Changing oil prices, non-price rationing, and the demand for total imports in kuwait

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I - Introduction

Recently, there have been growing interest in examining the behavior of imports and/or import expenditure in the member states of the Gulf Cooperation Council. A number of studies have presented estimates of imports price and/or income elasticities for the GCC countries. These include Asseery and Perdikis (1990), Metwally and Abdel-Rahman (1985), Metwally et al. (1987) and Metwally (1993b). While Metwally and Abdel-Rahman (1985) and Metwally (1993b) have examined structural changes in imports demand, they have implicitly assumed zero price elasticities. Asseery and Perdikis (1990) did not deal with the issues of structural break, but, considered a more general formulation of the imports demand function for the GCC countries that includes relative prices as an argument. None of the reviewed studies on the GCC countries have, however, examined the importance of non-price rationing in the determination of total imports.

The purpose of this empirical study is two fold: a) to make a first attempt at assessing the relevance of non-price rationing on the part of domestic producers of importables to the demand for total imports Kuwait; and b) to inquire into the impact of the dramatic changes in the national wealth,

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caused by the abrupt changes in oil prices, on the demand for tota Kuwaiti imports.

While building on previous works on the GCC countries, this study, to the best knowledge of the author, is the first to investigate the relevance of non-price allocation mechanism to imports demand in any of this country group. This research differs from it's predecessors in that it presents a traditional specification of the total imports demand function of which those employed in previous research on the GCC countries might be considered special cases. Along with modeling non-price rationing, our specification lends itself to the empirical investigation of the effects on imports demand of changes in Kuwait's wealth, resulting from the significant increase in the market value of the country's oil reserves over the boom of the 1970s as well as the downfall in the market value of the country's oil reserves following the oil slump in the mid 1980s.

The paper is organized as follows: Section II presents a brief survey of the history of the Kuwaiti imports in relation to some main economic indicators. The basic formulation of the imports demand function employed in this study is discussed in section III. Section IV discusses the data and empirical model. Results of estimating the imports demand equation using Kuwaiti annual data over the period 1970-1987 are reported in Section V. The principal conclusions are contained in section VI. The appendix lists the sources of data used.

II - Overview

Since independence, Kuwait has adopted a free market philosophy. The embracement of free market system is manifested in the openness of the

small Kuwaiti economy. Foreign trade is one area where the openness of the economy is evident and the free market philosophy is plain as day. Kuwait has always maintained a liberal import policy. Imports of very few commodities are band (with the intention to protect domestic manufactures and maintain specific religious and social values).[1] Based on the infant industry argument, tariffs up to 30% were introduced on certain imported commodities.[2] However, due to the limited manufacturing base in Kuwait, the range of application of these duties has been narrow. All other commodities, except for imported foodstuffs, are subject to a modest 4% duty. Quantitative restrictions and/or quotas have not been instruments of the Kuwaiti trade policy.[3]

In parallel with the mamber states of the Gulf Cooperation Council, Kuwait has experienced drastic fluctuations in oil revenues since late 1973. Kuwait's oil revenues increased almost four folds in fourteen years from KD127 million in 1985 to KD 505.9 million for the fiscal year 1972/73.[4] In the following seven years it increased almost twelve folds to reach it's peak of 5940.3 million for the fiscal year1979/80. During the 1980's, Kuwait's oil revenues decreased (with the exception of 1983/84) to reach a low of KD 1483.9 million in1986.87, about 25% of it's previous peak level.[5]

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1 – Oxygen, certain steel asbestos pipes, foodstuff with pork ingredients, and alcoholic beverages.

2 - An exceptional case is the rate of 100% applied to imports of industrial gas.

3 - It is important to mention here that the tern "non-price rationing", as used in this paper, does not refer to the use of quantitative restrictions and/or quotas as instruments of the trade policy. Instead, it refers to the use of non-price allocation mechanism on the part of domestic producers of importables.

4 - Statistical Abstract, CSO, The Planning Board 1970, p. 145, table95.

5 - Statistical Abstract in 25 years, CSO, Ministry of Planning 1990. Table 126, p.214.

Table 1: Main Economic Indicators for Kuwait (Current Prices)

Indicator	1962.63	1972	1982	1987
GDP	653.000	1463,064	6214.267	6233,331
Non-oil GDP	NA	549,574	3450.797	3922.192
NA. Income	441.000	1031,444	7583.601	7217.936
Exports	424.000	1004.300	3386.000	3275.000
Imports	101.865	302.620	3132,000	2314.000

Sources: 1962/63: Statistical Abstract, CSO, The Planing Board 1965, table 63, p.108; 1972-1987: National Accounts Statistics 1970-1988, table 1, pp.1-8. NA=not available.

The national accounts (in current prices) of the State of Kuwait show that current expenditure on imports has tremendously increased, in absolute as well as in relative terms, during the boom years. the figures reported in table I indicate that over the twenty years period 1962-1982, while exports increased about eight fold, the gross domestic product (GDP) about ten fold, and the national income about sixteen fold, the current expenditure on imports has increased almost thirty-one fold. The current expenditure on imports represented 15.6% of the GDP, 23.1% of the national income, and 24% of exports in 1962. In 1972 it represented 20.7% of the GDP, 29.3% of national income, 30.1% of exports, and 55% of the non-oil GDP. By 1982, the marked end of the oil boom, it represented 50.4% of the GDP, 41,3% of national income, and 92,5% of exports, and 90.7% of the non-oil GDP.

Following the oil slump in late 1982, current expenditure on imports decreased both in absolute and relative terms. The current value of total imports of KD 3132 million in 1987 represented 37.1% of the GDP, 32%

of national income, 70,66% of exports, and 59% of the non-oil GDP. Expansion and contraction in imports expenditure in response to changing economic conditions seem, among other key economic indicators, to have been greatly affected by the abrupt changes in oil prices in the early seventies and early eighties.

Table-II: Main Economic Indicators for Kuwait and their Rates of Growth (in 1984 Prices)

Year	1970		1973		1982		1987	
Indicator	Level	g%	Level	g%	Level	g%	Level	g%
GDP	9975.536	na	10369.59	1.3	5655,858	-6,5	7221,621	0,5
N-oil GDP	1250.646	na	1549.499	7.4	3254,073	8,6	2969,94	-.02
N. Income	9851.935	na	9418.08	-1.5	6907,09	-3,4	7987,011	2,95
Exports	8879.816	na	9109.770	0,86	2968,06	-24	4163,972	3,8
Imports	0491.201	na	0633.715	8.86	2801,819	18	2066,94	-3,4

Source: Levels of the indicators are taken from National Accounts Statistics 1970-1988, tables 1,2 and 9, pages 4, 12 and 33 respectively.
- Percentage growth rates, g%, are computed from the equation: Yt=Y0 exp. [gt], where Y0 - na = not applicable.

Levels and growth rates of the key indicatiors, in constant prices, are presented in table II. While the real GDP was growing at 1.3% and real exports were at 0.86% annually over the pre-boom years 1970-1973, real imports were growing at the rate of 8.86% per annum, fairly close to the 7.4% rate of growth in the non-oil GDP. The imports rate of growth during

the boom years has far exceeded that of the pre-boom years (more than double). However, it turned negative during the post-boom years. Imports had increased at a much faster rate (18%) that the non-oil GDP (8.6%) while the GDP, the national income and exports had decreased at 6.5%, 3.4% and 24% respectively during the boom years (1973-82). During the post-boom years imports had declined at an annual rate of 3.3%, more rapidly than the decline in the non-oil GDP at less than 2%, whereas GDP had increased at an annual rate of 0.5%, the national income at an annual rate of 2.95%, and exports at an annual rate of 3.8%. These statistics reveal changing imports patterns across the oil prices thresholds in 1973 and 1982.

The sharp rise in oil prices in late 1973, it is argued, had elevated the market value of oil reserves remarkably in the oil exporting countries. Accordingly, these countries witnessed a significant increase in the national wealth - in the form of the subsoil asset 'proven oil reserves' - during the boom years which lasted until the early 1980s.[6] This implies an increase in the permanent income measured as an increasing function of current and future expected incomes. Such increase in wealth (or, alternatively, in the permanent income) would be expected to lead to a sharp increase in the demand for imports in these countries. Along the same lines, it can be suggested that the downturn in oil prices, first occurred in late 1982, would have the opposite impact on the market value of oil reserves and hence a reduction in national wealth in the form of the asset 'proven oil reserves'. This implies a reduction in the permanent income. The decreasing 'permanent' income would be

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6 - See e.g. Melo and Vogt (1984).

expected to negatively influence the demand for imports during the oil recession of the 1980s.

III - Model Specification

A simple and often-estimated version of the demand function for total imports typically related the quantity (volume) of imports to the level of real income (or output) and the ratio of imports to domestic prices. Such conventional specification can be written as:

$$M^D = F(Y, P^M/P^D) \qquad (1)$$

where M^D is the quantity (volume) of imports demanded, Y is an appropriate activity variable for determining the demand for imports (real income or output), P^M is the price of imports (in domestic currency) generally proxied by an imports unit value index, P^D is the domestic price of goods and services proxied by an index number of domestic prices (a GDP deflator, consumer price index, or wholesale price index), P^M/P^D is the relative prices, and F is the function (rule) relation the quantity of imports demanded to its' determinants. We extend this formulation in two directions. On the one hand, it has been argued that actual prices do not quickly adjust to their equilibrium levels, and therfore do not act to clear markets, specially during periods of excess demand. In the short-run, markets are rather cleared by non-price allocation methods such as increased waiting time, less favorable terms, and the reduction or elimintion of discounts and/or rebates on behalf of domestic producers. Periods of excess demand are also characterized by less availability (and higher costs) of credit.[7] Changes in imports due to variations in non-price rationing cannot

7 - See e.g. Gregory (1971), Hooper (1976, 1978), Goldstein and Khan (1988). and Yadav (1977).

be explained by changes in real income and/or in relative prices in the framework of model (1). Furthermore, data on non-price rationing are no available. One approach to assess the importance of non-price rationing for the demand for imports is to augment model (1) with a measure of the aggregate capacity utilization rate as a proxy for the non-price rationing. I is hypothesized that as the rate of capacity utilization increases, the domestic producers of importables tend to apply non-price allocation methods rather than raising their prices. The resulting effective increase in the domestic price of importables induced economic agents to turn to foreigr suppliers. This implies an increase in the demand for imports. We mode phenomenon of non-price rationing by including a proxy for the rate of aggregate capacity utilization, CU, as an argument in specification (1).

On the other hand, as has been argued in section II, the sharp rise in oil prices in late 1973 has significantly increased the market value of oil reserves in Kuwait (and other oil exporting countries) over boom years of the 1970s. Such increase in wealth would be expected to have increased the demand for total imports. It has been also suggested that the downturn in oil prices first occurred in late 1982 should have had the opposite impact on the market value of oil reserves and hence a reduction in the demand for imports would be expected to have occured during the oil bust of the 1980s. As for the GCC countries, the oil boom was shown to have resulted - according to a catch-up hypothesis introduced by Metwally (1991) - in accelerated consumption over the period 1971-1983. Such behavior of consumption is expected to have triggered a sharp increase in the demand for imports in these countries. Moreover, the rapid increase in Kuwait's oil revenues allowed for expansionary government economic policies during the boom years. Public investment in infra-

structures and capital expenditure for industrial development as well as government programs in the provision of free social services involved heavy dependence on imports. Hence economic expansion directed by policies to diversify the economy resulted in increasing imports of producter's durables and intermediate inputs.[8] Metwally et al. (1987) have in fact shown that this was the case for Saudi Arabia. Consistently, Metwally (1993b) has found that the oil recession has 'completely upset the import-income relationship which was developed during the boom years' (p. 424). To model the wealth effect, we augment the demand model (1) with a wealth variable, W. We write our version of model (1) as model (2):

$$M^D = F(Y, P^{MD}, CU, W) \qquad (2)$$

where P^{MD} - P^M/P^D is short for the relative prices, W is a proxy for wealth, and Cu is a proxy for the aggregate capacity utilization rate.[9]

The standard theory of demand would indicate that the partial first derivative of the demand for imports with respect to it's own price, P^M, would have a negative sign, that with respect to the domestic price, P^D, would have a positive sign. The partial first derivative of the demand for

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8 - In current prices, imports of capital goods represented 18% of total imports in 1973, 26% in 1982, and 23.4% in 1987. Imports of intermediate goods represented 34.7% of total imports in 1973. 36.7% in 1987. For evidence of significantly changing levels of current expenditure on total imports see table I in the section II.

9 - We continue, in our formulation (2), to retain the presumptions implicit in formulation (1) of the imports demand. Namely, homogeneity of degree zero in money income and all prices, substitutability between imports and nontradables, and that the cross price elasticities of the demand for imports are constrained to be indentical as between tradables and nontradables.

imports with respect to the income variable, Y, can be of either sign.[10] Since non-price rationing results in an effective increase in the domestic prices of importables, a positive sign for the first partial derivative with respect to the rate of aggregate capacity utilization, CU, is to be expected. We expect a positive sign for the wealth effect. The increase in the Kuwaiti wealth is expected to have lead to an increase in the Kuwaiti demand for imports and vice versa. Abruptly changing wealth is also expeted to have influenced the imports income elasticity.

IV - Data and the Empirical Model

In case of the developing oil-exporting countries, Kuwait is no exception, the activity (income/output) variable suggested by the standard literature seems not to be the correct choice. In these countries national incomes are primarily made up of the oil revenues and, indirectly, contribute to personal income via a series of goverment expentditure programe. Due to limited absorptive capacity of the domestic economy, Gross Domestic Product and/or national income do not accurately reflect the size of domestic economic activity. Consequently, many scholars resorted to non-oil GDP a rather more appropriate proxy variable for the purposes of approximating the level of aggregate economic activity in these countries.[11] Adopting this view, we use real non-oil GDP as a proxy for the income

10 - In general, there is a possibility, when imports are viewed as the difference between consumption and domestic production of importables, and increase in real income could increase domestic production at a faster rate than consumption, hence resulting in reducing imports. For a discussion of this issue see Goldstein and Khan (1978, 1988) and Magee (1975).

11 - See e.g. Elsamadisy (1993), Metwally et al. (1987), Metwally (1993a). and Nyatepe-Coo (1994).

variable, Y, in this study. The quantity of imports demanded M^D, is proxied by the constant (1984 prices) volume of total imports. The relative price, P^{MD}, is the ratio of the implicit imports deflator to the implicit non-oil GDP deflator.

Since, in Kuwait, estimates of the aggregate capacity utilization rate are not published, we have made an attempt at the construction of a proxy for such measure. Inspection of available time series data on the real non-oil GDP defines two peaks in 1982 and 1987 over the period 1970-1989. A Chow test indicated significant structural break in the real non-oil GDP trend at 1982.[12] Hence, as a first approximation, we divide the sample period into two sub-periods, 1970-1982 and 1982-1987 and approximate the potential non-oil GDP by its linear trend over each of the sub-samples. The two sub-sample series of fitted values are combined and our proxy of the capacity utilization rate is computed. It should, however, be mentioned that the use of this variable is somewhat controversial. The trend over each sub-sample gives an "average" output level rather than the "potential" output level. Nonetheless, an output level above average (trend) is "closer" to the potential output level and an output level below average (trend) is "far below" the potential output level. Thus, although our constructed proxy, CU, does not measure the ratio of actual to potential output (so they differ in magnitude), they fluctuate in the same direction and, therefore, give indentical signaling. Accordingly, We expect our proxy, CU, to carry a statistically significant positive sign if non-price rationing is important to the determination of imports demand

12 - The estimated equation is: Y=a+bT+u where Y is real non-oil GDP, T is time, a and b are constants, and u is the stochastic disturbance term. Chow test statistic = 51.08 is highly significant.

as if we were using the actual to potential output ratio.

Another major problem in estimating a version of specification (2) is how to measure the changing oil wealth, or alternatively measure the permanent income in Kuwait over the study period. Changes in real gross domestic product cannot measure changes in permanent income accurantely because prices are held constant in the computation of real GDP.[13] Since, by construction, the consumer price index and/or the wholesale price index weight prices by domestic purchases rather than by production, an alternative approach can be suggested to use either of these indexes to deflate the nominal GDP (including oil production). But while the CPI excludes businesses and government purchases, the WPI excludes services. Moreover, import prices are components of these indexes. An implication of this is that a rise (fall) in the relative price of imports is associated with a decrease (increase) in real GDP, which means that the estimates of the relative price elasticities incorporate no income effect. Yet, even if real GDP or some other aggregate accurately measures the real income of Kuwait, one must assume real income (or some weighted average of its past values) to equal permanent income for each year of the study period.[14] Furthermore, Changes in oil wealth have been abrupt rather than gradual Based on these considerations we substitute a set of two dummy variables, D1 (equal one during 1976-1984 and zero

13 - While oil production has decreased over the period 1973 - 1985, oil revenues have increased sharply over the period 72/73-79/80 then declined over the rest of the period. This tended to reduce real GDP during the first sub-period and to increase it during the second sub-period. Hence incorrectly signaling (the direction of) changes in permanent income.

14 - The increase (decrease) in permanent income during the oil boom (oil bust) should reflect changes in current and expected future income resulting from higher (lower) oil prices both during the period and in the future.

otherwise) and D2 (equal zero during 1970-1984 and one otherwise) for the wealth variable, W, in (2) to serve as proxies for the rise and fall in wealth during the oil boom and the oil bust periods respectively.[15]

The inclusion of the dummies D1 and D2 would help indentify the effects of changes in the market value of oil reserves on autonomous imports (if they exist) as vertical shifts in the imports demand function. To model the effects of changes of the market value of oil reserves on the import-income relationship we multiply each dummy variable by the income variable and include their products in the imports demand function. The expanded specification is written as:

$$M^D = F(Y, P^{MD}, D_1, D_2, D_1Y, D_2Y, CU) \qquad (3)$$

A significant product variable, DiY (i = 1,2), indicates a significant change in the income slope over the sub-period represented by the relevant dummy (where Di - 1). The income slope over a sub-period equale the dum of the overall income slope (MD/ Y) and the change in the income slope (MD/ Diy) over that sub-period. In addition to the variables mentioned in equation (3), a dummy variable, WD, was also introduced for capturing the effect of the first-Gulf war shock.[16] The log-linear version of our demand equation, with time subscripts attached to the variables and the classical error term, E_t, added is written as:[17]

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15 - Our choice of the coding of D1 and D2 is based on a series of tests for structural change in the estimated demand function.

16 - The Iran-Iraq war erupted in 1980. WD=1 in 1981 and zero otherwise.

17 - Convenience of estimation procedures and the case of interpretation have often favored a linear or log-linear specification. Studies by Sarmad (1988), Boylon et al (1980), and by Khan and Ross (1977), using the familiar Box Cox procedure, have shown that the log-linear specification is superior to the linear specification of the imports demand function.

$$LnM_t^D = a_0 + a_1 LnY_t + a_2 LnP_t^{MD} + a_3 D_1 + a_4 D_2 + a_5 D_1 LnY_t + a_6 D_2 LnY_t + a_7 LnCU + a_8 WD + \varepsilon_t \quad (4)$$

Apart from the introduction of the stochastic error (et) into the specification, equation (4) is to be estimated subject to the following three assumptions. First, importers are assumed to have always been in equilibrium or, perhaps more relevant in our case, any disequilibrium is assumed to have been corrected within a one year period.[18] Second, the supply of imports is assumed infinitely price elastic so that the price of imports can be treated as exogenous.[19] Thrid, it is implicity assumed that the real GDP is exogenous. As such the equation can be estimated by ordinary least squares (OLS).

This empirical specification permits the examination of various constraints with respect to assumptions related to the effects of arduous changes in oil prices, hence in the market value of the Kuwaiti oil reserves. The following specifications will be examined: (1): no restrictions; (2) a3=O; (3): a4=O; (4): a5=O; (5): a6=O; (6): (2)+(3); (7): (2)+(4); (8): (2)+(5); (9): (3)+(4); (10): (3)+(5); (11): (4)+(5); (12): (4)+(6); (13): (5)+(6); (14): (5)+(7); (15): (5)+(9); and (16): (5)+(12). For choosing the most appropriat model that fits the data this paper employs both Akaik Information Criterion (AIC) and Schwarz Bayesian Information Criterion (SBIC) to rank the above (nested) models.[20] Using these statistics takes into consideration both estimation precision and the goal of parsimony in the parameterization of empirical model. Ideally, we would like the model which has the lowest values for both criteria.

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18 - Preliminary results tended to support this hypothesis.

19 - The smallness of the Kuwaiti economy insures the validity of this hypothesis.

20 - Since the SBIC penalizes model complexity more heavily than does the AIC it can give a different conclusion, hence no redundancy involved in using both criteria.

V - Empirical Results

All the above hypotheses combinations (16 models) were estimated by ordinary least squares (OLS) using annual time series data for the period 1970-87. The AIC and SBIC statistics for the various hypotheses are reported in table III. Given these statistics, one would select the model with a6=0 as the only restriction. The OLS parameter estimates of the chosen model, as well as the OLS regression statistics, are shown in table IV. These results indicate that the overall goodness of fit is exceedingly close and that all of the individual variables carry the correct theoretically expected sign and are highly statistically significant. The Breuch-Pagan heteroscedasticity-test-statistic is insignificant, ARCH test indicated no evidence of auto regressive conditional heteroscedasticity, Jarque-Bera (1987) normality test statistic is insignificant, the augmented Dickey-Fuller test is significant (indicating rejection of the unit root/random walk hypothesis). D-W statistic did not indicate presence of serial correlation amony the OLS residuals. In what follows, we discuss these results:

Table - III: The Akaike's And Schwarz's Information Criteria For Alternative Models

Constraint	AIC	SBIC	Constraint	AIC	SBIC
None	-2.15340	- 4.54609	a4=a5=0	- 1.62523	- 4.11685
a3=0	- 1.59705	- 4.03920	a4=a6=0	- 1.88233	- 4.37395
a4=o	- 2.23345	- 4.67561	a5=a6=0	- 1.62477	- 4.11639
a5=0	- 1.61683	- 4.05898	a3=a4=a5=0	- 1.61191	- 4.15300
a6=0	- 2.29756	-4.07071	a3=a4=a6=0	- 1.71090	- 4.25405
a3=a4=0	-1.60605	- 4.09767	a3=a5=a6=0	- 1.61322	- 4.15431
a3=a5=0	-1.57883	- 4.07045	a4=a5=a6=0	- 1.73043	- 4.27152
a3=a6=0	-1.60565	- 4.09727	a3=a4=a5=a6=0	- 1.32774	- 3.91829

Table- IV: Parameter Estimates And OLS Regression Statistics Of Chosen Model

Parameter	OLS Estimate	Standard Error	t-statistic	P-value
a0	- 10.9292	1.64402	- 6.64786	** [.000]
a1	2.41596	.220991	10.9324	** [.000]
a2	- .224386	.058877	- 3.81113	** [.003]
a3	10.0542	1.80439	5.57209	** [.000]
a4	- .590238	.154406	- 3.82264	** [.003]
a5	- 1.31868	.237695	- 5.54778	** [.000]
a6	0.0000			
a7	1.28412	.378436	3.39322	** [.007]
a8	- .111251	.041393	- 2.68771	** [.023]

Regression Statistics:

Std. error of regression	=.067999	
Adjusted R-squared	=.989620	
Durbin-Watson statistic	=1.94076	
Breusch-Pagan het. test	=5.94002	
Augmented Dickey-Fuller	=-4.42304	[.204]
ARCH test	=.120666	* [.014]
Jarque-Bera normality test	=.765258	[.728]
F-statistic (zero slopes)	=232.537	[.682]
Akaike Information Crit.	=-2.23756	** [.000]
Schwarz Bayes. Info. Crit.	=-4.67971	

The significance of capacity utilization. The estimated coeficient on our proxy of the rate of aggregate capacity utilization, CU, is statistically significant at the 1% level and has the expected positive sign. This is an indication that non-price rationing had positively influenced the demand for total imports over the study period. In table V the price and income elasticities of demand reported in table IV are compared with those obtained from the equation that excludes the capacity utilization variable.[21] The absence of the capacity utilization variable has noticeably reduced the off boom income elasticity and increased the absolute value of the price elasticities.

The structural change in demand. The dummy variables used to proxy the shift in the national wealth carried highly significant correctly expected signs. Hence, indicating a decisive positive effect on imports in Kuwait. The Kuwaiti demand for total imports seems to have shifted, first upward as a result of the immencse increase in the national wealth (or, say, permanent income) in the early 1970s, then downward following the oil slump occurred in late 1982 which has led to a reduction in the permanent income. In addition to the vertical shift(s), the demand for imports became less income elastic during the boom years. While the oil bust of the eighties seems to have counterbalanced the change in imports income elasticity, it has only partially offset the increase in the autonomous imports developed over the boom years.

Demand elasticities. We now turn to the demand elasticities. Taking the price elasticities first, we find that the relative price (hence the imports

21 - When the capacity utilization variable was excluded and equation (4) re-estimated, the D-W statistic indicated negative serial correlation among the OLS residuals. A maximum likelihood estimator due to Beach and Mackinnon (1978) was used to correct for auto correlation.

own price) elasticity turns out to carry a highly significant (at the 0.01% level) correct negative sign. In agreement with abebayehu (1989), Asseery and Perdikis (1990) and Melo and Vogt (1984), but contrary to most studies on developing oil rich countries (especially those on the GCC countries), this result shows that the price elasticity is influential in determining the quantity of imports demanded.22 Turning to the income elasticity of the demand for imports we find that it carries highly significant correct positive sign over the entire length of the study period. The escalation in the country's wealth as the market value of its oil reserves had casually increased during the oil boom seems to have significantly reduced the size of the income elasticity from a high of 2.4 (prior to the boom) to a low 1.097 during the boom years. What might have been considered luxurious before the increase in permanent income (or wealth) were regarded as necessities during the boom years. The oil bust of the 1980s has completely reversed the downshift in imports income elasticity. In this, our results are in line with those reported by Metwally (1993).

Table - v: Income And Price Elasticities Compared

Elasticity	Equation	Capacity Utilization Variable Included Equation (4)	Capactiy Utilization Variable Omitted
Income Elasticities:	a1	2.41596	1.95951
	a5	- 1.31868	-0.67278
Price Elasticities:	a2	- .224386	-0.144605

22 - See e.g. Metwally and Abdel-Rahman (1985), Metwally et al. (1987) and Metwally (1993b).

VI - Conclusions

This study, to the author's best knowledge, represents the first attempt made to investigate empirically the relevance of non-price rationing on the part of domestic producers of importables to the determination of the demand for total imports in a GCC country, namely Kuwait. Besides, an examination of the impact of changes in the market value of Kuwait's oil reserves, hence in national wealth, on imports demand has been a second objective of this research. A traditional model of imports demand was specified. A double logarithmic specification for the demand function for total imports which includes a proxy for non-price rationing as an argument was estimated for the Kuwaiti economy using annual data over the period 1970-1987.

It was shown that non-price rationing represented by a proxy - i.e. the aggregate utilization rate - is a statistically significant determinant of the Kuwaiti demand for total imports. As expected, the expirical results demonstrate that the omission of such a proxy unduly inflates the price elasticities as well as reduces the off boom income elasticities of imports demand. This study has shown also that the double logarithmic specification of the Kuwaiti imports demand function has been subject to a significant intercept and income-slope shifts following the abrupt increase in oil prices in late 1973 and, again, following the oil slump in late 1982. While the oil bust of the eighties seems to have counterbalanced the change in imports income elasticity, it has only partially offset the increase in the autonomous imports developed over the boom years. Our results support Metwally's (1993) conclusion that the import-income relationship that was developed during the oil boom has been completely upset by the oil bust.

Appendix
Data Sources

The data used in this paper are annual observations for the period 1970-1987. All variables (except dummy variables) are defined in domestic currency (KD) units. The basic sources of the data are:

- National Accounts Statistics 1970-1988, Central Statistical Office, Ministry of Planning, The State of Kuwait.
- Annual Statistical Abstract, several issues, Central Statistical Office, Ministry of Planning, The State of Kuwait.
- Statistical Abstract, 1965, 1970, Central Statistical Office, The Planning Board, The State of Kuwait.
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