CHAPTER 11
INTERNATIONAL TRADE AND ECONOMIC GROWTH

The final chapter of the book is devoted to an extension of the two-sector model of economic growth to an open economy. We thus consider two countries, denoted as the "home" country (HC) and the "foreign" country (FC, or the rest of the world). The two goods will be, as before, consumption and investment.

Dynamic theories of international trade have, until very recently, concentrated on a barter situation where either goods are exchanged for goods (Oniki and Uzawa, 1965), or goods are exchanged for securities, (Fischer and Frenkel, 1972). In the last few years, several papers have introduced a monetary model to the dynamic trade literature. For instance, Allen (1972) considered a one-sector (complete specialization) two-country model with a monetary asset. A monetary model with trade in capital and securities has been considered for a small country by Sakakibara (1974). Onitsuka (1974) has analyzed a one-sector model with trade in securities but it has no monetary sector. Hori and Stein (1977) have extended this to a two-sector complete specialization situation. Ramanathan (1975) has examined the impact of monetary expansion with a two-sector trade model but he assumes a small country with no trade in securities. Roberts (1978) considers a two-sector monetary growth model for two intermediate size countries, but he does not allow for trade in securities.

In Section 11.1, the Uzawa-Oniki model is presented in the static form. This is then extended to the dynamic case in Section 11.2. Section 11.3 deals with the role of monetary expansion in a two-country, two-sector model of accumulation.

11.1 A Static Two Sector Trade Model

In the last chapter, we showed that given the price ratio \( p \) and overall capital intensity \( k \), the supplies of consumption and investment goods, real wages and rents can be determined in terms of those
variables. Let $C$ be the supply of consumption goods and $I$ be the supply of investment goods. We thus have, using the linear homogeneity property,

\begin{align}
(11.1.1) & \quad C = C(k,p)L \\
(11.1.2) & \quad I = I(k,p)L \\
(11.1.3) & \quad Y = C + I p \\
(11.1.4) & \quad y = Y/L = y(k,p) = C(k,p) + I(k,p)p
\end{align}

where $Y$ is aggregate output (a GNP measure) and $y$ is per capita GNP. In international trade theory, $p$ is often referred to as the "terms of trade". Equations (11.1.1) and (11.1.2) are the parametric representation of the production possibility frontier (for given $L$). At a point on the frontier, per capita output $y (= C + Ip)$ is maximized with respect to $p$. Therefore, $C_p + p I_p = 0$, because of the tangency of the frontier with the price line $C$.

$$y_p = C_p + p I_p + I = I > 0$$

By the neo-classical conditions on the production functions, it is easily seen that $y = kr + w$, where $w$ = real wages and $r$ = real rents. Hence $y_k = MPK = r$ and $w = y - ky_k > 0$. To summarize, we have the following inequalities:

\begin{align}
(11.1.5) & \quad y_p > 0; \quad y_k > 0 \quad \text{and} \quad y_k - ky_k > 0.
\end{align}

Let $s$ be the overall saving rate. Therefore investment demand $I_d$ is given by

\begin{align}
(11.1.6) & \quad p I_d = s Y
\end{align}

The budget constraint is

\begin{align}
(11.1.7) & \quad C + Ip = C_d + I_d p
\end{align}

where $C_d$ is the demand for consumption goods.