Appendix B

Method for Interpolating Quarterly Data

Since Taiwan, the Philippines, and Thailand do not publish GNP data on a quarterly basis it was necessary to interpolate such series. The method used is the one in Goldstein and Khan (1976). It involves interpolating by fitting a quadratic curve to three successive annual observations.

If x_{t-1}, x_t, and x_{t+1} are three successive annual observations of a flow variable $x(t)$, the quadratic function passing through the three points satisfies the following equations:

$$\int_0^1 (as^2 + bs + c)\, ds = x_{t-1}$$

$$\int_1^2 (as^2 + bs + c)\, ds = x_t$$

$$\int_2^3 (as^2 + bs + c)\, ds = x_{t+1}$$

Integrating and solving for a, b, and c we get:

$$a = .5x_{t-1} - x_t + .5x_{t+1}$$

$$b = -2x_{t-1} + 3x_t - x_{t+1}$$

$$c = 1.8333x_{t-1} - 1.1666x_t + .333x_{t+1}$$

The quarterly observations $Q1$, $Q2$, $Q3$, and $Q4$ are interpolated as:

$$Q1 = \int_{1}^{1.25} (as^2 + bs + c)\, ds = .0548x_{t-1} + .2343x_t - .0390_{t+1}$$

$$Q2 = \int_{1.25}^{1.5} (as^2 + bs + c)\, ds = .0079x_{t-1} + .2655x_t - .024x_{t+1}$$

$$Q3 = \int_{1.5}^{1.75} (as^2 + bs + c)\, ds = -.0233x_{t-1} + .2652x_t + .008_{t+1}$$

$$Q4 = \int_{1.75}^{2} (as^2 + bs + c)\, ds = -.0392x_{t-1} + .2347x_t + .0545x_{t+1}$$