

exogenous productivity increases or through modernization of the capital stock. It is important to note though that if productivity is defined as the output per worker, then it can be increased by raising the capital stock per unit of output. In fact, in TIM, as in most applied macro models, productivity is generally thought of as taking the form of Harrod-neutral technical change rather than Hicks-neutral. As a result, the investment equations in TIM are specified in such a way as to yield stable capital-output ratios and the employment equations are specified in such a way as to yield a rising output per worker. The data supports this approach in that at the most detailed levels of data available, the output per worker is in almost every case rising whereas capital-output ratios are constant or varying in erratic ways due to technological shocks to the industries.

1.2.1.4 Investment And Labour Demand - As was noted above, the investment and employment equations are specified in such a way that a Harrod-neutral view of productivity improvements is imposed in TIM. This is done with the following simplified functional forms:

$$\begin{aligned}
 I &= f(b_1(Y - Y_{(-1)})) \\
 K &= K_{(-1)} + I \\
 E &= f(Y/K^{\alpha_1}, b_2^t)
 \end{aligned}$$

where

- I = real investment
- Y = real gross domestic product
- K = real capital stock
- E = employment
- t = time
- $b_1, b_2$  = econometrically determined coefficients
- $\alpha_1$  = the power to which Y, K must be raised when the Cobb-Douglas production function is inverted.

The first equation is a simplified version of the standard Jorgenson neo-classical investment equation in which the price effects and