APPENDIX C

ALL EMPIRICAL REGRESSION RESULTS

This appendix provides all regression results that the study has tried in order to seek for the best one to present in Chapter 4. This has been done because the results obtained from the original models formulated in Chapter 3 do not yield satisfactory values which is due to the insignificance of a dummy variable in all estimated equations. Thus, it is better to drop this variable from the models. However, most of the results still have some statistical problem with autoregressive. In this case, it will be reestimated by employing the first order of autoregressive (AR1) and moving average (MA1) procedure. The best one is selected to interpret its result in this study. The criteria to choose the best one is based on the appropriateness of many components i.e., the high R-square value, the theoretically correct sign, the significant t-statistics and the Durbin-Watson statistics.

The regression results presented below also show the value of t-statistics in the parenthesis under each coefficient, R-square and D.W. statistics. The symbols *, ** and *** mean significantly different from zero at the 90, 95 and 99 percent confidence level respectively. The definition of each variable is already explained in Chapter 3.

1. Galvanized Sheet Industry

Equation 1.1: Original Model

$$Z1 = \underset{(3.27)^{***}}{1738.65} - \underset{(-4.36)^{***}}{0.08\ RPZ} + \underset{(0.02)}{124.11\ RP1} + \underset{(7.58)^{***}}{0.05\ Q1} + \underset{(0.21)}{14.26\ D}$$

$$+ \underset{(0.36)}{46.86}\ D1 + \underset{(1.32)}{41.29}\ D2 + \underset{(0.71)}{92.82}\ D3$$

$R^2 = 0.81$ D.W. = 0.84

Equation 1.2: Drop Dummy Variable

$$Z1 = \underset{(1.70)}{1760.87} - \underset{(-2.41)^{**}}{0.07}\ RPZ + \underset{(1.28)}{135.84}\ RP1 + \underset{(5.94)^{***}}{0.06}\ Q1$$

$R^2 = 0.73$ D.W. = 0.79

Equation 1.3: Equation 1.2 Reestimated by MA1 Process

$$Z1 = \underset{(1.87)^{*}}{1509.81} - \underset{(-3.23)^{***}}{0.07}\ RPZ + \underset{(2.26)^{**}}{187.51}\ RP1 - \underset{(7.54)^{***}}{0.09}\ Q1$$

$R^2 = 0.84$ D.W. = 2.04

Note: This result is selected.

Equation 1.4: Equation 1.2 Reestimated by AR1 Process

$$Z1 = \underset{(1.98)^{*}}{2012.70} - \underset{(-3.59)^{***}}{0.13}\ RPZ + \underset{(2.98)^{***}}{312.91}\ RP1 + \underset{(3.93)^{***}}{0.05}\ Q1$$

$R^2 = 0.87$ D.W. = 1.98

2. Galvanized Pipe Industry

Equation 2.1: Original Model

$$Z2 = \underset{(2.72)^{***}}{1915.26} - \underset{(-2.45)^{**}}{0.08}\ RPZ + \underset{(1.63)}{14.53}\ RP2 + \underset{(3.24)^{***}}{0.02}\ Q2 - \underset{(-0.23)}{60.31}\ D$$

$$+ \underset{(0.47)}{74.63}\ D1 - \underset{(-0.17)}{26.00}\ D2 + \underset{(0.20)}{30.23}\ D3$$

$R^2 = 0.83$ D.W. = 1.54

Equation 2.2: Drop Dummy Variable

$$Z2 = \underset{(3.00)^{***}}{1965.62} - \underset{(-2.70)^{***}}{0.09}\ RPZ + \underset{(1.89)^{*}}{15.23}\ RP2 + \underset{(4.36)^{***}}{0.02}\ Q2$$

$R^2 = 0.83$ D.W. = 1.54

Equation 2.3: Equation 2.2 Reestimated by MA1 Process

$$Z2 = \underset{(2.37)^{**}}{1867.22} - \underset{(-2.79)^{***}}{0.10\ RPZ} + \underset{(2.09)^{**}}{19.95\ RP2} + \underset{(3.49)^{***}}{0.02\ Q2}$$

$R^2 = 0.8366$ D.W. = 2.13

Equation 2.4: Equation 2.2 Reestimated by AR1 Process

$$Z2 = \underset{(2.87)^{***}}{1885.29} - \underset{(-2.89)^{***}}{0.09\ RPZ} + \underset{(2.08)^{**}}{18.31\ RP2} + \underset{(3.93)^{***}}{0.08\ Q2}$$

$R^2 = 0.84$ D.W. = 1.99

Note: This result is selected.

3. Brass Industry

Equation 3.1: Original Model

$$Z3 = \underset{(1.50)}{1170.30} - \underset{(-1.04)}{0.04\ RPZ} - \underset{(-0.52)}{4.57\ P3} + \underset{(1.49)}{0.004\ QM} + \underset{(1.34)}{281.73\ D}$$

$$+ \underset{(0.03)}{6.09\ D1} - \underset{(-0.15)}{26.24\ D2} - \underset{(-0.45)}{76.09\ D3}$$

$R^2 = 0.28$ D.W. = 2.12

Equation 3.2: Drop Dummy Variable

$$Z3 = \underset{(1.61)}{1731.85} - \underset{(-1.38)}{0.05\ RPZ} + \underset{(0.55)}{4.58\ P3} + \underset{(1.79)^{*}}{0.01\ QM}$$

$R^2 = 0.23$ D.W. = 2.03

Note: This result is selected.

4. Zinc Oxide Industry

Equation 4.1: Original Model

$$Z4 = \underset{(0.26)}{57.77} - \underset{(-0.95)}{0.01\ RPZ} + \underset{(1.89)^{*}}{0.01\ RP4} + \underset{(5.80)^{***}}{0.59\ Q4} - \underset{(-1.68)}{124.37\ D}$$

$$+ \underset{(0.45)}{14.92\ D1} - \underset{(-0.54)}{17.36\ D2} - \underset{(1.77)^{*}}{57.03\ D3}$$

$R^2 = 0.79$ D.W. = 2.06

Equation 4.2: Drop Seasonal Dummy Variable

$$Z4 = \underset{(1.39)}{263.09} - \underset{(-1.31)}{0.01\ RPZ} + \underset{(0.83)}{0.002\ RP4} + \underset{(7.82)^{***}}{0.68\ Q4}$$

$$+ \underset{(0.12)}{3.93\ D1} - \underset{(-0.70)}{22.97\ D2} - \underset{(-1.81)^{*}}{59.92\ D3}$$

$R^2 = 0.78$ D.W. = 2.14

Note: This result is selected.

5. Dry Cell Industry

Equation 5.1: Original Model

$$Z5 = \underset{(-0.18)}{-128.52} - \underset{(-0.69)}{0.01\ RPZ} + \underset{(0.54)}{11.88\ RP5} + \underset{(4.49)^{***}}{0.01\ Q5} - \underset{(-0.11)}{10.77\ D}$$

$$- \underset{(-1.33)}{86.39\ D1} - \underset{(-0.53)}{33.39\ D2} - \underset{(-0.70)}{46.43\ D3}$$

$R^2 = 0.51$ D.W. = 1.52

Equation 5.2: Drop Dummy Variable

$$Z5 = \underset{(-0.38)}{-211.49} - \underset{(-0.55)}{0.01\ RPZ} + \underset{(0.80)}{10.41\ RP5} + \underset{(5.24)^{***}}{0.01\ Q5}$$

$R^2 = 0.48$ D.W. = 1.57

Equation 5.3: Equation 5.2 Reestimated by MA1 Process

$$Z5 = \underset{(-0.58)}{-401.76} - \underset{(-0.21)}{0.003\ RPZ} + \underset{(0.92)}{14.76\ RP5} + \underset{(4.57)^{***}}{0.01\ Q5}$$

$R^2 = 0.48$ D.W. = 1.85

Equation 5.4: Equation 5.2 Reestimated by AR1 Process

$$Z5 = \underset{(-0.91)}{-522.80} - \underset{(-0.01)}{0.0002\ RPZ} + \underset{(2.14)^{**}}{15.88\ RP5} + \underset{(5.59)^{***}}{0.01\ Q5}$$

$R^2 = 0.52$ D.W. = 1.97

Note: This result is selected.

6. Die-Casting Industry

Equation 6.1: Original Model

$$Z6 = \underset{(2.27)^{*}}{2140.72} - \underset{(-2.01)^{*}}{0.06\ RPZ} - \underset{(-1.19)}{8.82\ PM} + \underset{(0.97)}{0.004\ QM} + \underset{(0.45)}{85.37\ D}$$

$$\underset{(1.19)}{161.06\ D1} + \underset{(0.30)}{40.55\ D2} + \underset{(0.28)}{37.13\ D3}$$

$R^2 = 0.37$ D.W. = 2.36

Equation 6.2: Drop Dummy Variable

$$Z6 = \underset{(2.76)^{***}}{2231.66} - \underset{(-2.34)^{**}}{0.06\ RPZ} - \underset{(-1.12)}{10.71\ PM} + \underset{(2.11)^{**}}{0.01\ QM}$$

$R^2 = 0.36$ D.W. = 1.98

Note: This result is selected.

7. The Miscellaneous

Equation 7.1: Original Model

$$Z7 = \underset{(1.01)}{1650.12} - \underset{(-0.58)}{0.01\ RPZ} - \underset{(-1.10)}{14.27\ PM} + \underset{(2.20)^{*}}{0.02\ QM} - \underset{(-0.88)}{287.74\ D}$$

$$- \underset{(-0.19)}{44.81\ D1} + \underset{(0.81)}{188.09\ D2} + \underset{(0.69)}{160.34\ D3}$$

$R^2 = 0.27$ D.W. = 2.03

Equation 7.2: Drop Dummy Variable

$$Z7 = \underset{(0.68)}{1178.52} - \underset{(-0.39)}{0.01\ RPZ} - \underset{(-0.54)}{8.62\ PM} + \underset{(1.59)}{0.02\ QM}$$

$R^2 = 0.19$ D.W. = 1.55

Equation 7.3: Equation 7.2 Reestimated by MA1 Process

$$Z7 = \underset{(0.78)}{1137.65} - \underset{(-0.25)}{0.01\ RPZ} - \underset{(-0.72)}{7.90\ PM} + \underset{(2.32)^{**}}{0.01\ QM}$$

$R^2 = 0.23$ D.W. = 1.98

Note: This result is selected.

Equation 7.4: Equation 7.2 Reestimated by AR1 Process

$$Z7 = \underset{(0.69)}{1207.29} - \underset{(-0.32)}{0.01\ RPZ} - \underset{(-0.66)}{12.75\ PM} + \underset{(1.95)^{*}}{0.01\ QM}$$

$R^2 = 0.22$ D.W. = 1.95

8. Time Trend of the Independent Variables

$$RPZ = \underset{(43.7)}{22381.32} - \underset{(-7.39)}{146.35\ T}$$

$R^2 = 0.57$, SER = 1667.25

$$RP1 = \underset{(30.37)}{5.37} + \underset{(5.36)}{0.04\ T}$$

$R^2 = 0.41$, SER = 0.58

$$Q1 = \underset{(17.15)}{26505.33} + \underset{(5.49)}{328.74\ T}$$

$R^2 = 0.42$, SER = 5039.82

$$RP2 = \underset{(29.76)}{87.19} + \underset{(2.98)}{0.34\ T}$$

$R^2 = 0.17$, SER = 9.55

$$Q2 = \underset{(4.66)}{16660.97} + \underset{(11.35)}{1571.22\ T}$$

$R^2 = 0.75$, SER = 11657.06

$$P3 = \underset{(43.17)}{68.19} + \underset{(29.05)}{1.78\ T}$$

$R^2 = 0.95$, SER = 5.15

$$QM = \underset{(20.61)}{40527.26} + \underset{(28.36)}{2158.61\ T}$$

$R^2 = 0.95$, SER = 6412.33

$$RP4 = \underset{(18.79)}{17281.84} + \underset{(18.00)}{640.71\ T}$$

$R^2 = 0.89$, SER = 2998.87

$$Q4 = \underset{(9.60)}{419.62} + \underset{(3.87)}{6.55}\ T$$

$R^2 = 0.26$, SER = 142.48

$$RP5 = \underset{(58.62)}{25.40} + \underset{(8.72)}{0.15}\ T$$

$R^2 = 0.64$, SER = 1.41

$$Q5 = \underset{(18.91)}{57673.99} + \underset{(2.51)}{296.29}\ T$$

$R^2 = 0.23$, SER = 9940.96

$$PM = \underset{(34.19)}{78.99} + \underset{(9.15)}{0.82}\ T$$

$R^2 = 0.67$, SER = 7.53