NEW ZEALAND KIWIFRUIT RETURNS: FACTORS DETERMINING OVERSEAS DEMAND

Ram SriRamaratnam
MAF Policy
P O Box 2526
Wellington, New Zealand

ABSTRACT

Kiwifruit and apples are the main horticultural export earners for New Zealand. The main markets for New Zealand kiwifruit are the continental Europe, Germany in particular, and Japan. In this paper, overseas demand equations for each of these markets are developed in the price dependent form and are linked to the New Zealand fob and grower returns.

Total imports of kiwifruit into these markets, domestic kiwifruit production, per capita consumer expenditure and price of competing fruit types are utilised to develop a recursive price determinant model. Total import price of kiwifruit in these markets are estimated first, which in turn determine the price received by New Zealand kiwifruit, partly influenced by the volume of kiwifruit imported from New Zealand.

These prices are then linked to the New Zealand returns at the fob level for each of these markets which in turn determine the weighted average New Zealand returns and thus the prices received by kiwifruit growers. This export market model development has allowed New Zealand prices to be endogenised in a "Regional Kiwifruit Acreage and Yield Response Model" already operational within MAF Policy for three years.

BACKGROUND

Kiwifruit is a temperate climate fruit which was considered to be "exotic until the mid-1980s. World production of kiwifruit rose more than fourfold between 1985 and 1995 as the consumer demand also developed very rapidly. During this period, production in the Southern Hemisphere (mainly in New Zealand and Chile) tripled while the output in the Northern Hemisphere rose by more than eight fold (primarily in Italy) from a relatively lower level.

The temperate nature of kiwifruit and the relatively short maturity period of about four years has led to worldwide expansion of kiwifruit production. New Zealand was the pioneer in the production and marketing of kiwifruit starting from the late 1970s. The rapid expansion in

1 Views expressed in this paper are those of the authors and do not necessarily reflect the official view of the Ministry of Agriculture and Fisheries. The helpful suggestions and comments of colleagues at MAF Policy are acknowledged. Errors and omissions remain the responsibility of the authors.
kiwifruit acreage mainly in the Bay of Plenty area of New Zealand and the adoption of a vigorous overseas promotion policy to penetrate the European and the US markets paid initial dividends before other countries, such as Italy and Chile, became significant players in world kiwifruit trade (figure 1).

New Zealand remains the largest exporter, but faces widespread competition in all its targeted markets, Europe, Japan and the US. Within Europe, both Italy and France have become significant producers. Italy is now the biggest producer of kiwifruit in the world, accounting for over one-third of world production (figure 1). Japan remains the largest single-country importer.

In Chile, the traditional production and marketing strategy has been to increase the volume of its exports rapidly, with less emphasis on achieving greater market share on more demanding but also more lucrative export segments. This strategy while achieving some success in penetrating overseas markets, mainly at the lower end of the price range, has made Chilean growers very vulnerable to widely fluctuating market prices and to a heightened risk of financial losses.

Competition in the European market is very intense, with the market share of New Zealand declining from 91 percent in 1985 to about 50 percent in the mid-1990s. This is attributed mainly to the relatively high European production in recent years, mainly in Italy, France and also Greece, as well as the early arrival of Chilean kiwifruit in the European market, saturating this market before the arrival of the New Zealand kiwifruit.
In the early 1990s, Chile replaced New Zealand as the major supplier to the US market, due to the imposition of countervailing duties by the US on New Zealand kiwifruit imports. In the Asian region, despite the proximity of this market to New Zealand, Chilean kiwifruit exports to this area, mainly Japan, Malaysia, Hong Kong and Taiwan rose significantly between 1991 and 1995.

An important characteristic of the world kiwifruit trade is the partial overlap of the marketing periods of the Northern and Southern Hemispheres. The hemisphere which is beginning its harvest (Southern Hemisphere in the months of April and May; Northern Hemisphere in the months of October and November) generally has the advantage of freshness, but the more abundant supply of the other hemisphere nearing the end of its marketing period usually depresses prices (figure 1).

Southern Hemisphere demand is relatively lower than that of the Northern Hemisphere and this explains the importance of markets in the north, particularly the European Union for the exporters. Over a very short period from May to September, competition between the two hemispheres is limited and the prices tend to be higher. Chile has been able to take advantage of this time slot through harvesting a month before New Zealand and thus being able to export early to the Northern Hemisphere markets, the US in particular, to which it is also closer.

At the beginning of November in particular, the European market is often over-supplied and subjected to very heavy pressure, receiving Chilean and New Zealand kiwifruit and also increasing quantities from France and more importantly from Italy. The resulting price competition has in recent years seen a downward trend in the average wholesale price for a tray of kiwifruit in all EU member countries, Germany in particular. The over-supply situation has also raised the minimum quality requirements, with the Italian kiwifruit suffering the most along with the Greek fruit, due to their often below-average size.

The inter-hemisphere competition outlined above and the appearance of Chile as a very strong competitor with similar Southern Hemisphere production/marketing calendar led to the rationalisation of the New Zealand kiwifruit industry in the early 1990s. Facing stagnant or declining demand growth outstripped by expanding world supply from newer countries to the world kiwifruit trade, New Zealand planted area and production declined by 12 percent and 25 percent, respectively, between 1991 and 1994.

New Zealand export kiwifruit production peaked in 1991, when over 250,000 tonnes were exported. This was almost a 50% increase in New Zealand export production from 1990 and immediately had a significant negative impact on grower prices which declined from $6.46 per tray in 1990 to $4.77 per tray in 1991. Since 1991, export production has declined substantially on a smaller growing area, which declined from the peak of 15,895 hectares in 1989 to around 10,000 hectares in the mid 1990s. This has led to export production stabilising between 210,000 and 235,000 tonnes, but grower returns per tray have remained fairly depressed fluctuating between $3.85 in 1993 and $4.90 in 1995 (figure 2).
OBJECTIVES OF THE PAPER

The purpose of this paper is to report on work carried out so far and the results of regression modelling related to overseas demand for New Zealand kiwifruit in the main markets. In order to achieve this the following steps have been adopted:

(i) background information on the nature of the world kiwifruit market is provided first,
(ii) along with specific details of the New Zealand kiwifruit industry, followed by
(iii) the conceptual framework for modelling overseas demand for New Zealand kiwifruit,
(iv) regression results are provided next and the goodness-of-fit of equations discussed, and
(v) finally, the implications of the modelling results and further work are outlined.

CONCEPTUAL FRAMEWORK: OVERSEAS DEMAND FOR NEW ZEALAND KIWIFRUIT

The main markets for New Zealand kiwifruit are the continental Europe, Germany in particular, and Japan. Together they have accounted for about 75 percent of New Zealand exports in recent years, with EU accounting for between 55-60 percent. Of the remaining export markets, other Asian destinations such as Hong Kong, Taiwan and the Republic of Korea accounted for about 7-8 percent and Canada for about 5 percent in 1995.

Due to the negligible size of the new growing markets of Asia and North America at present and the inadequacy of the data series available for these regions for modelling purposes, only the EU and the Japanese markets have been modelled so far and reported in this paper. Here again, the complete set of data was available for only a twelve year period from 1983-1994.
Overseas demand equations for each of these markets are specified in the price dependent form with some of the equations being estimated in the natural logarithms and all of the equations estimated in real terms.

A. European Union (EU) Market Kiwifruit Returns:

(i) EU Total import price from all destinations (REUTIMPP) is specified as:

\[ \text{REUTIMPP} = f (\text{TIMPTEU, EUKFPDN, PEURINC}) \]

where,
- TIMPTEU - Total kiwifruit imports into the EU,
- EUKFPDN - EU total kiwifruit production, and
- PEURINC - Per capita EU real income.

(ii) EU import price for New Zealand kiwifruit (REUIMPPP) is specified as:

\[ \text{REUIMPPP} = f (\text{REUTIMPP, NZIMPEU}) \]

where,
- REUTIMPP - as in (i) above, and
- NZIMPEU - New Zealand imports of kiwifruit into EU.

(iii) New Zealand export (fob unit values) price to the EU (REUEXPP) is specified as:

\[ \text{REUEXPP} = f (\text{REUIMPPP, RNZIMPEU}) \]

where,
- REUIMPPP - as in (ii) above, and
- RNZIMPEU - Ratio of New Zealand kiwifruit imports into the EU.

B. Japanese Market Kiwifruit Returns:

(i) Japanese import price for New Zealand kiwifruit (RJPIMPPP) is specified as:

\[ \text{RJPIMPPP} = f (\text{TIMPTJN, JPKFPDN, RBANWSP, TREND}) \]

where,
- TIMPTJN - Total kiwifruit imports into Japan,
- JPKFPDN - Japanese kiwifruit production,
- RBANWSP - Real banana wholesale price in Japan, and
- TREND - Time trend variable.

(ii) New Zealand export (fob unit values) price to Japan (RJPEXPP) is specified as:

\[ \text{RJPEXPP} = f (\text{RJPIMPPP, RNZIMPJN}) \]
where,
- \( RJPMPP \) - as in (i) above, and
- \( NZMPNJ \) - Ratio of New Zealand kiwifruit imports into Japan.

### New Zealand Kiwifruit Returns

(i) Weighted average kiwifruit export returns (at the fab level) \((WNZERETN)\) is calculated as:

\[
WNZERETN = \left( \frac{NZEXPJN \times (RJPEXPP \times JAPCPI) \times JEXRATE}{+ (NZEXPJEU \times (REUEXP \times GECPI) \times GHNZXR)} \right)
\]

where,
- \( RNZEXPJN \) - ratio of New Zealand exports to Japan in relation to total exports,
- \( RNZEXPJEU \) - ratio of New Zealand exports to the EU in relation to total exports,
- \( RJPEXPP \) - real Japanese Export (fab unit value) price,
- \( REUEXP \) - real EU Export (fab unit value) price,
- \( JAPCPI \) - Japanese CPI,
- \( GECPI \) - German CPI, proxy for the EU market,
- \( JEXRATE \) - Japanese yen to NZ $ exchange rate, and
- \( GHNZXR \) - German DM to NZ $ exchange rate.

(ii) Real New Zealand grower kiwifruit returns \((RKNZRET)\) is specified as:

\[
RKNZRET = \left( \frac{RWNZERET \times NZKFPDN}{\text{in } (i) \text{ above, and}} \right)
\]

D. Production, Exports and Market Allocation

(i) New Zealand total exports \((NZEXPTOT)\) is specified as:

\[
NZEXPTOT = f (NZKFPDN)
\]

where,
- \( NZKFPDN \) - as in C (ii) above.

(ii) New Zealand imports to EU \((NZIMPEU)\) is specified as:

\[
NZIMPEU = f (NZEXPTOT, PEUEXPP)
\]

where,
- \( NZEXPTOT \) - as in (i) above, and
- \( PEUEXPP \) - proportion of EU returns to weighted average export returns.
(iii) New Zealand imports to Japan (NZIMPJP) is specified as:

\[
NZIMPJP = f(NZEXPTOT, PJPEXPP)
\]

where,

- NZEXPTOT - as in (i) above, and
- PJPEXPP - proportion of Japanese returns to weighted average export returns.

DATA SOURCES

The European Union data for this model development was obtained from the Eurostat data bank of the European Commission in Luxembourg. This included the data series for EU Total kiwifruit Import Prices from all destinations as well as the EU Import Price for New Zealand kiwifruit, along with the volume of Total and New Zealand kiwifruit imported into the EU.

Per capita EU Disposable Income and Consumer Price Indexes in Japan and Germany as proxy for the EU were obtained from International Monetary Fund’s financial statistics. The German DM and Japanese Yen exchange rates with the New Zealand dollar was sourced from the Reserve Bank of New Zealand (RBNZ).

The data for the Japanese model component was extracted from the Monthly Statistics of Agriculture, Forestry & Fisheries of the Japanese MAFF. This covered the Japanese Import Prices for New Zealand kiwifruit and the Total Imports of kiwifruit into Japan. Banana wholesale prices in Japan was also sourced from this MAFF publication.

New Zealand fob prices (unit values) of kiwifruit to the EU and Japanese market destination was obtained from Statistics New Zealand’s (SNZ) on-line Information Network for Official Statistics (INFS). Japanese and EU (ie Italy, France and Greece) kiwifruit production data was sourced from the International Kiwifruit Organisation (IKO) while New Zealand production and total exports were obtained from the New Zealand Kiwifruit Marketing Board.

ESTIMATION METHOD

All monetary data were deflated by the relevant price indices and the overseas demand equations were estimated in the price dependent form. A recursive structure was adopted as outlined in the Conceptual Framework section. This allowed for the identification and incorporation of the important factors which determine the overall kiwifruit returns in the important overseas markets for New Zealand kiwifruit and thus the returns for New Zealand kiwifruit.

These were then linked back to the New Zealand returns at the fob level for each of these markets which in turn determined the weighted average New Zealand returns according to the market share. The returns to New Zealand kiwifruit growers were then linked to the weighted average export (fob unit values) returns. Deficiencies in the quality of the fob values data was recognised due to the consignment trade prevalent in kiwifruit marketing overseas where previous year’s prices are used as guidelines for this year’s prices in custom declarations.
The Ordinary Least Squares (OLS) method of estimation was adopted using the Time Series Processor (TSP) econometric package to estimate the equations. Model selection was carried out based on conventional goodness-of-fit criteria, which is consistent with economic rationale and market knowledge as well as realities.

RESULTS & DISCUSSION

The overall model results are promising, even though there were some shortcomings with the quality and the length of the data series available for estimation. The export price series were known to be somewhat unreliable due to the way in which fob unit values are assigned on a consignment basis. The overseas market data obtained from external data sources were not available for earlier years and are also not fully up-to-date, resulting in the model being estimated with data for twelve years from 1983-1994 only.

A. European Union Market Returns

The three equations representing this market had high adjusted \( R^2 \) values between 0.866 and 0.976 and significant F-values. There was also no significant auto-correlation problems with DW values closer to the acceptable range.

The explanatory variables in the EU Total Import Price equation were all significant at least at the 10% level of confidence and exhibited the correct signs. Higher Total Kiwifruit Imports into the EU market and higher Total EU Kiwifruit Production had a dampening effect on EU Total Import Prices as usually evidenced in the market and higher Per Capita Real Disposable Income had a positive effect on market returns.

The right hand side variables in the EU Import price for New Zealand Kiwifruit equation were also significant at the 5% level of confidence and had the right signs. Higher overall import prices for kiwifruit also increased the prices received by New Zealand Kiwifruit, while higher quantities of New Zealand Kiwifruit imported into the EU market depressed prices to some extent.

Export prices of New Zealand kiwifruit in the EU market, at the fob level, were positively influenced by higher EU import prices received by New Zealand kiwifruit and the ratio of New Zealand kiwifruit exported to the EU market. The co-efficients were also significant at least at the 10% level of confidence.

B. Japanese Market Returns

Only two equations were employed to represent kiwifruit returns in this market as there were no data series on overall kiwifruit returns in this market. The two equations estimated also had a high degree of explanatory power with adjusted \( R^2 \) values between 0.889 and 0.983 and also significant F-values. Here again, there were no significant auto-correlation problems evident.

The Japanese Import Price equation for New Zealand kiwifruit had slightly different set of
variables in comparison to the EU Import Price equation and also employed a Time Trend variable to take into account the significant declining trend in the nominal and real Japanese Import Prices over the historical period covered in this study. Real Japanese Import Prices for New Zealand kiwifruit declined with higher levels of imported kiwifruit, but rose with increases in Japanese kiwifruit production and higher real wholesale banana prices in the Japanese market. Real per capita consumption expenditure was highly correlated with wholesale banana prices and were hence not used in the final equation. All the co-efficients were also significant at least at the 5% level of confidence.

Once again New Zealand export prices (fob level) in the Japanese market were positively influenced by higher Japanese import prices for New Zealand kiwifruit but negatively impacted by the ratio of New Zealand kiwifruit imports into Japan. The latter co-efficient, however, was not significant, while the former was at the 1% level of confidence. The less reliable nature of kiwifruit fob unit value data outlined before is likely to be an important reason for this poor result.

C. **New Zealand Kiwifruit Returns**

Returns for New Zealand growers was hypothesised to be influenced by the Weighted Average Returns from the two oversens markets modelled in this study along with the level of New Zealand kiwifruit production. The equation had a reasonably high level of explanatory power with an adjusted R² value of 0.879 and significant F-value, with no apparent auto-correlation problems.

As anticipated, higher Weighted Average Returns had a positive impact on Grower Returns, while higher New Zealand production levels had a negative influence on prices received by kiwifruit growers. The co-efficient attached to the Weighted Average Export Returns, however, was not significant while the co-efficient on New Zealand kiwifruit production was significant at the 5% level of confidence.

D. **New Zealand Total Exports and Market Allocation**

Total New Zealand Exports equation had a high degree of explanatory power with adjusted R² value of 0.964 and significant F-value, even though only one explanatory variable, New Zealand kiwifruit production, was employed. The co-efficient of approximately 0.70, was also significant at the 1% level of confidence, suggesting a 70% total export extraction, on the average.

The market allocation equations also exhibited high level of explanatory power with adjusted R² values of between 0.949 and 0.981 and significant F-values. The co-efficients attached to the Total New Zealand exports variable in these two equations were significant at the 1% level of confidence, with correct signs. They also suggest a market allocation, on the average, of 62% to the EU market and 38% to the Japanese market, if other residual markets (not modelled in this study as they are fragmented and data is not available) accounting for between 20-25% of total kiwifruit trade from New Zealand is ignored.
Other explanatory variable employed in the market allocation equations, was the proportion of returns in the respective markets in comparison to the Weighted Average returns. This variable did not have the expected positive sign in either of these equations and was also not significant. This was somewhat disappointing and requires further investigation in model specification.

SUMMARY OF MODELLING RESULTS AND IMPLICATIONS

Kiwifruit is an important horticultural export earner for New Zealand. A Good understanding of the workings of the main markets for New Zealand kiwifruit is therefore critical for the effective forecasting of kiwifruit returns for growers in New Zealand. This will enable grower prices to be endogenised in the Regional Kiwifruit Acreage and Yield Response model operational within MAF Policy for about 3 years.

The conceptual framework adopted in this study attempts to specify price dependent overseas kiwifruit demand equations for the two main markets, the European Union and Japan, for New Zealand kiwifruit. The estimated results suggest that this effort was reasonably successful. Hypothesised variables such as total imports of kiwifruit, overseas production of kiwifruit, per capita consumer expenditure or per capita disposable income, wholesale price of competing table fruits such as banana and other specific factors were found to be the main determinants of returns for all kiwifruit and/or New Zealand kiwifruit.

The level of imports of New Zealand kiwifruit into these markets had an important bearing on New Zealand kiwifruit returns in both these important markets. Additional data available for the EU market allowed for a recursive three step specification, while the Japanese market was specified as a two step price determination process. The shortcomings in the quality of the fob export unit value data available with Statistics New Zealand hindered more effective linkage between overseas returns and export returns and also between grower returns and export returns. The price determination activities of the New Zealand Kiwifruit Marketing Board (NZKMB) also has a bearing on the effectiveness of this grower-export-overseas kiwifruit return chain.

Further work in this modelling activity will entail some improvements to the market allocation equations in particular, including an explicit account of the newly emerging residual markets, and the linkage to the supply response model referred to before. This will result in a simultaneous system of market clearing price and production levels to be forecast for the medium term as required by MAF Policy.
REFERENCES


MAY of Japan, Monthly Statistics of Agriculture, Forestry and Fisheries, Tokyo, various issues.

New Zealand Kiwiexpress Marketing Board (NZKMB), Annual Reports, Kiwiexpress, and Personal Communication.


Statistics New Zealand (SNZ), Information Network for Official Statistics (INFOS), On-line facility

USDA “World Horticultural Trade and US Trade Opportunities”, selected issues.
### APPENDIX TABLE 1: OVERSEAS DEMAND MODEL FOR NEW ZEALAND KIWIFRUIT (1983 - 1994) (CONTD...)

#### A European Union (EU) Market Kiwifruit Returns

<table>
<thead>
<tr>
<th>Equation</th>
<th>( R^2 )</th>
<th>F</th>
<th>DW</th>
</tr>
</thead>
<tbody>
<tr>
<td>(i) EU Total Import Price (REUTIMPP)</td>
<td>0.976</td>
<td>150.7***</td>
<td>1.97</td>
</tr>
<tr>
<td>[ \text{REUTIMPP} = 3.21 - 0.00000245 \text{TIMPTEU} - 0.000000418 \text{EUKFPDN} ]</td>
<td>(2.29)</td>
<td>(-4.957***</td>
<td>(-5.981***</td>
</tr>
<tr>
<td>+ 0.0198 \text{PEURINC}</td>
<td>(1.938*)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(ii) EU Import Price for New Zealand Kiwifruit (REUTIMPP)</td>
<td>0.948</td>
<td>101.6***</td>
<td>1.42</td>
</tr>
<tr>
<td>[ \text{REUTIMPP} = 3.73 + 0.656 \text{REUTIMPP} - 0.00000318 \text{NZIMPEU} ]</td>
<td>(2.59)</td>
<td>(2.783**)</td>
<td>(-3.262**)</td>
</tr>
<tr>
<td>(iii) NZ Export Price to the EU Market (REUEXPPP)</td>
<td>0.866</td>
<td>36.6**</td>
<td>1.34</td>
</tr>
<tr>
<td>[ \text{REUEXPPP} = -4.74 + 0.755 \text{REUTIMPP} + 7.793 \text{RNZIMPEU} ]</td>
<td>(-1.74)</td>
<td>(8.516***</td>
<td>(1.803*)</td>
</tr>
</tbody>
</table>

#### B Japanese (JN) Market Kiwifruit Returns

<table>
<thead>
<tr>
<th>Equation</th>
<th>( R^2 )</th>
<th>F</th>
<th>DW</th>
</tr>
</thead>
<tbody>
<tr>
<td>(i) Japanese Import Price for NZ Kiwifruit (RJPIMPP)</td>
<td>0.983</td>
<td>159.8***</td>
<td>2.44</td>
</tr>
<tr>
<td>[ \text{RJPIMPP} = 6.09 - 0.00000653 \text{TIMPTIN} + 0.00000305 \text{JPKFPDN} ]</td>
<td>(7.79)</td>
<td>(-5.526***</td>
<td>(1.713*)</td>
</tr>
<tr>
<td>+ 0.818 \text{RBANWSP} - 0.290 \text{TREND}</td>
<td>(1.905*)</td>
<td></td>
<td>(-5.245***</td>
</tr>
<tr>
<td>(ii) NZ Export Price to the Japanese Market (RJPTEXPP)</td>
<td>0.889</td>
<td>45.2**</td>
<td>1.36</td>
</tr>
<tr>
<td>[ \text{RJPTEXPP} = 0.868 + 0.717 \text{RJPIMPP} - 1.152 \text{RNZIMPJN} ]</td>
<td>(0.691)</td>
<td>(9.442***</td>
<td>(-0.487)</td>
</tr>
</tbody>
</table>
### OVERSEAS DEMAND MODEL FOR NEW ZEALAND KIWIFRUIT (1983 - 1994) (CONTD)

#### C New Zealand Kiwifruit Returns

(i) Real New Zealand Grower Kiwifruit Returns (RKNZRET)

\[
\begin{align*}
\text{RKNZRET} & = 1.185 + 28.587 \quad \text{RWNZERET} - 0.00000038 \quad \text{NZKFDN} \\
& (3.825) \quad (0.859) \quad (-3.033**)
\end{align*}
\]

\[R^2 = 0.879, \quad F = 40.9**, \quad DW = 2.42\]

#### D New Zealand Total Exports and Market Allocation

(i) New Zealand Total Exports (NZEXPTOT)

\[
\begin{align*}
\text{NZEXPTOT} & = -2783.8 + 0.708 \quad \text{NZKFPDN} \\
& (-0.395) \quad (17.147***)
\end{align*}
\]

\[R^2 = 0.964, \quad F = 294.0***, \quad DW = 3.44\]

(ii) New Zealand Exports to the EU Market (NZEXPEU)

\[
\begin{align*}
\text{NZEXPEU} & = 6594.3 + 0.617 \quad \text{NZEXPTOT} - 6954.7 \quad \text{PEUEXPP} \\
& (0.332) \quad (22.043***) \quad (-0.376)
\end{align*}
\]

\[R^2 = 0.981, \quad F = 281.1***, \quad DW = 2.99\]

(iii) New Zealand Exports to the Japanese Market (NZEXPJN)

\[
\begin{align*}
\text{NZEXPJN} & = 5041.8 + 0.383 \quad \text{NZEXPTOT} - 4718.6 \quad \text{PJPEXPP} \\
& (0.469) \quad (13.667***) \quad (-0.414)
\end{align*}
\]

\[R^2 = 0.949, \quad F = 104.9***, \quad DW = 3.02\]

Values in parentheses are t-statistics, with the asterixes (*) representing the level of significance at the 10%(*), 5%(**) and 1% (***) level.