Appendix B

Tables for the ROW Model

Table B.1
The Countries and Variables in the MC Model

Quarterly Countries		Local Currency	Trade Share Equations Only	
1. US	United States	U.S. Dollars (mil.)	34. NI	Nigeria
2. CA	Canada	Can. Dollars (mil.)	35. AL	Algeria
3. JA	Japan	Yen (bil.)	36. IA	Indonesia
4. AU	Austria	Schillings (bil.)	37. IN	Iran
5. FR	France	Fr. Francs (bil.)	38. IQ	Iraq
6. GE	Germany	D. Mark (bil.)	39. KU	Kuwait
7. IT	Italy	Lire (bil.)	40. LI	Libya
8. NE	Netherlands	Guilders (bil.)	41. UA	United Arab Emirates
9. ST	Switzerland	Swill Francs (bil.)	42. IS	Israel
10. UK	United Kingdom	U.K. Pounds (mil.)	43. BA	Bangladish
11. FI	Finland	Markkaa (mil.)	44. SI	Singapore
12. AS	Australia	Aust. Dollars (mil.)	45. AO	All Other
13. SO	South Africa	Rand (mil.)		
14. KO	Korea	Won (bil.)		
Annual Countries				
15. BE	Belgium	Bel. Francs (bil.)		
16. DE	Denmark	Den. Kroner (bil.)		
17. NO	Norway	Nor. Kroner (bil.)		
18. SW	Sweden	Swe. Kroner (bil.)		
19. GR	Greece	Drachmas (bil.)		
20. IR	Ireland	Irish Pounds (mil.)		
21. PO	Portugal	Escudos (bil.)		
22. SP	Spain	Pesetas (bil.)		
23. NZ	New Zealand	N.Z. Dollars (mil.)		
24. SA	Saudi Arabia	Riyals (bil.)		
25. VE	Venezuela	Bolivares (bil.)		
26. CO	Colombia	Col. Pesos (bil.)		
27. JO	Jordan	Jor. Dinars (mil.)		
28. SY	Syria	Syr. Pounds (mil.)		
29. ID	India	Ind. Rupees (bil.)		
30. MA	Malaysia	Ringgit (mil.)		
31. PA	Pakistan	Pak. Rupees (bil.)		
32. PH	Philippines	Phil. Pesos (bil.)		
33. TH	Thailand	Baht (bil.)		

Table B.1 (continued)

A Brief Listing of the Variables per Country

Variables Determined by Stochastic Equations:

1.	M	Merchandise Imports, 85 lc
2.	C	Consumption, constant lc
3.	I	Fixed Investment, constant lc
4.	Y	Real GDP, constant lc
5.	PY	GDP Deflator, base year = 1.0
6.	$M1$	Money Supply, lc
7.	RS	Three Month Interest Rate, percentage points
8.	RB	Long Term Interest Rate, percentage points
9.	E	Exchange Rate, lc per $
10.	F	Three Month Forward Rate, lc per $
11.	PX	Export Price Index, 1985=1.0
12.	W	Nominal Wage Rate, base year = 1.0
13.	J	Employment, thousands
14.	$L1$	Labor Force—men, thousands
15.	$L2$	Labor Force—women, thousands

Variables Determined by Identities:

I-1.	IM	Total Imports (NIPA), constant lc
I-2.	EX	Total Exports (NIPA), constant lc
I-3.	X	Final Sales, constant lc
I-4.	$V1$	Inventory Investment, constant lc
I-5.	V	Inventory Stock, constant lc
I-6.	S	Balance of Payments, lc
I-7.	A	Net Stock of Foreign Security and Reserve Holdings, lc
I-8.	$M85\$A$	Merchandise Imports from the Trade Share Calculations, 85 $
I-9.	EE	Exchange Rate, end of period, lc per $
I-10.	K	Capital Stock, constant lc
I-11.	$KMIN$	Minimum Required Capital Stock, constant lc
I-12.	UR	Unemployment Rate
I-13.	$JMIN$	Minimum Required Employment, thousands
I-14.	JJ	Employment Population Ratio
I-15.	JJS	Peak to Peak Interpolation of JJ
I-16.	Z	Labor Constraint Variable
I-17.	YS	Potential Y
I-18.	ZZ	Demand Pressure Variable
I-19.	PM	Import Price Index, 1985=1.0

Variables Determined by the Trade Share Calculations:

	α_{ij}	Trade share coefficients from trade share equations
L-1.	$PX\$$	Export Price Index, 1985=1.0
L-2.	$X85\$$	Merchandise Exports from the Trade Share Calculations, 85 $
L-3.	PMP	Import Price Index from the Trade Share Calculations, 1985=1.0
L-4.	$PW\$$	World Price Index, 1985=1.0

Exogenous Variables:

AF	Level of the Armed Forces, thousands
DEL	Depreciation Rate for the Capital Stock
$EXDS$	Export Discrepancy, 85 lc
$E85$	E in 1985, 85 lc per 85 $
G	Government Expenditures, constant lc
$IMDS$	Import Discrepancy, 85 lc
JJP	Peak to Peak Interpolation of JJ
LAM	Peak to Peak Interpolation of Y/J
MS	Non Merchandise Imports, 85 lc
$M85\$B$	Merchandise Imports from Countries other than the 44 in the Trade Share Matrix, 85 $
MUH	Peak to Peak Interpolation of Y/K
$PM85$	PM in Base Year divided by PM in 1985
POP	Population, millions
$POP1$	Population of men, thousands
$POP2$	Population of women, thousands
$PSI1$	Ratio of $(EE + EE_{-1})/2$ to E
$PSI2$	Ratio of PM to PMP
$PX85$	PX in Base Year divided by PX in 1985
$STAT$	NIPA Statistical Discrepancy
T	Time Trend
TT	Total Net Transfers, lc
XS	Non Merchandise Exports, 85 lc

Notation:

lc	local currency
85 lc	1985 local currency
constant lc	local currency in the NIPA base year

Table B.2
The Variables for a Given Country in Alphabetical Order

Variable	Eq.No.	Description
A	I-7	Net stock of foreign security and reserve holdings, end of quarter, in lc. [$A_{-1}+S$. Base value of zero used for the quarter prior to the beginning of the data.]
AF	exog	Level of the armed forces in thousands. [OECD data.]
C	2	Personal consumption in constant lc. [OECD data or IFS96F/CPI.]
CPI	none	Consumer price index, 1985 = 1.0. [(IFS64 or IFS64X)/100.]
DEL	exog	Depreciation rate for the capital stock (K), rate per quarter or year. [.015 per quarter, .060 per year. See Section 3.3.3.]
E	9	Exchange rate, average for the period, lc per $. [IFSRF.]
EE	I-9	Exchange rate, end of period, lc per $. [IFSAE.]
EX	I-2	Total exports (NIPA) in constant lc. [OECD data or (IFS90C or IFS90N)/PX.]
$EXDS$	exog	Discrepancy between NIPA export data and other export data in 85 lc. [$EX - PX85(E85 \cdot X85\$ + XS)$.]
$E85$	exog	E in 1985, 85 lc per 85 $. [IFSRF in 1985.]
F	10	Three month forward rate, lc per $. [IFSB.]
G	exog	Government purchases of goods and services in constant lc. [OECD data or (IFS91F or IFS91FF)/PY.]
I	3	Gross fixed investment in constant lc. [OECD data or IFS93/PY.]
IM	I-1	Total imports (NIPA) in constant lc. [OECD data or IFS98C/PM.]
$IMDS$	exog	Discrepancy between NIPA import data and other import data in 85 lc. [$IM - PM85(M + MS)$.]
IP	none	Industrial production index, 1985 = 100. [IFS66 or other 66 options.]
J	13	Total employment in thousands. [OECD data or IFS67.]
JJ	I-14	Employment population ratio. [J/POP.]
JJP	exog	Peak to peak interpolation of JJ. [See Section 3.3.3.]
JJS	I-15	Ratio of JJ to JJP. [JJ/JJP.]
$JMIN$	I-13	Minimum amount of employment needed to produce Y in thousands. [Y/LAM.]
K	I-10	Capital stock in constant lc. [See Section 3.3.3.]
$KMIN$	I-11	Minimum capital stock needed to produce Y in constant lc. [Y/MUH.]
LAM	exog	Peak to peak interpolation of Y/J. [See Section 3.3.3.]
$L1$	14	Labor force of men in thousands. [OECD data.]
$L2$	15	Labor force of women in thousands. [OECD data.]
M	1	Total merchandise imports (fob) in 85 lc. [IFS71V/PM.]
MS	exog	Other goods, services, and income (debit) in 85 lc, BOP data. [(IFS77AED·E)/PM.]
$M85\$A$	I-8	Merchandise imports (fob) from the trade share matrix in 85 $. [See Table B.3.]
$M85\$B$	exog	Difference between total merchandise imports and merchandise imports from the trade share matrix in 85 $ (i.e., imports from countries other than the 44 in the trade share matrix). [$M/E85 - M85\$A$.]
MUH	exog	Peak to peak interpolation of Y/K. [See Section 3.3.3.]
$M1$	6	Money supply in lc. [IFS34 or IFS34..B.]
PM	I-19	Import price index, 1985 = 1.0. [IFS75/100.]
PMP	L-3	Import price index from DOT data, 1985 = 1.0. [See Table B.3.]

$PM85$	exog	PM in the NIPA base year divided by PM in 1985.
POP	exog	Population in millions. [IFS99Z.]
$POP1$	exog	Population of men in thousands. [OECD data.]
$POP2$	exog	Population of women in thousands. [OECD data.]
$PSI1$	exog	$[[(EE + EE_{-1})/2]/E$.]
$PSI2$	exog	$[PM/PMP$.]
$PW\$$	L-4	World price index, \$/85\$. [See Table B.4.]
PX	11	Export price index, 1985 = 1.0. [IFS74/100.]
$PX\$$	L-1	Export price index, \$/85\$, 1985 = 1.0. $[(E85 \cdot PX)/E$.]
$PX85$	exog	PX in the NIPA base year divided by PX in 1985.
PY	5	GDP or GNP deflator, equals 1.0 in the NIPA base year. [OECD data or (IFS99B/IFS99B.P.]
RB	8	Long term interest rate, percentage points. [IFS61 or IFS61A.]
RS	7	Three month interest rate, percentage points. [IFS60 or IFS60B or IFS60C or IFS60X.]
S	I-6	Total net goods, services, and transfers in lc. Balance of payments on current account. Saving of the country. [See Table B.7.]
$STAT$	exog	Statistical discrepancy in constant lc. $[Y - C - I - G - EX + IM - V1$.]
T	exog	Time trend. [For quarterly data, 1 in 1952.1, 2 in 1952.2, etc.; for annual data, 1 in 1952, 2 in 1953, etc.]
TT	exog	Total net transfers in lc. [See Table B.6.]
UR	I-12	Unemployment rate. $[(L1 + L2 - J)/(L1 + L2 - AF)$.]
V	I-5	Stock of inventories, end of period, in constant lc. $[V_{-1} + V1$. Base value of zero was used for the period (quarter or year) prior to the beginning of the data.]
$V1$	I-4	Inventory investment in constant lc. [OECD data or IFS93I/PY.]
W	12	Nominal wage rate. [IFS65 or IFS65EY.]
X	I-3	Final sales in constant lc. $[Y - V1$.]
XS	exog	Other goods, services, and income (credit) in 85 lc. BOP data. [(IFS77ADD$\cdot E)/PX$.]
$X85\$$	L-2	Merchandise exports from the trade share matrix in 85 \$. [See Table B.4.]
Y	4	Real GDP or GNP in constant lc. [OECD data or IFS99A.P or IFS99B.P or IFS99A.R or IFS99B.R.]
YS	I-17	Potential value of Y. $[LAM \cdot JJP \cdot POP$.]
Z	I-16	Labor constraint variable. $[\min(0, 1 - JJP/JJ)$.]
ZZ	I-18	Demand pressure variable. $[(YS - Y)/YS$.]

lc = local currency.
NIPA = national income and product accounts.
IFSxx = variable number xx from the IFS data.

Table B.3
The Equations for a Given Country

Stochastic Equations

LHS Var.	Explanatory Variables
1. $\log(M/POP)$	cnst, $\log(M/POP)_{-1}$, $\log(PY/PM)$, RS or RB, $\log(Y/POP)$, $[A/(PY \cdot YS)]_{-1}$
2. $\log(C/POP)$	cnst, $\log(C/POP)_{-1}$, RS or RB, $\log(Y/POP)$, $[A/(PY \cdot YS)]_{-1}$
3. I	cnst, I_{-1}, K_{-1}, Y, RS or RB
4. Y	cnst, Y_{-1}, X, V_{-1}
5. $\log PY$	cnst, $\log PY_{-1}$, $\log PM$, $\log W$, ZZ or JJS
6. $\log(\frac{M1}{POP \cdot PY})$	cnst, $\log[M1/(POP \cdot PY)]_{-1}$ or $\log[M1_{-1}/(POP_{-1} \cdot PY)]$, RS, $\log(Y/POP)$
7. RS	cnst, RS_{-1}, $PCPY$, ZZ or JJS, $PCM1_{-1}$, $[A/(PY \cdot YS)]_{-1}$, $[A/(PY \cdot YS)]_{-2}$, $RSUS : PCPY = 100[(PY/PY_{-1})^4 - 1]$ and $PCM1 = 100[(M1/M1_{-1})^4 - 1]$
8. $RB - RS_{-2}$	cnst, $RB_{-1} - RS_{-2}$, $RS - RS_{-2}$, $RS_{-1} - RS_{-2}$
9. $\Delta \log E$	cnst, $\log(PY/PYUS) - \log E_{-1}$, $\log EGE - \log(PY/PYUS)$, $.25 \cdot \log[(1 + RS/100)/(1 + RSUS/100)]$
10. $\log F$	$\log EE$, $.25 \cdot \log[(1 + RS/100)/(1 + RSUS/100)]$
11. $\log(\frac{PX}{PW\$ \cdot E})$	$\log PY - \log(PW\$ \cdot E)$
12. $\log W$	cnst, T, $\log W_{-1}$, $\log PY$, UR or JJS or ZZ, $\log PY_{-1}$,
13. $\Delta \log J$	cnst, T, $\log(J/JMIN)_{-1}$, $\Delta \log Y$, $\Delta \log Y_{-1}$
14. $\log(L1/POP1)$	cnst, T, $\log(L1/POP1)_{-1}$, $\log(W/PY)$, Z
15. $\log(L2/POP2)$	cnst, T, $\log(L2/POP2)_{-1}$, $\log(W/PY)$, Z

Identities

I-1.	$IM = PM85(M + MS) + IMDS$
I-2.	$EX = PX85(E85 \cdot X85\$ + XS) + EXDS$
I-3.	$X = C + I + G + EX - IM + STAT$
I-4.	$V1 = Y - X$
I-5.	$V = V_{-1} + V1$
I-6.	$S = PX(E85 \cdot X85\$ + XS) - PM(M + MS) + TT$
I-7.	$A = A_{-1} + S$
I-8.	$M85\$A = M/E85 - M85\$B$
I-9.	$EE = 2 \cdot PSI1 \cdot E - EE_{-1}$
I-10.	$K = (1 - DEL)K_{-1} + I$
I-11.	$KMIN = Y/MUH$
I-12.	$UR = (L1 + L2 - J)/(L1 + L2 - AF)$
I-13.	$JMIN = Y/LAM$
I-14.	$JJ = J/POP$
I-15.	$JJS = JJ/JJP$
I-16.	$Z = \min(0, 1 - JJP/JJ)$

I-17.	$YS = LAM \cdot JJP \cdot POP$
I-18.	$ZZ = (YS - Y)/YS$
I-19.	$PM = PSI2 \cdot PMP$

Variables Explained When the Countries are Linked Together (Table B.4)

L-1	$PX\$$
L-2.	$X85\$$
L-3.	PMP
L-4.	$PW\$$

Table B.4
Equations that Pertain to the Trade and Price Links Among Countries

L-1. $PX\$_i = (E85_i/E_i)PX_i, \quad i = 1, \cdots, 44$

L-2. $X85\$_i = \sum_{j=1}^{45} \alpha_{ij} M85\$A_j, \quad i = 1, \cdots, 33$

L-3. $PMP_i = (E_i/E85_i) \sum_{j=1}^{44} \alpha_{ji} PX\$_j, \quad i = 1, \cdots, 33$

An element in this summation is skipped if α_{ji} is missing or $PX\$_j$ is missing. PMP_i is not computed if E_i is missing or $E85_i$ is missing.

L-4. $PW\$_i = (\sum_{j=1}^{33} PX\$_j X85\$_j)/(\sum_{j=1}^{33} X85\$_j), \quad i = 1, \cdots, 33$

An element in this summation is skipped if $PX\$_j$ is missing or $X85\$_j$ is missing or j=i. This summation also excludes SA and VE, which are the oil exporting countries among the 33.

Construction of α_{ij}:

The raw data are:

$XX\$_{ij}$ Merchandise exports i to j in \$, $i, j = 1, \cdots, 44$ [DOT data.]

$X\$_i$ Total merchandise exports (fob) in \$. $i = 1, \cdots, 33$ [IFS70/E.]

The constructed variables are:

$XX\$_{i45} = X\$_i - \sum_{j=1}^{44} XX\$_{ij}, \quad i = 1, \cdots, 33$

$XX85\$_{ij} = XX\$_{ij}/PX\$_i, \quad i = 1, \cdots, 44, \quad j = 1, \cdots, 45$

$XX85\$_{ij}$ is missing if $XX\$_{ij}$ is missing or $PX\$_i$ is missing.

$M85\$A_i = \sum_{j=1}^{44} XX85\$_{ji}, \quad i = 1, \cdots, 45$

$X85\$_i = \sum_{j=1}^{45} XX85\$_{ij}, \quad i = 1, \cdots, 33$

$\alpha_{ij} = XX85\$_{ij}/M85\$A_j, \quad i = 1, \cdots, 44, \quad j = 1, \cdots, 45$

Linking of the Annual and Quarterly Data

Quarterly data exist for all the trade share calculations, and all these calculations are quarterly. Feeding into these calculations from the annual models are predicted annual values of $PX\$_i$, $M85\$A_i$, and E_i. For each of these three variables the predicted value for a given quarter was taken to be the predicted annual value multiplied by the ratio of the actual quarterly value to the actual annual value. This means in effect that the distribution of an annual value into its quarterly values is taken to be exogenous.

Once the quarterly values have been computed from the trade share calculations, the annual values of $X85\$_i$ that are needed for the annual models are taken to be the sums of the quarterly values. Similarly, the annual values of PMP_i and $PW\$_i$ are taken to be the averages of the quarterly values.

Table B.5
Links Between the US and ROW Models

The data on the variables for the United States that are needed when the US model is imbedded in the MC model were collected as described in Table B.2. These variables are (with the US subscript dropped): $EXDS$, $IMDS$, M, MS, $M85\$A$, $M85\$B$, PM, PMP, $PSI2$, $PW\$$, PX $(= PX\$)$, S, TT, XS, and $X85\$$. The PX variable here is not the same as the PX variable in Appendix A.

Variable	Determination
$X85\$_{US}$	Determined in Table B.4
PMP_{US}	Determined in Table B.4
$PW\$_{US}$	Determined in Table B.4
PX_{US}	Determined by equation 132 in the US model. This equation is equivalent to equation 11 for the other countries. See the discussion in Section 9.2.
PEX	$= DEL3 \cdot PX_{US}$. In the US model by itself, PEX is determined as $PSI1 \cdot PX$, which is equation 32 in Table A.2. This equation is dropped when the US model is linked to the ROW model. $DEL3$ is constructed from the data as PEX/PX_{US} and is taken to be exogenous.
PM_{US}	$= PSI2_{US} \cdot PMP_{US}$. This is the same as equation I-19 for the other countries.
PIM	$= DEL4 \cdot PM_{US}$. PIM is an exogenous variable in the US model by itself. $DEL4$ is constructed from the data as PIM/PM_{US} and is taken to be exogenous.
EX	$= (X85\$_{US} + XS_{US} + EXDS_{US})/1000$. This is the same as equation I-2 for the other countries. EX is an exogenous variable in the US model by itself. $EXDS_{US}$ is constructed from the data as $1000 \cdot EX - X85\$_{US} - XS_{US}$ and is taken to be exogenous.
M_{US}	$= 1000 \cdot IM - MS_{US} - IMDS_{US}$. This is the same as equation I-1 for the other countries. $IMDS_{US}$ is constructed from the data as $1000 \cdot IM - M_{US} - MS_{US}$ and is taken to be exogenous.
$M85\$A_{US}$	$= M_{US} - M85\$B_{US}$. This is the same as equation I-8 for the other countries.
S_{US}	$= PX_{US}(X85\$_{US} + XS_{US}) - PM_{US}(M_{US} + MS_{US}) + TT_{US}$. This is the same as equation I-6 for the other countries.

Note:

The new exogenous variables for the US model when it is linked to the ROW model are $DEL3$, $DEL4$, $EXDS_{US}$, $IMDS_{US}$, $M85\$B_{US}$, MS_{US}, $PSI2_{US}$, TT_{US}, and XS_{US}. EX and PIM are exogenous in the US model by itself, but endogenous when the US model is linked to the ROW model.

Table B.6
The Procedure Used to Create Quarterly Data from Annual Data

Let y_t be the (observed) average value of the variable for year t, and let y_{it} be the (unobserved) average value of the variable for quarter i of year t (i = 1, 2, 3, 4). Then:

$$y_{1t} + y_{2t} + y_{3t} + y_{4t} = \lambda y_t \qquad (i)$$

where

$$\lambda = \begin{cases} 1 \text{ for flow variables (at quarterly rates)} \\ 4 \text{ for stock variables and price variables} \end{cases}$$

Assume that the annual data begin in year 1, and let $\lambda y_1 = a_1, \lambda y_2 = a_2, \lambda y_3 = a_3, \cdots$. The key assumption is that the four quarterly changes within the year are the same:

$$y_{1t} - y_{4t-1} = y_{2t} - y_{1t} = y_{3t} - y_{2t} = y_{4t} - y_{3t} = \begin{cases} \delta_2 \text{ for } t = 1, 2 \\ \delta_t \text{ for } t \geq 3 \end{cases} \qquad (ii)$$

Given i and ii for $t = 1, 2$, one can solve for y_{40} and δ_2 in terms of a_1 and a_2:

$$y_{40} = (13/32)a_1 - (5/32)a_2$$
$$\delta_2 = (a_2 - a_1)/16$$

Using y_{40} and δ_2, one can then construct quarterly data for years 1 and 2 using ii. Given y_{42} from these calculations and given i and ii for $t = 3$, one can solve for δ_3 in terms of a_3 and y_{42}:

$$\delta_3 = (a_3 - 4y_{42})/10$$

Using y_{42} and δ_3, one can then construct quarterly data for year 3. One can then solve for δ_4 in terms of y_{43} and a_4, and so on.

Note:

The annual population data that were collected for the model are mid year estimates. In order to apply the above procedure to these data, the assumption was made that the average value for the year equals the mid year value.

Table B.7
Construction of the Balance of Payments Data:
Data for S and TT

The relevant raw data variables are:

$M\$'$	Merchandise imports (fob) in \$, BOP data. [IFS77ABD.]
$M\$$	Merchandise imports (fob) in \$. [IFS71V/E.]
$X\$'$	Merchandise exports (fob) in \$, BOP data. [IFS77AAD.]
$X\$$	Merchandise exports (fob) in \$. [IFS70/E.]
$MS\$$	Other goods, services, and income (debit) in \$, BOP data. [IFS77AED.]
$XS\$$	Other goods, services, and income (credit) in \$, BOP data. [IFS77ADD.]
$PT\$$	Private unrequited transfers in \$, BOP data. [IFS77AFD.]
$OT\$$	Official unrequited transfers in \$, BOP data. [IFS77AGD.]

- When quarterly data on all the above variables were available, then $S\$$ and $TT\$$ were constructed as:

$$S\$ = X\$' + XS\$ - M\$' - MS\$ + PT\$ + OT\$ \qquad (i)$$

$$TT\$ = S\$ - X\$ - XS\$ + M\$ + MS\$ \qquad (ii)$$

  where $S\$$ is total net goods, services, and transfers in \$ (balance of payments on current account) and $TT\$$ is total net transfers in \$.

- When only annual data on $M\$'$ were available and quarterly data were needed, interpolated quarterly data were constructed using $M\$$. Similarly for $MS\$$.

  When only annual data on $X\$'$ were available and quarterly data were needed, interpolated quarterly data were constructed using $X\$$. Similarly for $XS\$$, $PT\$$, and $OT\$$.

  When no data on $M\$'$ were available, then $M\$'$ was taken to be $\lambda \cdot M\$$, where λ is the last observed annual value of $M\$'/M\$$. Similarly for $MS\$$ (where λ is the last observed annual value of $MS\$/M\$$.)

  When no data on $X\$'$ were available, then $X\$'$ was taken to be $\lambda \cdot X\$$, where λ is the last observed annual value of $X\$'/X\$$. Similarly for $XS\$$ (where λ is the last observed annual value of $XS\$/X\$$), for $PT\$$ (where λ is the last observed annual value of $PT\$/X\$$), and for $OT\$$ (where λ is the last observed annual value of $OT\$/X\$$).

  Equations i and ii were then used to construct quarterly data for $S\$$ and $TT\$$.

- After data on $S\$$ and $TT\$$ were constructed, data on S and TT were constructed as:

$$S = E \cdot S\$ \qquad (iii)$$

$$TT = E \cdot TT\$ \qquad (iv)$$

- Note from MS and XS in Table B.2 and from $MS\$$ and $XS\$$ above that

$$MS\$ = (PM \cdot MS)/E \qquad (v)$$

$$XS\$ = (PX \cdot XS)/E \qquad (vi)$$

  Note also from Table B.2 that

$$M\$ = (PM \cdot M)/E \qquad (vii)$$

$$X\$ = (E85 \cdot PX \cdot X85\$)/E \qquad (vii)$$

  Therefore, from equations ii–vii, the equation for S can be written

$$S = PX(E85 \cdot X85\$ + XS) - PM(M + MS) + TT$$

  which is equation I-6 in Table B.3.