Appendix

SYMBOLS USED

General Remarks on Symbols

Lower index as a rule indicates time period to which variable refers.  
Upper index $h$ or $h'$ indicates sector (industry); in some cases upper 
index 1, 2 indicates process of production or geographical sector. Symbols 
with one index only are given without index in the following list; 
thus, meaning of $v^h$ can be found under $v$, etc. Symbols with two indexes, 
for example, $v^{h'}$, have been mentioned separately. 
Money values are indicated by capital letters, usually but not always 
corresponding to symbols for volume variables. Greek symbols often 
are corresponding coefficients (for example, $x, X, \xi, \epsilon, S, \sigma$; etc.). Dot on 
top of symbol indicates derivative with regard to time: $\dot{c} = dc/dt$, etc.

List of Symbols

I. Alphabetical order of definitions\(^1\)

Allocation of investment coefficient, Mahalanobis, $A$ 
Balance-of-payments deficit, $F$ 
Capital, in accounting sector, $K$ 
\hspace{1cm} in existence, $K^0$ 
\hspace{1cm} in nonaccounting sector, $K$ 
\hspace{1cm} in use, $k$, $K$ 
Capital exponent in Douglas production function, $\mu$ 
Capital-income ratio, gross, $\kappa'$ 
\hspace{1cm} net, $\kappa$ 
Capital supply flexibility, $\beta$

\(^1\) Some symbols which do not have generally used names have been included only in 
list II below.
Coefficient, current Leontief interindustry delivery, $\varphi^{AV}$
of demand, $\eta$
Coefficient, investment, interindustry delivery, $k^{AV}$
Constant, Douglas production function, $\Gamma$
Consume, propensity to, $\gamma$
Consumption, minimum level, $\delta$
saturation level, $c^m$
value, $C$
volume, $c$
Debt, foreign, $M$
Deficit on balance of payments, $F$
Deliveries, interindustry, current, $v^{AV}$
investment, $w^{AV}$
Demand, coefficient, $\eta$
elasticity, $\eta$
price flexibility of, $\psi$
Depreciation allowance, $d$, $D$
rate, $\delta$
Discount rate, $\bar{m}$
Douglas production function, constant, $\Gamma$
exponents, capital, $\mu$
labor, $\lambda$
rate of increase, labor, $\lambda'$
Elasticity, of demand, $\eta$
products, $\rho$
Employment, $a$
in accounting sector, $\bar{a}$
coefficient, Mahalanobis, $\Xi$
in nonaccounting sector, $\bar{a}$
Equipment, $b$, $B$
Expenditure, national, $x$, $X$
Exponents, Douglas production function, capital, $\mu$
labor, $\lambda$
rate of increase, $\lambda'$
Exports, value, $E$
volume, $e$
Flexibility, of demand, $\psi$
of marginal utility, $u$
of supply, capital, $\beta$
labor, $\alpha$
Foreign debt, $M$
Gestation period, $\theta$
Growth rate, of efficiency, \( \varepsilon \)
of population, \( \pi \)
of production, \( \omega \)
Horizon, \( T \)
Import content, \( \iota \)
Imports, \( i, I \)
Income, national, \( y, Y \)
Index, sector, \( h, H \) (maximum)
Interest rate, \( m \)
accounting, \( m' \)
Interindustry deliveries, current, \( w_M^c, V^M \)
Interindustry delivery coefficient, current, \( \varphi^M \)
investment, \( \kappa^M \)
Interindustry investment, \( w_M^c, W^M \)
Investment coefficient, \( \kappa^M \)
finished, \( j', J' \)
gross, \( j^g, J^G \)
net, \( j, J \)
replacement, \( r, R \)
Labor-capital ratio, without accounting prices, \( \Phi_0 \)
in accounting sector, \( \Phi_1 \)
Labor exponent, Douglas production function, \( \lambda \)
rate of change, \( \lambda' \)
Labor productivity, \( q \)
Labor supply flexibility, \( \alpha \)
Leontief coefficients, current, \( \varphi^M \)
investment, \( \kappa^M \)
Lifetime of investment goods, \( \Theta \)
Marginal utility, \( u \)
flexibility, \( v \)
National expenditure, \( x, X \)
National income, \( y, Y \)
Output-capital ratio, \( \xi \)
Population, \( P \)
growth rate, \( \pi \)
Price capital stock, \( q' \)
Price consumption, \( p^s \)
Price exports, \( p^e \)
Price gross product, \( p \)
Price imports, \( p^i \)
Price investment, \( q \)
Price national expenditure, \( p^s \)
Price national income, $p^u$
Price product, $h$, $p^h$
Product, gross, $v$
Production, rate of growth, $\omega$
Productivity, labor, $g$
Propensity, to consume, $\gamma$
of region $r$ to buy good $h$ in region $r'$, $\pi r x^h$
to spend, $\xi$
Region index, $r$, $R$ (maximum)
Repayment period, $\tau$
Replacement investment, $r$, $R$
Savings, $s$, $S$
rate, $\sigma$
Sector index, $h$, $H$ (maximum)
Spend, propensity to, $\xi$
Supply coefficient, product, $\rho$
Supply flexibility, capital, $\beta$
labor, $\alpha$
Taxes, $G$
Time, $t$
integration variable, $t'$
Transportation coefficient, $r^r T^h$
Utility, marginal, $u$
flexibility of, $v$
total, $U$
Wage rate, $l$
accounting, $l'$
desired, $l^0$
rate of growth, $\Omega$

II. Alphabetical order of symbols—Latin\(^1\)

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Meaning</th>
<th>Greek List</th>
</tr>
</thead>
<tbody>
<tr>
<td>$a$</td>
<td>Employment</td>
<td>A</td>
</tr>
<tr>
<td>$\bar{a}$</td>
<td>Employment in accounting</td>
<td></td>
</tr>
<tr>
<td>$\ddot{a}$</td>
<td>Employment in non-</td>
<td></td>
</tr>
<tr>
<td>$b$</td>
<td>Volume of equipment</td>
<td>B</td>
</tr>
<tr>
<td>$c$</td>
<td>Consumption volume; $c' = c - \bar{c}$</td>
<td>C</td>
</tr>
</tbody>
</table>

\(^1\) Asterisk * indicates stock variable.
\( c \)  Total consumption in period \( 0 \leq t \leq T \\
\bar{c} \)  Constant in Engel function \\
\( \bar{c} \)  Subsistence minimum \\
\( c^p \)  Consumption of French workers \\
\( c^m \)  Saturation level \\
\( d \)  Depreciation allowances, volume \\
\( e \)  Exports, volume \(^1\) \\
\( \bar{e}^t \)  Constant in function describing time pattern of \( e^t \) \\
\( f \)  Foreign exchange rate \\
\( g \)  Labor productivity \\
\( h \)  Sector index \\
\( i \)  Imports, volume \\
\( j \)  Investment, net, volume \\
\( j' \)  Investment, finished, volume \\
\( j^g \)  Investment, gross, volume \\
\( k \)  *Capital stock volume, in use \\
\( \bar{k} \)  Capital in accounting sector \\
\( \bar{k} \)  Capital in non-accounting sector \\
\( k^o \)  Capital stock volume, in existence \\
\( l \)  Wage rate \\
\( l^o \)  Desired wage rate \\
\( l' \)  Accounting wage rate \\
\( m \)  Interest rate \\
\( m' \)  Accounting interest rate \\
\( m^d \)  Discount rate \\
\( D \)  Value \\
\( E \)  Value \\
\( F \)  Deficit on balance of payments \\
\( G \)  Taxes \\
\( H \)  Maximum value of sector index \\
\( H^x \)  Number of export items \\
\( I \)  Value \\
\( J \)  Value \\
\( J' \)  Value \\
\( J^g \)  Value \\
\( K \)  *Value \\
\( M \)  *Foreign debt

\(^1\) Of course, \( e \) is also used for base natural logarithms.
$p$ Price index of gross product
$p^h$ Price index of product $h$
$q$ Price index of investment goods
$q'$ Price index of capital stock
$r$ Replacement investment, volume
As an index: region
$s$ Savings, volume
$t$ Time
$t'$ Time as integration variable
$t''$, $t'''$ Integration variable depending on $t'$
$u$ Marginal utility
$v$ Volume of gross product
$v^h$, $v'^h$, $v''^h$ Constants in functions describing time path of $v^h$
$v^{h^r}$ Interindustry deliveries, current
$w^{AN}$ Interindustry deliveries for investment purposes
$x$ National expenditure, volume
$x^r_{h^r}$ Quantity of good $h$ supplied by region $r$ to region $r'$
$y$ National income, volume
$y' = y - \bar{z}$
$\bar{g}$ Constant in Sec. 2.4

$P$ Population
$R$ Number of regions
$S$ Value
$T$ Horizon
$r^rT$ Transportation coefficient
$U$ Total utility
$V$ Value
$W^{AN}$ Value
$X$ Value
$Y$ Value

III. Alphabetical order of symbols—Greek

$\alpha$ Supply flexibility of labor
$A$ $c^x/\bar{e}$ (Sec. 2.4)
$\beta$ Supply flexibility of capital
$B$ Constant in consumption time path (Sec. 2.4)

$^1$ Upper index, when applied, indicates corresponding volume ($c$, $i$, $e$, $x$, $y$).
<table>
<thead>
<tr>
<th>Symbol</th>
<th>Definition</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \gamma )</td>
<td>Propensity to consume ( \gamma^{\lambda} ) Other constants appearing in consumption function</td>
</tr>
<tr>
<td>( \delta )</td>
<td>Rate of depreciation ( \delta' = 1 - \delta )</td>
</tr>
<tr>
<td>( \epsilon )</td>
<td>Rate of growth of efficiency</td>
</tr>
<tr>
<td>( \xi )</td>
<td>Output-capital ratio ( \xi^{P} ) Partial output-capital ratio</td>
</tr>
<tr>
<td>( \eta )</td>
<td>Elasticity (or coefficient) of demand</td>
</tr>
<tr>
<td>( \theta )</td>
<td>Gestation period</td>
</tr>
<tr>
<td>( i )</td>
<td>Import content of product</td>
</tr>
<tr>
<td>( \kappa )</td>
<td>Capital-output ratio, net</td>
</tr>
<tr>
<td>( \kappa' )</td>
<td>Capital-output ratio, gross ( \kappa^{P} ) Partial capital-output ratio</td>
</tr>
<tr>
<td>( \lambda )</td>
<td>Labor exponent in Douglas production function</td>
</tr>
<tr>
<td>( \lambda' )</td>
<td>Rate of change of ( \lambda )</td>
</tr>
<tr>
<td>( \mu )</td>
<td>Capital exponent in Douglas production function</td>
</tr>
<tr>
<td>( \xi )</td>
<td>Propensity to spend</td>
</tr>
<tr>
<td>( r^{r*} )</td>
<td>Propensity of region ( r ) to buy good ( h ) in region ( r' )</td>
</tr>
<tr>
<td>( \xi_{0}, \xi_{1} )</td>
<td>Constants in this propensity, when dependent on relative prices</td>
</tr>
<tr>
<td>( \pi )</td>
<td>Rate of growth of population</td>
</tr>
<tr>
<td>( \rho )</td>
<td>Elasticity of supply</td>
</tr>
<tr>
<td>( \sigma )</td>
<td>Rate of savings</td>
</tr>
<tr>
<td>( \Gamma )</td>
<td>Constant in Douglas production function</td>
</tr>
<tr>
<td>( \Delta )</td>
<td>Finite increase in variable it precedes</td>
</tr>
<tr>
<td>( \Theta )</td>
<td>Lifetime of investment goods</td>
</tr>
<tr>
<td>( \Delta )</td>
<td>Mahalanobis allocation of investment coefficient</td>
</tr>
<tr>
<td>( \Xi )</td>
<td>Mahalanobis employment coefficient</td>
</tr>
</tbody>
</table>
126  **Mathematical Models of Economic Growth**

<table>
<thead>
<tr>
<th>Symbol</th>
<th>Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>$\tau$</td>
<td>Period of repayment</td>
<td></td>
</tr>
<tr>
<td>$\nu$</td>
<td>Flexibility of marginal utility</td>
<td></td>
</tr>
<tr>
<td>$\varphi^{h'}$</td>
<td>Current Leontief coefficients</td>
<td>$\Phi_0$ Labor-capital ratio without accounting prices</td>
</tr>
<tr>
<td>$\chi, \chi^{h'}$</td>
<td>Constants in function describing time path of $\nu^{h}$</td>
<td>$\Phi_1$ Labor-capital ratio in accounting sector</td>
</tr>
<tr>
<td>$\psi$</td>
<td>Price flexibility of demand</td>
<td></td>
</tr>
<tr>
<td>$\omega$</td>
<td>Rate of growth of production</td>
<td>$\Omega$ Rate of increase in desired wage rate</td>
</tr>
</tbody>
</table>