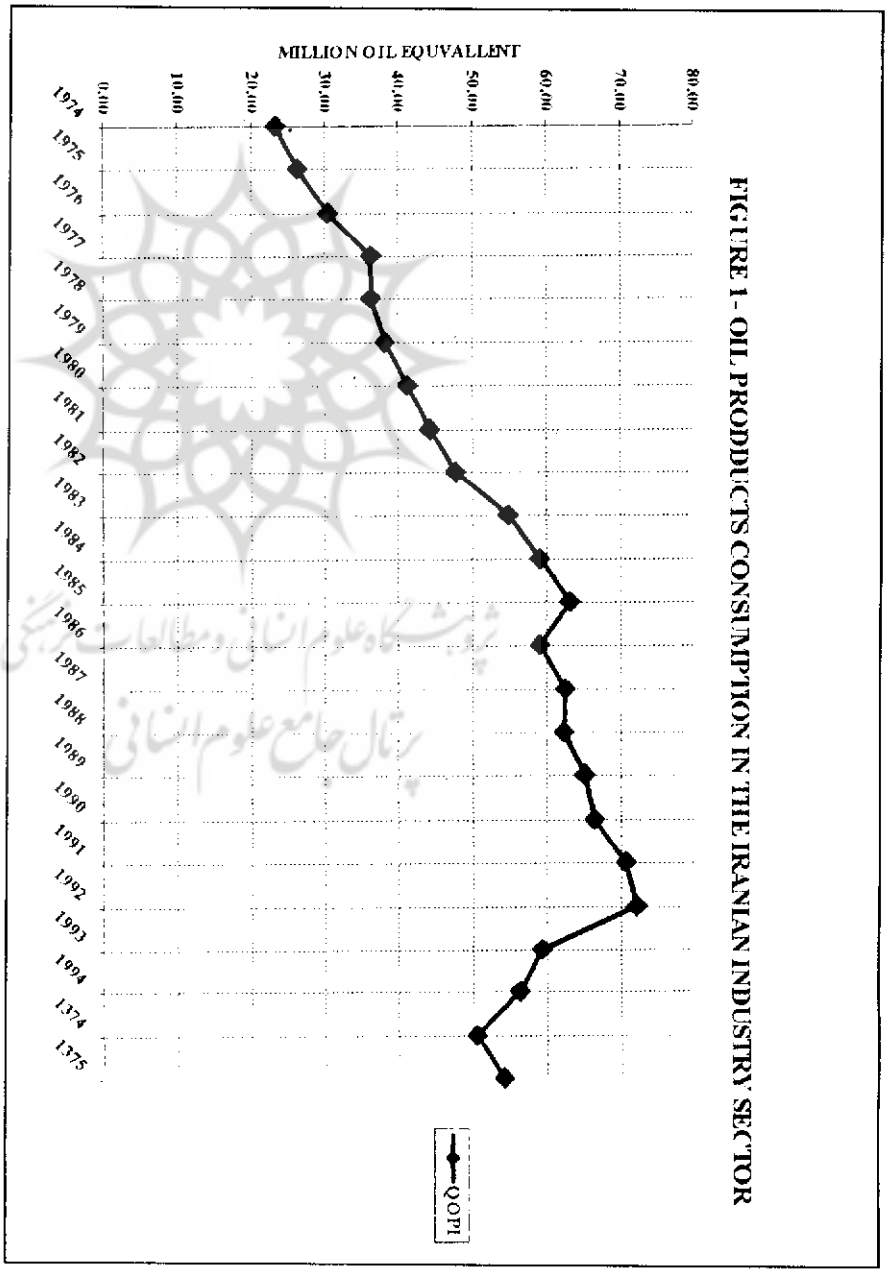
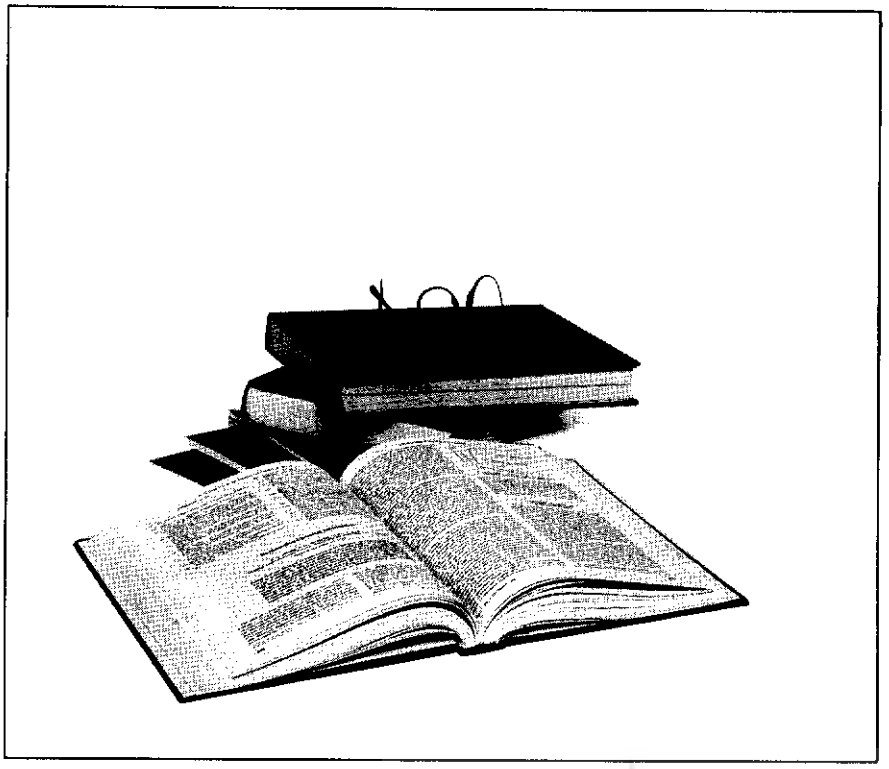




FIGURE 1 - OIL PRODUCTS CONSUMPTION IN THE IRANIAN INDUSTRY SECTOR



# Oil Products Demand Study in the Iranian Industrial Sector

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## Introduction

This study explains the short & long-run of oil product demand based on a Log-Log Econometrics Modelling, including the substitution of oil products by the existing primary energy resources, i.e. electricity. It is worth noting, however, that the study also makes use of the co-integration method, based on the Engle & Granger Method, focusing on years between 1974-96.

This model has confirmed the long-run linear dependency of the variables, since all variables are cointegrated.

Careful study of the error correction model (ECM) for the short run relationship of the variables has also been done.

This study showed that oil products & electricity in the Iranian industrial sector retain a complementary relationship.

## Methodology

The fuel demand in the industrial sector is derived from the use of fuel for the following purposes:

- Process Heat
- Non-Energy Raw Material Inputs
- Conversion to Mechanical Energy
- Space Heating

Fuel consumption is directly proportional to the respective price of fuel in the Iranian industrial sector. There are, however, interchangeable possibilities among each category of input (i.e. labour, energy & investment) even though, it should be added that, this study clearly emphasises the relationship of the classical demand model & fuel consumption.

Please note that Fuel includes the following products:

(a) Oil products, (i.e. gasoline, gas-oil, kerosene & mazut.)

(b) Natural gas

(c) Electricity

I have use bellow linear functional form for this study:

Qt = f (GDPt, PWt, PNGt,)

The variables that this study focuses on include:

(I) Oil Products' Demand (ref. LQOP)

(II) GDP (Gross Domestic Product)- (1982=1); 1982 was the best economic year following the Islamic Revolution, which has incurred the least level of inflation for the past twenty years.) (LGDP)

(III) Relative price of Electricity (LPe)

(IV) Relative price of Natural Gas (LPNG)

(V) Relative price of Oil Products (LPW)

(VI) Dummy Variable- (1980-88)

Please note that all above-mentioned variables are logarithmic, and consequently entail unit roots, (which may also render accurate results in the long run.) Unit roots are based on the ADF test (Argumented Dickey Fuller). In other words, all the mentioned variables are non-stationery. Please see Table 1, here below:

**Table 1:**

**Unit Roots & the ADF Test Results**

| | | |
|---|---|---|
| LQOP | -3.6746 | -3.9288 |
| LPE | -3.0199 | -3.1362 |
| LPW | -3.0199 | -4.5316 |
| LGDP | -3.0199 | -5.596 |

The Engle & Granger Method has confirmed the long-term linear