Appendix E

There are 3 markets involved in the model.

FFB Market

$$Q^S_{FFB}\left(P_{FFB,fg}, P_{FFB,fg,t-3y}\right) = a_0 + a_1 P_{FFB,fg} + a_2 P_{FFB,fg,t-3y} + \varepsilon_a \quad (1)$$

$$\begin{aligned} Q^D_{FFB}\left(P_{FFB,em}, P_{CPO,domestic}\right) &= b_0 + b_1 P_{FFB,em} + b_2 P_{CPO,domestic} + \varepsilon_b \\ &= b_0 + b_1\left(P_{FFB,fg} + C_{transport}\right) + b_2 P_{CPO,domestic} + \varepsilon_b = 0.17 Q^S_{CPO} \end{aligned} \quad (2)$$

CPO Market

$$\begin{aligned} Q^S_{CPO}\left(P_{CPO,domestic}, P_{FFB,em}\right) &= c_0 + c_1 P_{CPO,domestic} + c_2 P_{FFB,em} + \varepsilon_c \\ &= c_0 + c_1 P_{CPO,domestic} + c_2\left(P_{FFB,em} + C_{Transport}\right) + \varepsilon_c \end{aligned} \quad (3)$$

$$\begin{aligned} Q^D_{CPO} &= Q^{D,bio}_{CPO}\left(P_{CPO,domestic}, P_{CPO,import}, P_{B100,CPO}\right) + Q^{D,nonbio}_{CPO}\left(P_{CPO,domestic}, P_{CPO,import}, P_{SBO}, GDP\right) \\ \because P_{B100,CPO} &= \begin{cases} 0.97Min\left(P_{CPO,domestic}, P_{CPO,import} + 1\right) + 0.15 P_{MtOH} + 3.32 & \text{from Feb 2007 to Jan 2008} \\ 0.97Min\left(P_{CPO,domestic}, P_{CPO,import} + 3\right) + 0.15 P_{MtOH} + 3.32 & \text{from Feb 2008 to June 2010} \\ 0.94Min\left(P_{CPO,domestic}, P_{CPO,import} + 3\right) + 0.1 P_{MtOH} + 3.82 & \text{from July 2010 onward} \end{cases} \\ Q^D_{CPO} &= d_0 + d_1 P_{CPO,domestic} + d_2 P_{CPO,import} \\ &\quad + d_3\left(\begin{cases} 0.97Min\left(P_{CPO,domestic}, P_{CPO,import} + 1\right) + 0.15 P_{MtOH} + 3.32 & \text{from Feb 2007 to Jan 2008} \\ 0.97Min\left(P_{CPO,domestic}, P_{CPO,import} + 3\right) + 0.15 P_{MtOH} + 3.32 & \text{from Feb 2008 to June 2010} \\ 0.94Min\left(P_{CPO,domestic}, P_{CPO,import} + 3\right) + 0.1 P_{MtOH} + 3.82 & \text{from July 2010 onward} \end{cases}\right) \\ &\quad + \varepsilon_d + e_0 + e_1 P_{CPO,domestic} + e_2 P_{CPO,import} + e_3 P_{SBO} + e_4 GDP + \varepsilon_e \end{aligned} \quad (4)$$

B100 Market

$$\because P_{B100} = \begin{cases} 0.97Min\left(P_{CPO,domestic}, P_{CPO,import} + 1\right) + 0.15 P_{MtOH} + 3.32 & \text{from Feb 2007 to Jan 2008} \\ 0.97Min\left(P_{CPO,domestic}, P_{CPO,import} + 3\right) + 0.15 P_{MtOH} + 3.32 & \text{from Feb 2008 to June 2010} \\ \dfrac{\left(0.94Min\left(P_{CPO,domestic}, P_{CPO,import} + 3\right) + 0.1 P_{MtOH} + 3.82\right) Q^S_{CPO,t-2m} + P_{B100,RBD} Q^S_{RBD,t-2m} + P_{B100,ST} Q^S_{ST,t-2m}}{Q^S_{CPO,t-2m} + Q^S_{RBD,t-2m} + Q^S_{ST,t-2m}} & \text{from July 2010 onward} \end{cases}$$

$$Q^S_{B100}\left(P_{B100}, P_{CPO,domestic}, P_{CPO,import}, trend\right) = f_0 + f_1 P_{B100} + f_2 P_{CPO,domestic} + f_3 P_{CPO,import} + f_4 t + \varepsilon_f$$

$$Q^S_{B100} = f_0 + f_1 \begin{cases} 0.97Min\left(P_{CPO,domestic}, P_{CPO,import} + 1\right) + 0.15P_{MtOH} + 3.32 & \text{from Feb 2007 to Jan 2008} \\ 0.97Min\left(P_{CPO,domestic}, P_{CPO,import} + 3\right) + 0.15P_{MtOH} + 3.32 & \text{from Feb 2008 to June 2010} \\ \dfrac{\left(0.94Min\left(P_{CPO,domestic}, P_{CPO,import} + 3\right) + 0.1P_{MtOH} + 3.82\right)Q^S_{CPO,t-2m} + P_{B100,RBD}Q^S_{RBD,t-2m} + P_{B100,ST}Q^S_{ST,t-2m}}{Q^S_{CPO,t-2m} + Q^S_{RBD,t-2m} + Q^S_{ST,t-2m}} & \text{from July 2010 onward} \end{cases} + f_2P_{CPO,domestic} + f_3P_{CPO,import} + f_4t + \varepsilon_f$$

$$Q^S_{B100} = f_0 + f_1 \left(\begin{cases} \left(0.97Min\left(P_{CPO,domestic}, P_{CPO,import} + 1\right) + 0.15P_{MtOH} + 3.32\right) & \text{from Feb 2007 to Jan 2008} \\ \left(0.97Min\left(P_{CPO,domestic}, P_{CPO,import} + 3\right) + 0.15P_{MtOH} + 3.32\right) & \text{from Feb 2008 to June 2010} \\ \dfrac{\left(0.94Min\left(P_{CPO,domestic}, P_{CPO,import} + 3\right) + 0.1P_{MtOH} + 3.82\right) \times Q^S_{CPO,t-2m}}{Q^S_{CPO,t-2m} + Q^S_{RBD,t-2m} + Q^S_{ST,t-2m}} + \left(\dfrac{P_{B100,RBD} \times Q^S_{RBD,t-2m} + P_{B100,ST} \times Q^S_{ST,t-2m}}{Q^S_{CPO,t-2m} + Q^S_{RBD,t-2m} + Q^S_{ST,t-2m}}\right) & \text{from July 2010 onward} \end{cases} \right) + f_2P_{CPO,domestic} + f_3P_{CPO,import} + f_4t + \varepsilon_f$$

$$\text{Let } v_f \equiv \varepsilon_f + f_1 \frac{P_{B100,RBD} \times Q^S_{RBD,t-2m} + P_{B100,ST} \times Q^S_{ST,t-2m}}{Q^S_{CPO,t-2m} + Q^S_{RBD,t-2m} + Q^S_{ST,t-2m}}$$

$$\therefore Q^S_{B100} = f_0 + f_2P_{CPO,domestic} + f_3P_{CPO,import} + f_4t + \begin{cases} f_1\left(0.97Min\left(P_{CPO,domestic}, P_{CPO,import} + 1\right) + 0.15P_{MtOH} + 3.32\right) + \varepsilon_f & \text{from Feb 2007 to Jan 2008} \\ f_1\left(0.97Min\left(P_{CPO,domestic}, P_{CPO,import} + 3\right) + 0.15P_{MtOH} + 3.32\right) + \varepsilon_f & \text{from Feb 2008 to June 2010} \\ f_1 \dfrac{\left(0.94Min\left(P_{CPO,domestic}, P_{CPO,import} + 3\right) + 0.1P_{MtOH} + 3.82\right) \times Q^S_{CPO,t-2m}}{Q^S_{CPO,t-2m} + Q^S_{RBD,t-2m} + Q^S_{ST,t-2m}} + v_f & \text{from July 2010 onward} \end{cases} \quad (5)$$

$$Q^D_{B100}\left(P_{B100}, P_{CrudeOil}, GDP, trend\right) = g_0 + g_1P_{B100} + g_2P_{CrudeOil} + g_3GDP + g_4t + \varepsilon_g$$

$$\therefore Q^D_{B100} = g_0 + g_2P_{CrudeOil} + g_3GDP + g_4t + \begin{cases} g_1\left[0.97Min\left(P_{CPO,domestic}, P_{CPO,import} + 1\right) + 0.15P_{MtOH} + 3.32\right] + \varepsilon_g & \text{from Feb 2007 to Jan 2008} \\ g_1\left[0.97Min\left(P_{CPO,domestic}, P_{CPO,import} + 3\right) + 0.15P_{MtOH} + 3.32\right] + \varepsilon_g & \text{from Feb 2008 to June 2010} \\ g_1 \dfrac{\left(0.94Min\left(P_{CPO,domestic}, P_{CPO,import} + 3\right) + 0.1P_{MtOH} + 3.82\right)Q^S_{CPO,t-2m}}{Q^S_{CPO,t-2m} + Q^S_{RBD,t-2m} + Q^S_{ST,t-2m}} + v_g & \text{from July 2010 onward} \end{cases} \quad (6)$$

where $v_g \equiv \varepsilon_g + g_1 \dfrac{P_{B100,RBD} \times Q^S_{RBD,t-2m} + P_{B100,ST} \times Q^S_{ST,t-2m}}{Q^S_{CPO,t-2m} + Q^S_{RBD,t-2m} + Q^S_{ST,t-2m}}$.

Notably, GDP on a monthly basis is unavailable so the trend variable is used as proxy.

To test whether “B100 consumption for biodiesel (Million ton)” represents Q^S_{B100} or Q^D_{B100}, we define the following:

If Domestic CPO Price is used, D1 = 1, else, D1 = 0

If MCPO Price + 1 is used, D2 = 1, else, D2 = 0

If MCPO Price + 3 is used, 1-D1-D2 = 1, and

If RBD & Stearin are used in B100 Pricing, D3 = 1, else, 1-D3 = 1.

Then we run the 2 regressions and obtain, respectively,

Dependent Variable: Con $_{B100}$

Method: Least Squares

Variable	Coefficient	Std. Error	t-Statistic	Prob.
$(1-D_3)*(0.97*(D_1*P_{CPO}+D_2*(MP_{CPO}+1)$ $+(1-D_1-D_2)*(MP_{CPO}+3))+0.1*P_{MeOH}$ $+3.32) + D_3*CPOtoB100*(0.94*(D_1*$ $P_{CPO}+(1-D_1-D_2)*(MP_{CPO}+3))+0.15*$ $P_{MeOH}+3.82)$	0.000862	0.000135	6.364902	0.0000
P_{CPO}	0.000215	0.000236	0.912250	0.3656
MP_{CPO}	-0.000828	0.000306	-2.703546	0.0091
Trend	0.001269	8.46E-05	14.99955	0.0000
C	-0.037965	0.007235	-5.247255	0.0000

R-squared	0.850801	Mean dependent var	0.035415
Adjusted R-squared	0.839950	S.D. dependent var	0.017294
S.E. of regression	0.006918	Akaike info criterion	-7.029581
Sum squared resid	0.002633	Schwarz criterion	-6.855052

Log likelihood	215.8874	F-statistic	78.40853
Durbin-Watson stat	0.618855	Prob(F-statistic)	0.000000

Dependent Variable: Con_{B100}

Method: Least Squares

Variable	Coefficient	Std. Error	t-Statistic	Prob.
$(1-D_3)*(0.97*(D_1*P_{CPO}+D_2*(MP_{CPO}+1) +(1-D_1-D_2)*(MP_{CPO} +3))+0.1*P_{MeOH} +3.32) +D_3*CPOtoB100*(0.94*(D_1* P_{CPO} +(1-D_1-D_2)*(MP_{CPO} +3))+0.15* P_{MeOH} +3.82)$	0.000882	0.000136	6.494843	0.0000
P_{CO}	-0.000890	0.000242	-3.681110	0.0005
TREND	0.001283	8.26E-05	15.53523	0.0000
C	-0.040610	0.006997	-5.804030	0.0000

R-squared	0.850282	Mean dependent var	0.035415
Adjusted R-squared	0.842262	S.D. dependent var	0.017294
S.E. of regression	0.006868	Akaike info criterion	-7.059448
Sum squared resid	0.002642	Schwarz criterion	-6.919825
Log likelihood	215.7834	F-statistic	106.0126
Durbin-Watson stat	0.520590	Prob(F-statistic)	0.000000

Though the supply model is with slightly higher t-statistics of all the coefficients, higher F-statistic, and higher R-squared than the demand model, the sign of the B100 price coefficient is positive, thus we conclude that the B100 consumption pretty much represents the supply.

To obtain the relationship between $P_{FFB,fg}$ and Q^D_{B100}, we set first $Q^S_{FFB} = Q^D_{FFB}$, such that the FFB Market to be in Equilibrium,

$$a_0 + a_1 P_{FFB,fg} + a_2 P_{FFB,fg,t-3y} + \varepsilon_a = b_0 + b_1 \left(P_{FFB,fg} + C_{transport} \right) + b_2 P_{CPO,domestic} + \varepsilon_b$$

$$a_1 P_{FFB,fg} - b_1 P_{FFB,fg} = b_0 + b_1 C_{transport} + b_2 P_{CPO,domestic} + \varepsilon_b - a_0 - a_2 P_{FFB,fg,t-3y} - \varepsilon_a$$

$$\therefore P_{FFB,fg} = \frac{\left(b_0 - a_0\right) + b_1 C_{transport} + b_2 P_{CPO,domestic} - a_2 P_{FFB,fg,t-3y} + \left(\varepsilon_b - \varepsilon_a\right)}{a_1 - b_1}$$

Then, we rearrange the Q^S_{B100} equation to get the value of domestic CPO price in term of the B100 supply and the other regressors:

$$Q^S_{B100} = f_0 + f_2 P_{CPO,domestic} + f_3 P_{CPO,import} + f_4 t + \left\{ \begin{array}{ll} f_1\left(0.97 Min\left(P_{CPO,domestic}, P_{CPO,import} + 1\right) + 0.15 P_{MtOH} + 3.32\right) + \varepsilon_f & \text{from Feb 2007 to Jan 2008} \\ f_1\left(0.97 Min\left(P_{CPO,domestic}, P_{CPO,import} + 3\right) + 0.15 P_{MtOH} + 3.32\right) + \varepsilon_f & \text{from Feb 2008 to June 2010} \\ f_1 \dfrac{\left(0.94 Min\left(P_{CPO,domestic}, P_{CPO,import} + 3\right) + 0.1 P_{MtOH} + 3.82\right) \times Q^S_{CPO,t-2m}}{Q^S_{CPO,t-2m} + Q^S_{RBD,t-2m} + Q^S_{ST,t-2m}} + v_f & \text{from July 2010 onward} \end{array} \right\}$$

$$Q^S_{B100} - f_0 - f_3 P_{CPO,import} - f_4 t$$

$$= f_2 P_{CPO,domestic} + \left\{ \begin{array}{ll} f_1\left(0.97 Min\left(P_{CPO,domestic}, P_{CPO,import} + 1\right) + 0.15 P_{MtOH} + 3.32\right) + \varepsilon_f & \text{from Feb 2007 to Jan 2008} \\ f_1\left(0.97 Min\left(P_{CPO,domestic}, P_{CPO,import} + 3\right) + 0.15 P_{MtOH} + 3.32\right) + \varepsilon_f & \text{from Feb 2008 to June 2010} \\ f_1 \dfrac{\left(0.94 Min\left(P_{CPO,domestic}, P_{CPO,import} + 3\right) + 0.1 P_{MtOH} + 3.82\right) \times Q^S_{CPO,t-2m}}{Q^S_{CPO,t-2m} + Q^S_{RBD,t-2m} + Q^S_{ST,t-2m}} + v_f & \text{from July 2010 onward} \end{array} \right\}$$

$$Q^S_{B100} - f_0 - f_3 P_{CPO,import} - f_4 t - \left\{ \begin{array}{ll} f_1\left(0.15 P_{MtOH} + 3.32\right) - \varepsilon_f & \text{from Feb 2007 to June 2010} \\ f_1 \dfrac{\left(0.1 P_{MtOH} + 3.82\right) \times Q^S_{CPO,t-2m}}{Q^S_{CPO,t-2m} + Q^S_{RBD,t-2m} + Q^S_{ST,t-2m}} - v_f & \text{from July 2010 onward} \end{array} \right.$$

$$= P_{CPO,domestic} \left(f_2 + \left\{ \begin{array}{ll} 0.97 f_1 & \text{for } \left\{ \begin{array}{ll} P_{CPO,domestic} \le P_{CPO,import} + 1 & \text{from Feb 2007 to Jan 2008} \\ P_{CPO,domestic} \le P_{CPO,import} + 3 & \text{from Feb 2008 to June 2010} \end{array} \right. \\ \dfrac{0.94 f_1 \times Q^S_{CPO,t-2m}}{Q^S_{CPO,t-2m} + Q^S_{RBD,t-2m} + Q^S_{ST,t-2m}} & \text{for } P_{CPO,domestic} \le P_{CPO,import} + 3 \quad \text{from July 2010 onward} \end{array} \right\} \right)$$

$$\therefore P_{CPO,domestic} = \frac{Q^S_{B100} - f_0 - f_3 P_{CPO,import} - f_4 t - \left\{ \begin{array}{ll} f_1\left(0.15 P_{MtOH} + 3.32\right) - \varepsilon_f & \text{from Feb 2007 to June 2010} \\ f_1 \dfrac{\left(0.1 P_{MtOH} + 3.82\right) \times Q^S_{CPO,t-2m}}{Q^S_{CPO,t-2m} + Q^S_{RBD,t-2m} + Q^S_{ST,t-2m}} - v_f & \text{from July 2010 onward} \end{array} \right.}{f_2 + \left\{ \begin{array}{ll} 0.97 f_1 & \text{for } \left\{ \begin{array}{ll} P_{CPO,domestic} \le P_{CPO,import} + 1 & \text{from Feb 2007 to Jan 2008} \\ P_{CPO,domestic} \le P_{CPO,import} + 3 & \text{from Feb 2008 to June 2010} \end{array} \right. \\ \dfrac{0.94 f_1 \times Q^S_{CPO,t-2m}}{Q^S_{CPO,t-2m} + Q^S_{RBD,t-2m} + Q^S_{ST,t-2m}} & \text{for } P_{CPO,domestic} \le P_{CPO,import} + 3 \text{ from July 2010 onward} \end{array} \right\}}$$

Thus,

$$P_{FFB,fg}=\frac{(b_0-a_0)+b_1C_{transport}-a_2P_{FFB,fg,t-3y}+(\varepsilon_b-\varepsilon_a)}{a_1-b_1}$$

$$+\frac{b_2}{(a_1-b_1)}\left\{\begin{array}{ll}\dfrac{Q^S_{B100}-f_0-f_3P_{CPO,import}-f_4t-\left\{\begin{array}{ll}f_1(0.15P_{MtOH}+3.32)-\varepsilon_f & \text{from Feb 2007 to June 2010}\\ f_1\dfrac{(0.1P_{MtOH}+3.82)\times Q^S_{CPO,t-2m}}{Q^S_{CPO,t-2m}+Q^S_{RBD,t-2m}+Q^S_{ST,t-2m}}-v_f & \text{from July 2010 onward}\end{array}\right.}{f_2+\left\{\begin{array}{ll}0.97f_1 & \text{for }\left\{\begin{array}{ll}P_{CPO,domestic}\le P_{CPO,import}+1 & \text{from Feb 2007 to Jan 2008}\\ P_{CPO,domestic}\le P_{CPO,import}+3 & \text{from Feb 2008 to June 2010}\end{array}\right.\\ \dfrac{0.94f_1\times Q^S_{CPO,t-2m}}{Q^S_{CPO,t-2m}+Q^S_{RBD,t-2m}+Q^S_{ST,t-2m}} & \text{for }P_{CPO,domestic}\le P_{CPO,import}+3\quad\text{from July 2010 onward}\end{array}\right.} & \\ P_{CPO,domestic} & \text{elsewhere}\end{array}\right\}$$

(7)

After interpolating and extrapolating $\dfrac{Q^S_{CPO,t-2m}+Q^S_{RBD,t-2m}+Q^S_{ST,t-2m}}{g_1Q^S_{CPO,t-2m}}$ (labeled as CPOtoB100) from EPPO data, the regression gives:

Dependent Variable: $P_{FFB,FG}$

Method: Least Squares

Variable	Coefficient	Std. Error	t-Statistic	Prob.
$C_{TRANSPORT}$	-1.017406	0.274832	-3.701920	0.0006
$P_{FFB,t-3}$	0.139202	0.060166	2.313637	0.0254
D_1*(Con_{B100}-(-0.0379653952)-(-0.0008281440)*MP_{CPO}-0.0012685218 *T^S-((1-D_3)*(0.0008622026* (0.15 * P_{MeOH} +3.32)+$SResid_{B100}$)+D3 * (0.0008622026*(0.1* P_{MeOH} +3.82)* CPOtoB100 + $SResid_{B100}$)))/ (0.0002153858 +(1-D_3)*0.97* 0.0008622026 +D_3*0.94 *0.0008622026 *CPOtoB100)+(1-D_1)* P_{CPO}	0.142927	0.008069	17.71211	0.0000
C	0.172938	0.197063	0.877578	0.3849

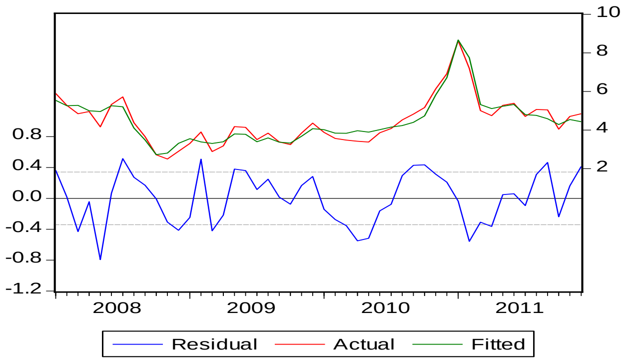
R-squared	0.924727	Mean dependent var	4.460625

Adjusted R-squared	0.919595	S.D. dependent var	1.202682
S.E. of regression	0.341030	Akaike info criterion	0.765964
Sum squared resid	5.117270	Schwarz criterion	0.921897
Log likelihood	-14.38313	F-statistic	180.1798
Durbin-Watson stat	1.231598	Prob(F-statistic)	0.000000

To predict the FFB price, 2 more estimations are needed. The first is the residuals of the B100 supply equation on the B100 supply and its former regressors except the CPO price:

$$\left.\begin{array}{ll}\varepsilon_f & \text{from Feb 2007 to June 2010}\\ v_f & \text{from July 2010 onward}\end{array}\right\}$$

$$= Q^S_{B100} - f_0 - f_3 P_{CPO,import} - f_4 t - \begin{cases} f_1\left(0.97Min\left(P_{CPO,domestic}, P_{CPO,import}+1\right)+0.15P_{MtOH}+3.32\right) & \text{from Feb 2007 to Jan 2008}\\ f_1\left(0.97Min\left(P_{CPO,domestic}, P_{CPO,import}+3\right)+0.15P_{MtOH}+3.32\right) & \text{from Feb 2008 to June 2010}\\ f_1\dfrac{\left(0.94Min\left(P_{CPO,domestic}, P_{CPO,import}+3\right)+0.1P_{MtOH}+3.82\right)\times Q^S_{CPO,t-2m}}{Q^S_{CPO,t-2m}+Q^S_{RBD,t-2m}+Q^S_{ST,t-2m}} & \text{from July 2010 onward}\end{cases}$$



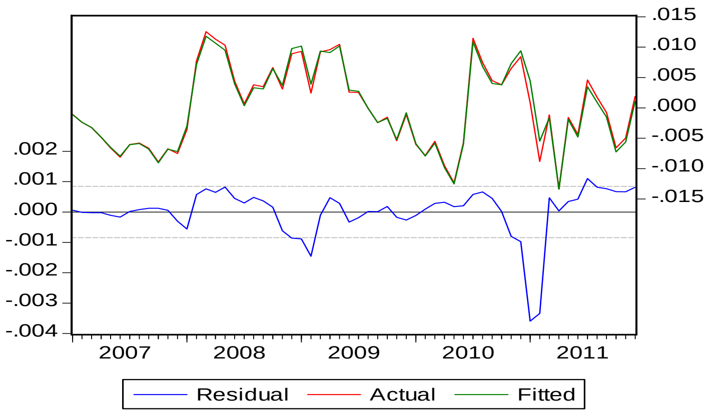
Dependent Variable: $SResid_{B100}$

Method: Least Squares

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Con_{B100}	0.985095	0.016339	60.29050	0.0000
MP_{CPO}	0.000585	2.25E-05	25.96525	0.0000
T^D	-0.001262	2.33E-05	-54.22699	0.0000

$P_{B100,CPO}$	-0.000847	2.17E-05	-39.02956	0.0000
C	0.038190	0.001082	35.30691	0.0000

R-squared	0.985095	Mean dependent var	-2.70E-18
Adjusted R-squared	0.984011	S.D. dependent var	0.006680
S.E. of regression	0.000845	Akaike info criterion	-11.23561
Sum squared resid	3.92E-05	Schwarz criterion	-11.06109
Log likelihood	342.0684	F-statistic	908.7361
Durbin-Watson stat	0.741553	Prob(F-statistic)	0.000000



The other regression regresses the CPO import price, or the Malaysian CPO price, which is crucial for the calculation of estimated CPO domestic price, on the trend variable:

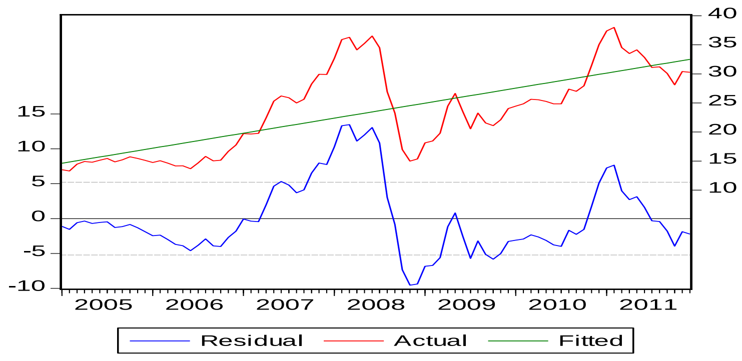
Dependent Variable: MP_{CPO}

Method: Least Squares

Variable	Coefficient	Std. Error	t-Statistic	Prob.
TREND	0.215294	0.023522	9.152978	0.0000
C	14.41455	1.150921	12.52436	0.0000

R-squared	0.505360	Mean dependent var	23.56452
Adjusted R-squared	0.499327	S.D. dependent var	7.387358

S.E. of regression	5.227163	Akaike info criterion	6.169136
Sum squared resid	2240.505	Schwarz criterion	6.227012
Log likelihood	-257.1037	F-statistic	83.77701
Durbin-Watson stat	0.142725	Prob(F-statistic)	0.000000



Test of unit root on the FFB price

Null Hypothesis: D(FFBPRICEFG) has a unit root

Exogenous: Constant

Lag Length: 1 (Automatic based on SIC, MAXLAG=11)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-7.798120	0.0000
Test critical values:	1% level	-3.513344	
	5% level	-2.897678	
	10% level	-2.586103	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(FFBPRICEFG,2)

Method: Least Squares

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D($P_{FFB,fg}$(-1))	-1.088862	0.139631	-7.798120	0.0000
D($P_{FFB,fg}$ (-1),2)	0.304504	0.107834	2.823818	0.0060
C	0.028324	0.062485	0.453291	0.6516

R-squared	0.470972	Mean dependent var	-0.001481
Adjusted R-squared	0.457408	S.D. dependent var	0.762201
S.E. of regression	0.561444	Akaike info criterion	1.719724
Sum squared resid	24.58710	Schwarz criterion	1.808407
Log likelihood	-66.64881	F-statistic	34.72017
Durbin-Watson stat	1.966195	Prob(F-statistic)	0.000000

Test of unit root on the B100 consumption

Null Hypothesis: D(B100CONS) has a unit root

Exogenous: Constant

Lag Length: 0 (Automatic based on SIC, MAXLAG=11)

		t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic		-11.40600	0.0001
Test critical values:	1% level	-3.512290	
	5% level	-2.897223	
	10% level	-2.585861	

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(Con_{B100},2)

Method: Least Squares

Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(Con_{B100}(-1))	-1.257207	0.110223	-11.40600	0.0000
C	0.000914	0.000455	2.008627	0.0480

R-squared	0.619223	Mean dependent var	9.67E-05
Adjusted R-squared	0.614464	S.D. dependent var	0.006550
S.E. of regression	0.004067	Akaike info criterion	-8.147584
Sum squared resid	0.001323	Schwarz criterion	-8.088884
Log likelihood	336.0510	F-statistic	130.0969
Durbin-Watson stat	1.843636	Prob(F-statistic)	0.000000

Thus the FFB price and B100 consumption are stationary. Hence, their regression should not be spurious.