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# THE IMPACT OF TRADE OPENNESS ON PER CAPITA INCOME IN KUWAIT

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## ABSTRACT

*This research paper seeks to investigate the impact of trade openness on the per capita income of Kuwait. Its findings suggest that in Kuwait, trade openness has a negative impact on the per capita income. The results also suggest the existence of variables other than trade openness that may also affect the per capita income, such as income distribution, the structure of exports, and trade restrictions.*



**Keywords:** Trade openness, Income, Cointegration, Error-correction, Kuwait.
**JEL Classification:** F3.

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## Contribution/ Originality

This study is one of very few studies, which have investigated, empirically, the impact of trade openness on the per capita income of a small rich country. The analysis implemented the well-known cointegration and error-correction methods on time series data.

## 1. INTRODUCTION

During the 1980s, many economists concerned with developing countries came to a general conclusion that there was a need to develop new strategies based on market-oriented reforms. It was felt that such reforms should include the reduction of trade barriers and greater openness to international competition as fundamental components. In addition, the World Bank, the International Monetary Fund, and other multilateral institutions routinely require developing countries to embark on trade liberalization and open up their external sectors in order to receive financial assistance. In the late 1980s and early 1990s, the collapse of the former Soviet Union and the communist regimes of its satellite states in central and Eastern Europe added to the impetus for policy reform and structural adjustment. The core issues facing these formerly communist nations were opening up their external sectors and stabilizing their currencies.In the case of Kuwait, by the mid-1990s, the value of exports surpassed that of imports by $4 billion. This trade surplus later slumped in 1998 due to declining oil prices but started to rise again in 1999. Compared with 1998, the figures showed a $2.7 billion increase in the value of exports to $13.5 billion, combined with a $1 billion drop in imports to $8.1 billion. By 2000, the World Fact book estimated total exports of $23.2 billion and imports of $7.6 billion (table 1).



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**Table-1.** Trade (expressed in billions of US$): Kuwait

| Year | GDP | Export | Import |
|---|---|---|---|
| 1975 | 12.0 | 9.67 | 3.13 |
| 1976 | 13.1 | 10.2 | 4.28 |
| 1977 | 14.1 | 10.2 | 6.14 |
| 1978 | 15.5 | 10.9 | 6.18 |
| 1979 | 24.7 | 19.3 | 7.13 |
| 1980 | 28.6 | 22.4 | 9.82 |
| 1981 | 25.1 | 17.4 | 9.64 |
| 1982 | 21.6 | 11.8 | 11.3 |
| 1987 | 22.4 | 11.8 | 8.3 |
| 1988 | 20.7 | 9.84 | 8.88 |
| 1989 | 24.3 | 12.7 | 10.1 |
| 1990 | 18.4 | 8.28 | 10.7 |
| 1991 | 11.0 | 1.86 | 13.8 |
| 1992 | 19.9 | 8.04 | 10.8 |
| 1993 | 23.9 | 11.4 | 10.6 |
| 1994 | 24.8 | 12.6 | 10.5 |
| 1995 | 27.2 | 14.2 | 14.4 |
| 1996 | 31.5 | 16.5 | 12.3 |
| 1997 | 30.4 | 16.0 | 12.0 |
| 1998 | 25.9 | 14.0 | 13.3 |
| 1999 | 30.1 | 13.8 | 11.9 |
| 2000 | 37.7 | 21.3 | 11.4 |
| 2001 | 34.9 | 17.9 | 12.4 |
| 2002 | 38.1 | 17.0 | 14.0 |
| 2003 | 47.9 | 24.9 | 16.5 |
| 2004 | 59.4 | 33.8 | 19.2 |
| 2005 | 80.8 | 51.7 | 22.8 |
| 2006 | 102.0 | 66.6 | 24.5 |
| 2007 | 115.0 | 27.7 | 32.5 |
| 2008 | 147.0 | 98.4 | 38.2 |
| 2009 | 106.0 | 63.0 | 31.0 |
| 2010 | 115.0 | 77.0 | 35.0 |
| 2011 | 154.0 | 113.0 | 39.9 |
| 2012 | 174.0 | 130.0 | 45.7 |
| 2013 | 174.0 | 123.0 | 46.6 |
| 2014 | 164.0 | 111.0 | 51.2 |

**Source:** World Bank Indicators (1975-2014)

Kuwait has only a small domestic manufacturing sector, so the country's high-income economy has a demand for finished products, primarily from the United States and Japan. In 1999, according to the Economist Intelligence Unit, 15.4 percent of imports originated from the United States, 10.2 percent from Japan, 7.3 percent from Germany, and 7.1 percent from the United Kingdom. Japan, however, was Kuwait's largest export market with 22.8 percent of all exports destined there, followed by the United States with 11.5 percent, Singapore with 8.2 percent, and the Netherlands with 7.3 percent.

This paper seeks to investigate the relationship between trade openness and the impact on per capita income (in the case of Kuwait) as a measure of growth. The remainder of this paper comprises a literature review, an empirical analysis, details of the research methodology, and the study's conclusion.

## 2. LITERATURE REVIEW

Most early studies in the 70s, 80s, and 90s sought to investigate and measure, both theoretically and empirically, the impact of trade openness on development. Most of these revealed a positive relationship between trade openness

and economic development. However, some argued that greater openness to world markets can affect the income distribution between and within countries. Furthermore, literature about growth reveals that changes in poverty are mostly associated with changes in average wages.

For example, Sachs (1987) questioned the hypothesis that trade liberalization is an essential component of a successful outward-oriented strategy. He also argued that the active participation of governments in promoting exports is behind the success of many East Asian countries.

A stronger view was put forward by Taylor (1991) who claimed that "the trade liberalization strategy is intellectually moribund," adding that there is little benefit to be gained from following open trade and capital market strategies.

Goldberg and Pavcnik (2007b) meanwhile, found a contemporaneous increase in globalization and inequality in most developing countries. They also discovered that the manner of how globalization affects income distribution is specific to the particular country, time, and case in question.

Furthermore, Ben-David (1993) criticized the notion that income disparity is brought about by increased international trade between different countries, while others argued that reductions in income inequality between countries are due to free trade.

Many other authors—such as David and Kraay (2001); O'Roueke (2001) and Bourguignon and Morrisson (2002)—have argued that the income growth of the poor tends to increase proportionally with the mean per capita income. They also conclude that globalization has been a driving factor for the cross-country convergence among participating nations over the last century (the 1900s).

In addition, according to Dowrick and Golley (2004) free trade promoted cross-country convergence in the 1960s and 1970s, but following this, richer countries benefited the most from free trade.

Over the past decade, income distribution has been growing in economies such as China, India, and South Africa (Lopez-Calva and Lustig, 2010). Meanwhile, income inequality has declined in some other countries, such as those of Latin America, due to a narrowing in the learning gaps among workers (Arroyo and Santos-Paulino, 2009).

Measuring the benefits of trade reform has been a frustrating endeavor. While many studies have investigated trade policy in the past and reached the conclusion that a liberal trade regime can enhance a country's economy, attempts have failed to determine trade policy as an influential determinant of improved growth for countries.

Trade liberalization can potentially bring benefits through different channels, such as access to better technologies, raw materials, and intermediate goods; an economy better positioned to profit from economies of scale and scope; greater domestic competition; and the availability of favorable growth externalities (e.g., the transfer of knowhow).

Improved resource allocation is the traditional source of gain from free trade. Under perfect competition, a small, price-taker country will grow by reducing its tariffs. The incomes of consumers consequently go further, and resources used more efficiently because they are no longer needed to produce goods that could be imported at a lower cost.

While the traditional discussion often focuses on final, homogeneous products, the case for freer trade enhanced significantly by incorporating the factors that liberal trade extends, such as the variety of gains and increased productivity resulting from access to cheaper or better quality intermediate goods. This aspect explored in some recent models of growth. For example, Romer (1989) emphasizes both the productivity of specialized resources and the limitations determined by the size of the market.

In a restricted economy, only a small array of intermediate products or capital goods can effectively produce, so the full range of technological possibilities, which rely on a potentially wider range of inputs, cannot be exploited effectively.

In Romer's model, a greater variety of inputs does more for production than greater quantities for a narrow range of inputs. It follows that gaining access to a variety of external inputs at lower costs inevitably shifts the economy-wide production outward, illustrating a definite link between productivity and the trade regime.

## 3. EMPIRICAL ANALYSIS

Early studies conducted on estimating the impact of trade openness on growth found a positive relationship. Notable studies were conducted by Balassa (1985); Balassa (1978); Michaely (1977); Chow (1987) and Bahmani and Alse (1993). It is therefore worth making some initial comments about this research before proceeding to the empirical analysis

First, the process begins by establishing the time-series properties of the individual variables. The aim here is to simply show that the variables are integrated of the same order. The sampling distribution of the Ordinary Least Square (OLS) estimator is not well behaved when the disturbance is non-stationary. The distribution of the OLS estimator does not have finite moments, and furthermore, the OLS is inconsistent in general.

If a unit root is present, it is essential to first difference the variables, thereby eliminating the unit root and achieving stationarity before attempting to estimate the growth model. For this purpose, the Augmented Dicky-Fuller (ADF) test, as recommended by Engle and Granger (1987) and the Durbin-Watson Statistic suggested by Sargan and Bhargava (1983) are used to determine whether the time series are stationary in first differences or levels.

Second, a cointegration test used to establish a long-run equilibrium relationship among Per Capita Income (PI), Trade Openness (OP), and Exchange Rate (R).

Third, to model the dynamic adjustment of the model, an error-correction procedure is used. The error-correction methodology follows that of Engle and Granger (1987).

From the International Financial Statistics (IFS) CD released by the IMF, time series annual data about Kuwait obtained for the period from 1990 to 2014.

## 4. METHODOLOGY

### 4.1. Model Specification

This paper applies the Unit Root test, Cointegration, and an Error-Correction Modeling method to the initial model of trade and growth.

*The Initial Model*

$$LnPI_t = a_0 + \beta_1 LnOP_t + \beta_2 LnR_t + \varepsilon_t \qquad (1)$$

Where,

PI: per capita income (GDP/Population),

OP: a measure for trade openness, nominal {(Export + Import)/GDP},

R: official exchange rate,

$\varepsilon$ : error term,

Ln: natural logarithm,

t : time period.

**Table-2.** Estimation of the initial model (Equation 1)

| Dependent Variable: Ln(PI) | | | | |
|---|---|---|---|---|
| **Variable** | **Coeffi.** | **Std. Error** | **t-Statistic** | **Prob.** |
| C | 4.378511 | 2.381790 | 1.838328 | 0.0796 |
| LOG(OP) | -0.690305 | 0.188754 | -3.657159 | 0.0014 |
| LOG(ER) | -6.162543 | 2.112288 | -2.917473 | 0.0080 |
| R-squared | 0.627083 | Mean dependent var | | 16.88055 |
| Adjusted R-squared | 0.593181 | S.D. dependent var | | 0.518234 |
| S.E. of regression | 0.330542 | Akaike info criterion | | 0.736001 |
| Sum squared resid | 2.403677 | Schwarz criterion | | 0.882266 |
| Log likelihood | -6.200012 | F-statistic | | 18.49715 |
| Durbin-Watson stat | 0.465345 | Prob(F-statistic) | | 0.000019 |

**Source:** Eviews Statistical Software

Table (2) shows a significant t-statistic for the exchange rate (-6.162543) and a significant coefficient for the trade openness (-0.690305). With an R-squared coefficient (0.627083) greater than the Durbin-Watson coefficient (0.465345) and a Prop (F-statistic) of 0.000019 (< 0.05), there is an indication of a spurious regression, prompting an investigation into whether this spuriousness is caused by nonstationary time series, trends, or model misspecification.

### 4.2. Testing for Stationary Series

Unit Root Tests should be performed before applying cointegration tests, because statistical inference from a time series is usually predicated on the assumption of stationarity. This study employs the Augmented Dicky-Fuller (ADF) test. The null hypothesis of nonstationarity is tested against the alternative hypothesis of stationarity and investigated for all variables (PI, OP, and R). Table 3 reports the Unit Root Tests using the ADF test.

**Table-3.** Stationary test of each variable

| Variable | With no Trend | With Trend |
|---|---|---|
| LnPI | -1.280056 * | -3.673154 * |
| LnOP | -0.780002 | -1.910978 |
| LnR | -1.617457 | -2.451246 |
| ΔLnPI | -5.071937 ** | -5.019760 ** |
| ΔLnPO | -6.036895 | -5.949002 |
| ΔLnR | -5.008906 | -5.177036 |

**Notes:** * The Mackinnon (1996) critical values for the ADF test that Includes a trend is -3.644963 at the usual 5% level. The comparable figure with no trend in the test is - 3.029970. ** The Mackinnon (1996) critical values for the ADF test that includes a trend is -3.658446 at the usual 5% first difference. The comparable figure with no trend in the test is -3.020686.

Taking the first differencing for all series induces stationarity, implying that all series are integrated of order one …I~(1).

### 4.3. Testing for Cointegration

Applying the test of Johansen and Juselius (1988) results in the values shown in table 4.

**Table-4.** The Cointegration Test Unrestricted Cointegration Rank Test

| Hypothesized No. of CE(s) | Eigenvalue | Trace Statistic | 5 Percent Critical Value | 1 Percent Critical Value |
|---|---|---|---|---|
| None ** | 0.773356 | .45175 | 29.68 | 35.65 |
| At most 1 | 0.105715 | 311143 | 15.41 | 20.04 |
| At most 2 | 0.031718 | 741332 | 3.76 | 6.65 |

*(**) denotes rejection of the hypothesis at the 5 %(1%) level.

Trace test indicates 1 cointegrating equation(s) at both 5% and 1% Levels

To determine the number of cointegrating relations among variables r, subject to the assumptions made about trends in the series, we can proceed sequentially from r = 0 to r = k-1 until we fail to reject.

The first row of table 4 tests the hypothesis of no cointegration, while the second-row tests the hypothesis for one cointegrating relation. This proceeds ultimately to the alternative hypothesis of full rank where all series in the VAR are stationary. As can be seen, the null hypothesis for no cointegration rejected, because the values of the trace statistics are greater than the critical value. However, the null of at most one co-integrating vector cannot be dismissed for r =2. In addition, the null of at most two cointegrating vectors cannot be rejected for r =3. There is therefore one vector among the variables of the initial model (equation #1). Furthermore, the trace test indicates that the variables have a long-run association (i.e., in the long-term, they move together). In addition, when the variables are cointegrated, we can use the Error-Correction Model (ECM).

### 4.4. Error-Correction Model

Having detected the number of cointegrated equations (using Johansen's procedure), it is necessary to use the error-correction model (ECM).

The estimated ECM takes the following form in correcting the initial model:

$$\Delta LnPI_t = a_0 + \delta_1 \Delta LnOP_{t-1} + \delta_2 \Delta LnR_{t-1} + \varphi EC_{t-1} + \varepsilon_t \qquad (2)$$

Where:-

$\Delta$: difference operator,

(PI): per capita Income,

(OP): trade openness,

(R): official exchange rate,

($EC_{t-1}$ ): error correction term,

(Ln): natural logarithm,

$\varepsilon$ : error term,

t: The time period.

In an error-correction model, the short-term dynamics of the variables in the system are influenced by the deviation from equilibrium.

Table (5) suggests that the impact of trade openness is negative (-0.361048) and statistically significant (t-statistic=-2.555030), while the R-square is (0.413369), indicating that the impact of trade liberalization on per capita income is insignificant in the case of Kuwait.

**Table-5.** The Error Correction Model (ECM) Estimation

| Dependent Variable: D(LPI) | | | | |
|---|---|---|---|---|
| **Variable** | **Coeffi.** | **Std. Error** | **t-Statistic** | **Prob.** |
| C | 0.049458 | 0.033483 | 1.477123 | 0.1552 |
| D(LOP) | -0.361048 | 0.141309 | -2.555030 | 0.0189 |
| D(LER) | -3.427350 | 1.485119 | -2.307794 | 0.0318 |
| EC(-1) | -0.256704 | 0.111725 | -2.297636 | 0.0325 |
| R-squared | 0.413369 | Mean dependent var | | 0.06774 |
| Adjusted R-squared | 0.325374 | S.D. dependent var | | 0.19587 |
| S.E. of regression | 0.160875 | Akaike info criterion | | -0.66536 |
| Sum squared resid | 0.517617 | Schwarz criterion | | -0.46902 |
| Log likelihood | 11.98436 | F-statistic | | 4.69766 |
| Durbin-Watson stat | 1.993482 | Prob (F-statistic) | | 0.01219 |

**Source:** Eviews Statistical Software

Furthermore, the coefficient and the magnitudes of the EC term (φ) indicate the speed of adjustment to the long-run equilibrium relationship in the ECM. In our analysis, we found that φ (the coefficient of the EC term) in equation #2 is negative (-0.256704) and statistically significant (t-statistic=-2.297636). This indicates that Trade Openness (OP) causes Per Capita Income (PI). It also suggests that OP and PI adjust to their long-run equilibrium relationships with an adjustment speed of 25.67%. What is more, the results reveal a negative impact of trade openness on per capita income, the coefficient of OP is -0.361048 and statistically significant (t-stat = -2.555030). This finding raises many issues that require further investigation in future research, such as those related to income distribution, the structure of exports, and trade restrictions.

## 5. CONCLUSION

One problem for trade openness is politics. An overlong phase-in period and excessive safeguards for those who may be adversely affected is an invitation to disruption and reversal. Another problem stems from the exchange rate.

Even though eliminating the obstacles to trade creates an immediate rise in imports, the availability of inputs, and technological improvement, a beneficial rise in exports does not occur immediately, even when a real depreciation is undertaken.These findings give the clear message that in the case of most developing countries, other factors contribute to a low per capita income, lessening the impact of trade openness on per capita income. As we know, developing countries need to establish efficient institutions to carry out society's objectives and secure the process of continual national development. In addition, a lack of freedoms and human rights helps push some societies toward wars and social and economic crises. Free trade drives countries to become more rational and economically structured in their markets. Gains from liberalization also come about from the economies of scale and scope that arise in wider markets. Moreover, the markets of protected economies are narrow and lack international competition, thus fostering oligopoly and inefficiency. Protectionism can create market power for domestic firms when there would be none under free trade.

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