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7 International Transmission of Monetary and Fiscal Shocks under Pegged and Floating Exchange Rates: Simulation Experiments

Michael R. Darby

The estimates of the Mark III Model reported in chapter 6 indicated surprisingly slow and weak transmission from country to country. Moreover, substantial sterilization policies appeared to be universal and, given these weak linkages, capable of ensuring a degree of short-run monetary control under pegged exchange rates. This chapter continues the investigation of these findings by presenting the results of monetary and fiscal policy experiments with a simulation version of the Mark III International Transmission Model.

The results here generally support the earlier findings of weak transmission under pegged exchange rates. Monetary linkages with the United States appear strongest for Germany, moderate for the Netherlands, and practically nonexistent for the United Kingdom and Canada although absorption-type channels are operative for the latter two countries. While monetary shocks in nonreserve countries have sensible domestic effects, international transmission is trivial. Similarly the domestic effects of real-government-spending shocks are too small to have an appreciable foreign impact in any case examined. These results force us to question the standard assumptions which imply strong channels for international transmissions since those channels are not obvious in the data.

Unlike the pegged case, the floating simulations display dynamic instabilities. This difference is attributable to the relatively short sample period. The simulations do indicate how a *J*-curve phenomenon due to short-run inelasticity of import demand can affect the adjustment process.

The Mark IV Model is outlined in section 7.1 and the appendix to this chapter. Section 7.2 discusses the simulation results for the United States money-shock experiments. The third section illustrates the results of nonreserve-country money-shock experiments and of real-government shock experiments. The final section presents conclusions and suggestions for future research.

7.1 The Simulation Model

The Mark III Model was designed to test a number of popular hypotheses about the transmission of inflation while allowing for a variety of lag patterns across countries. Unfortunately the large number of insignificant coefficients and collinear endogenous variables makes the model unusable for simulation purposes. A special simulation version to the model (the Mark IV) has been created by dropping insignificant variables and combining terms[1] except where variables are left in to permit transmission or for strong a priori reasons (such as the interest-rate terms in the money-demand or price-level equation). The resulting model thus includes the significant relationships of the Mark III Model but is sufficiently simplified for the reasonable calculation of simulation results. Given the way in which the model was derived, classical statistical statements cannot be made with respect to the Mark IV. Its purpose instead is to illustrate the implications of the relations found significant in the Mark III Model.

The Mark IV Model exists in two versions. The pegged-exchange-rate version (Mark IV–PEG) combines the reserve-country (U.S.) submodel with the pegged-rate submodels for the seven nonreserve countries. Floating-rate nonreserve submodels are used instead in the floating-exchange-rate version (Mark IV–FLT). This section summarizes the models while the chapter appendix lists the actual computer model together with the estimated coefficients.

The basic structure of the Mark IV Model is the same as the Mark III: The reserve-country submodel of the Mark IV consists of nine behavioral equations and thirteen identities.[2] The behavioral equations determine a skeletal macroeconomic model (real income, price level, unemployment rate, nominal money, and interest rate) together with a bit more detailed international sector (exports, imports, import prices, and capital flows).

1. Collinearity is reduced where the coefficients of various lagged levels of a variable indicate that either a sum or first difference is the appropriate variable. Similarly a number of hypotheses implying equality of coefficients permitted combining terms into simple logarithmic sums or differences. In one case (Germany in the Mark IV–PEG), this made the whole equation for the logarithm of import prices and the associated identity for relative import prices redundant; so they were dropped.

2. This is four more identities than listed in chapter 5 for the Mark III Model: Two of these define expected money and exports based on last period's information; these series are predetermined for purposes of estimation but endogenous in a dynamic simulation. A third identity defines logarithmic transitory income which was written explicitly in the Mark III. The fourth defines a lagged prediction error term needed for dynamic simulation. Similar identities were added to all the other submodels to obtain consistent dynamic simulations.

The pegged-exchange-rate nonreserve submodels are basically the same as the reserve submodel with the important exception that the balance of payments enters the nonreserve (but not the reserve) countries' money-supply reaction functions.[3] The floating nonreserve submodels differ only in their international sectors: To make the seven domestic-currency-per-dollar exchange rates endogenous, an exchange-intervention reaction function is added to determine the balance of payments previously determined by an identity. The sector is then renormalized to solve for the exchange rate.[4]

Let us first examine the skeletal macroeconometric model included in each of the submodels. Real income and the (nominal) interest rate are determined by shocks (innovations) in the money supply, real government spending, and real exports, and, for the interest-rate equation only, the expected inflation rate.[5] Thus real income and the *real* interest rate are affected by the factors which unexpectedly shift aggregate demand relative to aggregate supply. The price-level equations simply equate short-run money demand to money supply.[6] Nominal money supply is determined by a reaction function in response to lagged inflation and unemployment rates, to current and lagged government spending shocks, and, for nonreserve countries, to current and lagged balances of payments. The unemployment rate is determined by a dynamic version of Okun's law for the United States, United Kingdom, and France. Changes in measured unemployment and real income were uncorrelated for the other countries; so for them the unemployment equation is deleted and logarithmic transitory income used instead in the money-supply reaction function.

The included channels by which international shocks can be transmitted to these basic macroeconomic variables are three in number: (1) For the nonreserve countries, the current and lagged balances of payments affect the nominal money supply. The estimates indicated very substantial if not total sterilization of the *current* balance of payments in every case, however. This is consistent with the central banks' pursuing money-growth or interest-rate goals set at least partially in response to past data

3. As is appropriate for a reserve country, the balance of payments was found to have no influence on the U.S. money supply. See Darby (1980, 1981) and chapter 16.

4. The equations are solved for exports, relative price of imports, exchange rate, net capital outflows, and the balance of payments.

5. Variables such as real income, prices, and money are measured in logarithms. The interest rates and unemployment rates are decimal fractions. Exports, imports, net capital outflows, and the balance of payments are all scaled by dividing by nominal income. Shocks are deviations of actual values from optimal ARIMA predictions of the variables.

6. The short-run money-demand function is adapted from Carr and Darby (1981). It allows money-supply shocks to affect money demand. In the Mark III Model a foreign interest rate adjusted for expected depreciation was included to test for asset substitution, but this was significant only for the United Kingdom and Japan and (at only a 15% significance level) France.

on the balance of payments. (2) Export shocks affect both real income and the interest rate along standard Keynesian absorption lines. (3) An asset substitution channel exists by which foreign interest rates adjusted by expected depreciation can affect money demand and the price level in the United Kingdom, France, and Japan. The real oil price does not enter in this sector but in the international sector and influences the domestic economy through these three channels.[7]

The reserve and pegged nonreserve international sectors will be discussed next. The export equation depends on foreign real income, the real price of oil, the domestic and foreign price levels, and the exchange rate. Imports are explained by a demand equation including domestic real income and current and lagged import prices relative to the price level. Import prices in turn depend on import supply variables such as the size of imports, foreign price levels, and the exchange rate. The capital-flows equations allow for interest-rate and expected depreciation effects, foreign and domestic real income effects, and trade-deficit financing. In the floating nonreserve models the import demand and supply equations are renormalized to relative-import-price and exchange-rate equations, respectively. The added balance-of-payments or intervention equation relates the balance to changes in exchange rates relative to lagged changes and lagged changes in relative purchasing power.

One check of model adequacy which might uncover omitted channels of transmission was suggested by Bob Flood. Omitted channels will show up as correlations of the residuals of the model's equations. As reported in chapter 6, these correlations were checked for the Mark III Model both within each country and for U.S. nominal money, real income, and price level versus all foreign variables. Few more than the expected number of correlations were significant at the 5% level for either the pegged or floating period, and no pair of correlations was significant in more than two cases. Therefore it was concluded that the model adequately represented the channels apparent in the data.

The international sector thus incorporates a variety of potential channels of transmission. For example, as suggested by the monetary approach, either trade or capital flows might cause huge movements in the balance of payments (and hence money) if domestic prices or interest rates were to begin to differ from international parity values. This did not appear likely from the small estimated coefficients, but only simulations can determine this definitely.

In preparation for such simulation experiments and as a check on the simulation models, we first obtained a base dynamic simulation for each version of the model.[8] For the Mark IV–PEG this base simulation was

7. See, however, chapter 8 below for tests of direct oil influences.

8. In a dynamic simulation, the input series are the exogenous variables plus the initial conditions (endogenous variables before the beginning of simulation). The values of

computed for 1962III through 1970I, which was the entire period that all nonreserve countries were maintaining firm pegged exchange rates with the dollar. The corresponding period for the Mark IV–FLT would be 1971III through 1976IV, but dynamic instabilities in the model became important after seven quarters (1973I), so the base simulation covers only this shorter period for which the simulations might be informative. The dynamic instability of the Mark IV–FLT should be sufficient warning that the results of the floating period simulations must be read with considerable skepticism.[9]

Table 7.1 compares the standard errors of estimate for each behavioral equation with the root mean square errors (RMSEs) of the simulated values of the dependent variables both for the first year and for the entire period of the simulation. The standard errors reported here are generally lower than those reported for the corresponding equations in the Mark III International Transmission Model because of the deletion of insignificant variables and the imposition of constraints discussed above.[10] The first-year RMSEs appear to be generally reasonable, but errors do accumulate over the entire simulation period, especially for the international sectors and for the floating model even though the simulation period is much shorter. On this basis, the first-year simulations appear to be most informative, with longer periods at most suggestive of general tendencies.

7.2 U.S. Money-Shock Experiments

As is well known,[11] a common problem with policy studies based on econometric models is that the policy experiment is often inconsistent with the policy regime for which the model is estimated. As a result, the

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endogenous variables within the simulation period are assigned their predicted values. Especially for a large model with few exogenous variables, the cumulative errors in the endogenous variables eventually may take the simulation off track even if the model is dynamically stable.

9. The dynamic instability does not seem to depend on when we begin the simulation. It apparently results from our inability to do much to eliminate simultaneous equation bias with such a short sample. Three pieces of evidence besides experience with other models point to this conclusion: (1) The instability appears to arise in the renormalized international sector equations which are estimated over the short sample period. (2) The pegged model is estimated over a longer sample period but with the same basic structure and is rather stable. (The instability in the Mark IV–FLT remains even if we artificially constrain the exchange rates to equal their actual values as in the Mark IV–PEG, where they are exogenous.) (3) Only for Canada—which has the short pegged period—is there a hint of instability in the pegged veriosn of the model.

10. These standard errors will thus be on the optimistic side. The few cases of increase apparently reflect deletion of variables which individually appear insignificant but are jointly significant with other deleted variables. The only important increases occur in the exchange-rate equations, where it was necessary to impose a constraint generally ruled out by the data for reasons discussed in section 7.2 below.

11. See Lucas (1976).

Table 7.1 Standard Errors of Estimate Compared with Base Simulation Root Mean Square Errors: Mark IV–PEG and Mark IV–FLT

		Countries							
Variables†	Statistics	US	UK	CA	FR	GE	IT	JA	NE
Logarithm of real output	Mark IV–PEG:								
	S.E.E.	.0089	.0136	.0118	.0177	.0129	.0132	.0152	.0130
log $y_j \equiv$ LNYR**	4 qtr. RMSE	.0063	.0116	.0059	.0153	.0230	.0076	.0118	.0148
	31 qtr. RMSE	.0321	.0241	.0399	.0372	.0246	.0206	.0902	.0316
	Mark IV–FLT:								
	S.E.E.	.0089	.0136	.0118	.0177	.0129	.0132	.0152	.0130
	4 qtr. RMSE	.0084	.0078	.0176	.0080	.0339	.0131	.0148	.0102
	7 qtr. RMSE	.0256	.0199	.0233	.0068	.0448	.0187	.0129	.0124
Logarithm of price level	Mark IV–PEG:								
	S.E.E.	.0035	.0148	.0115	.0103	.0062	.0115	.0121	.0109
log $P_j \equiv$ LNP**	4 qtr. RMSE	.0025	.0213	.0062	.0183	.0047	.0191	.0167	.0143
	31 qtr. RMSE	.0110	.1115	.0388	.0960	.0311	.0496	.0998	.0168
	Mark IV–FLT:								
	S.E.E.	.0035	.0148	.0115	.0103	.0062	.0115	.0121	.0109
	4 qtr. RMSE	.0135	.0224	.0070	.0215	.0078	.0241	.0103	.0212
	7 qtr. RMSE	.0207	.0310	.0170	.0192	.0093	.0437	.0242	.0262
Unemployment rate	Mark IV–PEG:								
$u_j \equiv$ UN**	S.E.E.	.0018	.0015	NA	.0009	NA	NA	NA	NA
	4 qtr. RMSE	.0028	.0012		.0004				
	31 qtr. RMSE	.0067	.0057		.0036				
	Mark IV–FLT:								
	S.E.E.	.0018	.0015		.0009				
	4 qtr. RMSE	.0017	.0023		.0010				
	7 qtr. RMSE	.0071	.0033		.0009				

Table 7.1 (continued)

Variables†	Statistics	US	UK	CA	FR	GE	IT	JA	NE
		Countries							
Logarithm of nominal money	Mark IV–PEG:								
log M_j ≡ LNMN**	S.E.E.	.0045	.0160	.0156	.0118	.0126	.0188	.0148	.0153
	4 qtr. RMSE	.0074	.0438	.0321	.0339	.0118	.0584	.0728	.0132
	31 qtr. RMSE	.0082	.1253	.0556	.1088	.0313	.0574	.1219	.0217
	Mark IV–FLT:								
	S.E.E.	.0045	.0160	.0156	.0118	.0126	.0188	.0148	.0153
	4 qtr. RMSE	.0057	.0240	.0112	.0065	.0356	.0207	.0171	.0163
	7 qtr. RMSE	.0166	.0259	.0200	.0200	.0454	.0163	.0269	.0220
Short-term interest rate	Mark IV–PEG:								
R_j ≡ R**	S.E.E.	.0043	.0074	.0063	.0090	.0109	.0038	.0011	.0090
	4 qtr. RMSE	.0008	.0060	.0053	.0081	.0042	.0051	.0013	.0075
	31 qtr. RMSE	.0095	.0106	.0131	.0173	.0166	.0076	.0067	.0111
	Mark IV–FLT:								
	S.E.E.	.0043	.0074	.0063	.0090	.0109	.0038	.0011	.0090
	4 qtr. RMSE	.0162	.0239	.0053	.0130	.0182	.0078	.0023	.0194
	7 qtr. RMSE	.0137	.0218	.0094	.0273	.0166	.0137	.0056	.0323
Ratio of nominal exports	Mark IV–PEG:								
to nominal output	S.E.E.	.0022	.0069	.0062	.0049	.0056	.0067	.0022	.0141
$(X/Y)_j$ ≡ XTOY**	4 qtr. RMSE	.0018	.0056	.0016	.0053	.0042	.0045	.0017	.0074
	31 qtr. RMSE	.0054	.0255	.0198	.0202	.0107	.0091	.0030	.0180
	Mark IV–FLT:								
	S.E.E.	.0022	.0069	.0062	.0049	.0056	.0067	.0022	.0141
	4 qtr. RMSE	.0046	.0330	.0059	.0154	.0140	.0031	.0014	.0394
	7 qtr. RMSE	.0040	.0521	.0095	.0384	.0295	.0129	.0022	.0560

Ratio of nominal imports to nominal output $(I/Y)_j \equiv$ ITOY**	Mark IV–PEG:								
	S.E.E.	.0027	.0069	.0044	.0033	.0048	.0074	.0017	.0146
	4 qtr. RMSE	.0026	.0059	.0061	.0053	.0023	.0125	.0017	.0166
	31 qtr. RMSE	.0049	.0344	.0060	.0060	.0066	.0123	.0111	.0295
Logarithm of relative price of imports§ $Z_j \equiv$ LNQIM**	Mark IV–FLT:								
	S.E.E.	.0027	.0179	.0178	.0221	.0393	.0477	.0245	.0247
	4 qtr. RMSE	.0063	.1138	.0748	.1700	.2982	.0683	.0784	.0773
	7 qtr. RMSE	.0078	.1700	.2568	.2891	.4776	.1109	.0739	.1695
Logarithm of import price index $\log P^I_j \equiv$ LNPIM**	Mark IV–PEG:								
	S.E.E.	.0129	.0157	.0076	.0194	NA	.0165	.0118	.0111
	4 qtr. RMSE	.0187	.0179	.0198	.0150		.0148	.0233	.0067
	31 qtr. RMSE	.0565	.0322	.0224	.0521		.0520	.0871	.0501
Logarithm of exchange rate‡ $\log E_j \equiv$ LNE**	Mark IV–FLT:								
	S.E.E.	.0129	.0482	.0129	.0340	.0436	.0340	.0285	.0387
	4 qtr. RMSE	.0300	.0957	.0196	.0781	.2670	.0484	.0276	.0278
	7 qtr. RMSE	.0436	.0999	.0484	.1400	.4146	.0869	.0613	.0359
Ratio of nominal net capital outflows to nominal output $(C/Y)_j \equiv$ CTOY**	Mark IV–PEG:								
	S.E.E.	.0074	.0291	.0103	.0159	.0246	.0138	.0125	.0198
	4 qtr. RMSE	.0062	.0122	.0383	.0094	.0105	.0077	.0049	.0262
	31 qtr. RMSE	.0059	.0314	.0235	.0160	.0284	.0124	.0064	.0220
	Mark IV–FLT:								
	S.E.E.	.0074	.0291	.0103	.0159	.0246	.0138	.0125	.0198
	4 qtr. RMSE	.0159	.0409	.0788	.0203	.1586	.0160	.0284	.0166
	7 qtr. RMSE	.0144	.0327	.3483	.0211	.1891	.0128	.0238	.0359
Ratio of nominal balance of payments to nominal output $(B/Y)_j \equiv$ BTOY**	Mark IV–FLT:								
	S.E.E.	NA	.0071	.0017	.0044	.0049	.0044	.0038	.0063
	4 qtr. RMSE		.0109	.0027	.0061	.0117	.0039	.0064	.0059
	7 qtr. RMSE		.0084	.0051	.0049	.0234	.0034	.0054	.0069

†The mnemonics are given first in the notation of chapter 5 and then in the computer code described in the appendix to this chapter.
§For the United States only, this equation is not renormalized and the reported statistics are for $(I/Y)_1 \equiv$ ITOYUS.
‡For the United States only, this equation is not renormalized and the reported statistics are for $\log P^I_1 \equiv$ LNPIMUS.

simulated behavior may be irrational under the alternative policy regime. Thus one must choose a policy experiment which is consistent with the estimated model. The consistent policy experiment chosen is a 0.01 increase in the disturbance term of the U.S. nominal-money-supply reaction function for one quarter. Thereafter the money supply develops according to the endogenous structure of the model.

This experiment was performed for both the pegged and floating versions of the Mark IV Model. The main results for the pegged simulation are summarized in the six panels of figure 7.1. This figure shows the difference between the simulated values of the major variables given the 1% money shock and the values in the corresponding base simulation without the money shock. Note that the vertical scales are adjusted to the simulated variations so that similar movements may be for much different magnitudes. Examining first the results for the United States, we note that nominal money (panel *a*) initially increases by 1% (100 basis points) and then fluctuates between 150 and 75 basis points for the first five years, eventually tailing down to about 50 basis points at the end of the simulation period. The price-level effect builds up gradually, reaching 1% some three and a half years after the initial shock and peaking at almost 140 basis points some three years after that. There is a transitory increase in real output (peaking at 160 basis points in the fourth quarter) which is all but eliminated after seven quarters and even turns negative later as money persistently falls.[12] The interest rate displays a small, brief liquidity effect, but this is quickly dominated by income and expectations effects.[13] Imports (not displayed here) do rise slightly initially, but the trivial export variation in panel *e* of figure 7.1 suggests that feedback from foreign effects is negligible for the United States. Aside from oscillations, the balance-of-payments behavior is also consistent with standard lore at least initially when deficits dominate; the small (0 to 3 basis points) surpluses later can be rationalized by declining nominal money.[14]

Figure 7.1 also displays the results of the same experiment for the United Kingdom, Canada, Germany, and the Netherlands.[15] Looking again at panel *a*, only for Germany do we see a large initial increase in nominal money suggested by the classical presentations of the monetary approach to the balance of payments, and this percentage increase is less than a third of that in the reserve country. The Netherlands displays a

12. The negative real income in the latter part of the adjustment is thus a result (artifact?) of basing expected nominal money on a univariate expectations function rather than full rational expectations.

13. The oscillations in the indicated adjustment process would appear to be spurious.

14. These oscillations apparently reflect the interaction of the expected depreciation and capital-flows equations.

15. The simulation results for France, Japan, and Italy were so erratic as to be inexplicable. The peculiar estimated coefficients—which we attribute to severe data problems for these countries—appear to be the problem. See chapter 6.

more gradual adjustment of nominal money while Canadian money never rises significantly and British money rises only after five years.[16] Thus Germany provides the sole example in panel *f* of the sharp initial balance-of-payments surplus due to capital flows so much emphasized in the recent literature. Considering the other variables for Germany alone, we see an attenuated version of the U.S. pattern aside from the absence of an initial liquidity effect on the interest rate. In the Netherlands, the induced increase in exports is initially important for both real income and the interest rate, with both money and prices rising more gradually. This pattern seems consistent with a Humean specie-flow process in which monetary transmission is more gradual and there are significant short-run effects on trade flows through both absorption (real income) and relative price channels. For the United Kingdom and Canada, however, there is no sign of monetary transmission—unless the U.K. increase after four years is taken seriously. There is evidence of real income (and for the United Kingdom interest rate) effects, but these seem to derive from absorption-type effects of increases in exports. The Canadian price level even falls slightly at first due to income effects increasing the real quantity of money demanded.

Summing up, under pegged exchange rates the simulation results vary from the monetary approach paradigm (Germany), through the Humean lagged monetary adjustment paradigm (Netherlands), to the simple Keynesian absorption in which prices and interest rates are irrelevant (the United Kingdom and Canada). Clearly the results are partially puzzling whatever view of transmission one might hold. The construction of the Mark III Model had attempted to allow the data to determine which transmission patterns are important; at least that attempt appears to have been successful.

The floating-period results summarized in figure 7.2 are problematical in that the initial effect (if any) of the U.S. money-supply increase is to depreciate the foreign currencies.[17] This result may reflect a structural problem in the Mark IV Model. Only in the import supply equation were strong, consistent exchange-rate effects obtained in the pegged period. This equation was solved for the logarithmic change in the exchange rate in the floating period. (An intervention equation was also added to explain the balance of payments.) In initial unconstrained estimates for the floating period, the logarithmic change in import prices entered with a coefficient of between 0.3 and 0.5 while the change in the dollar-denominated rest-of-world price index entered with coefficients of -1.5 to -3. In theory, these coefficients should be of equal magnitude and

16. The initial decline in British money is due to the perverse (negative) balance-of-payments coefficients.

17. The exchange rates are measured in domestic currency units per dollar, so an increase is a depreciation of the domestic currency.

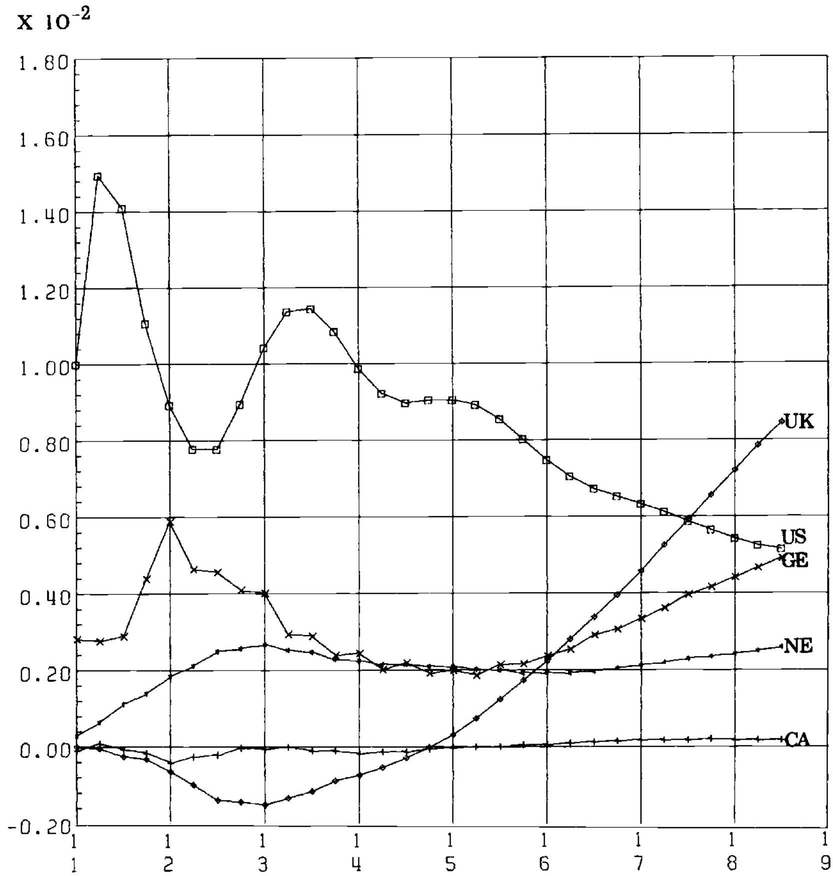

Fig. 7.1 Deviations of key variables from base simulation, American money-shock experiment, pegged period.

a) Nominal money—log M_i

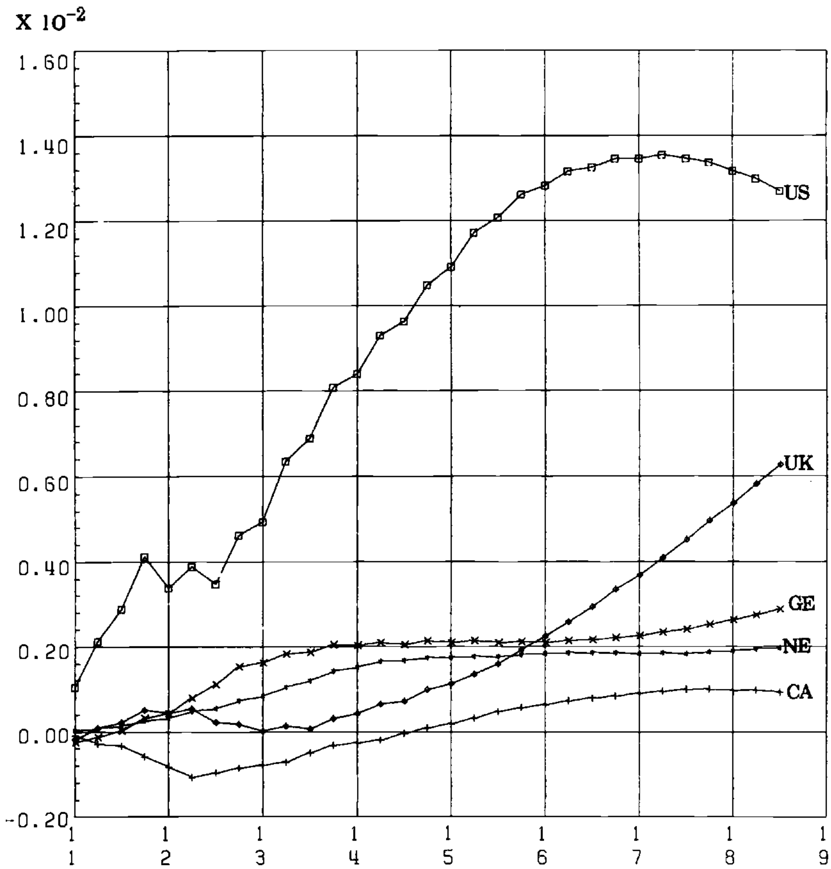

Fig. 7.1 (continued)

b) Price level—log P_i

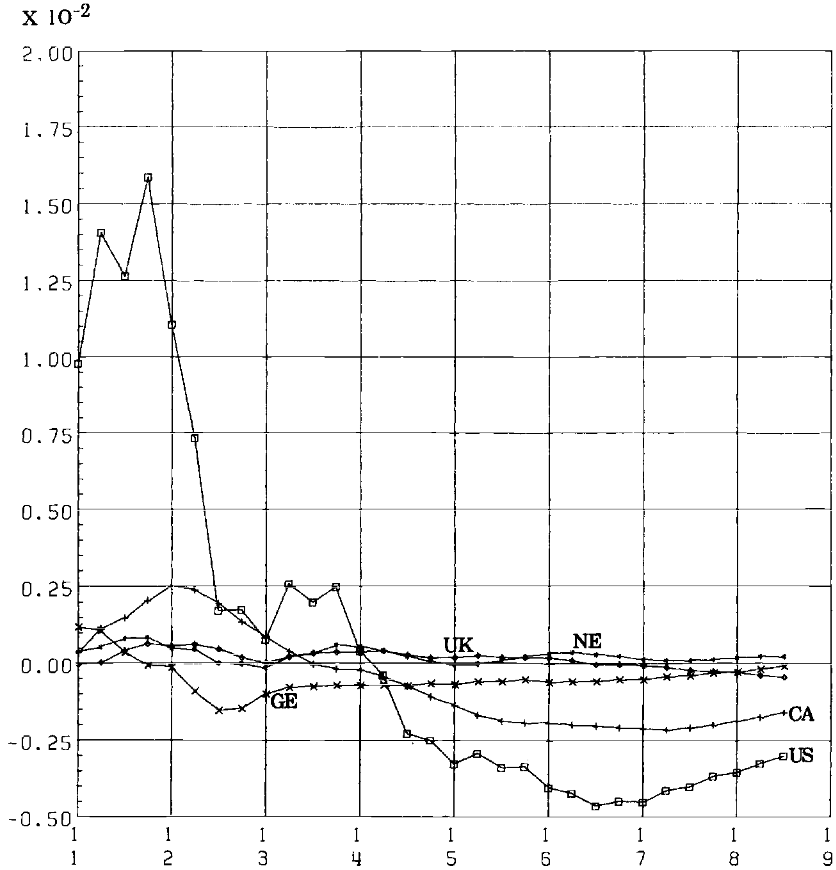

Fig. 7.1 (continued)

c) Real income—log y_i

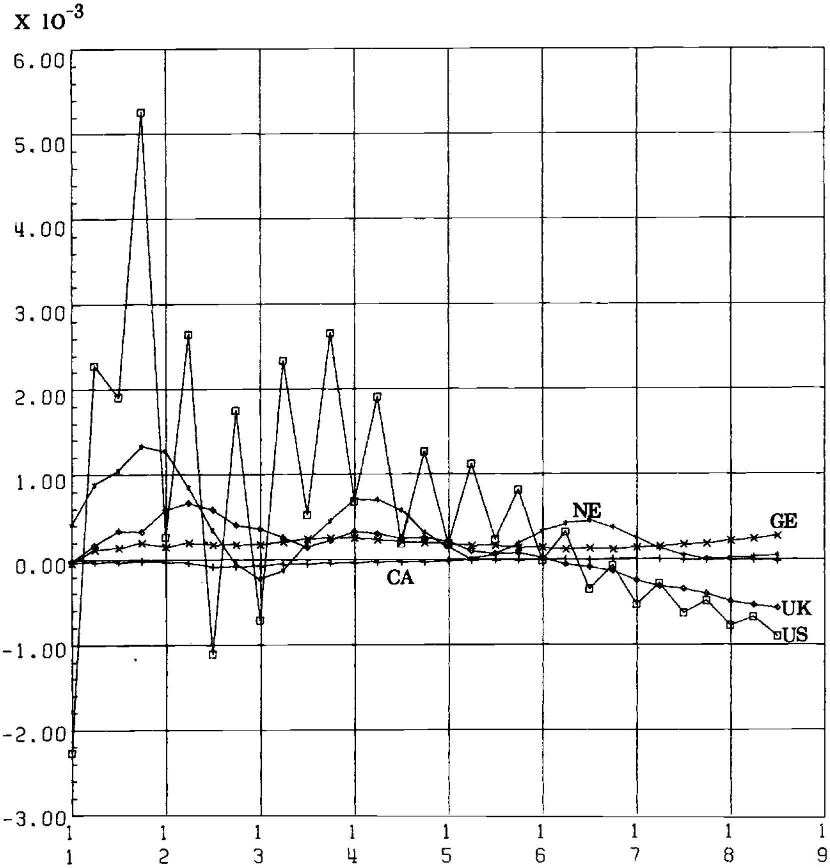

Fig. 7.1 (continued)

d) Short-term interest rate—R_i

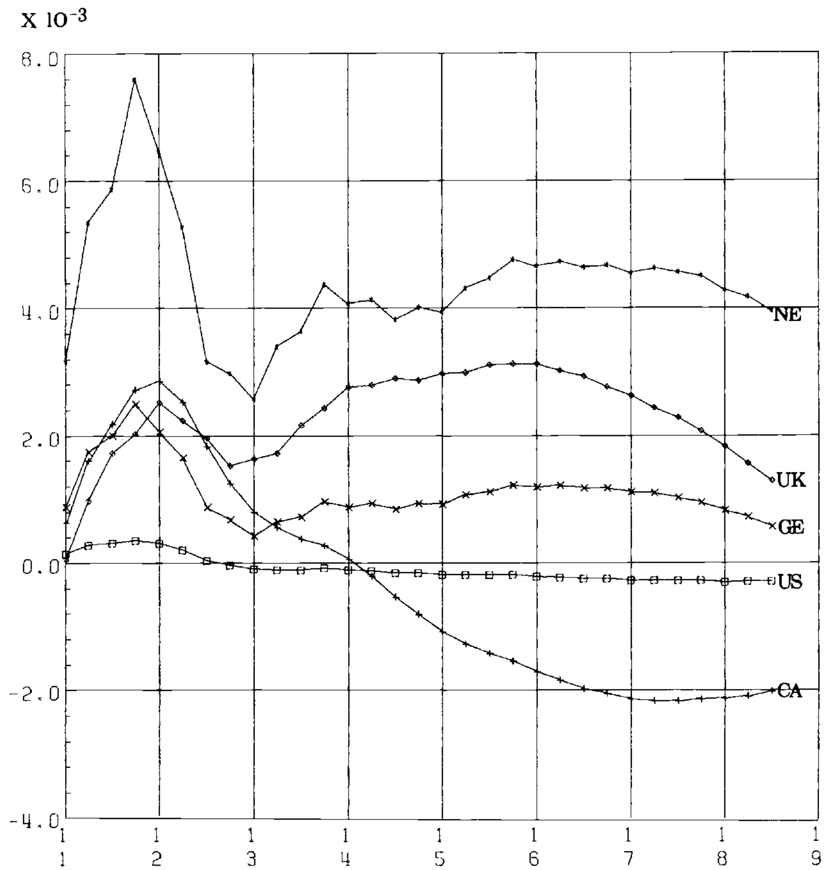

Fig. 7.1 (continued)

e) Scaled exports—$(X/Y)_i$

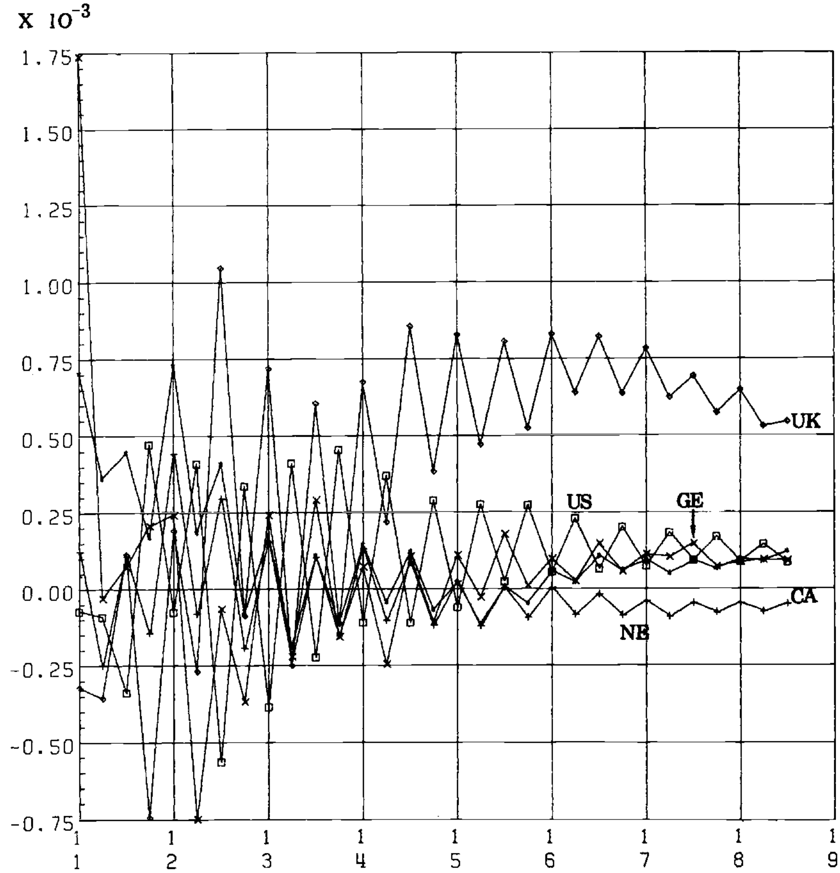

Fig. 7.1 (continued)

f) Scaled balance of payments—$(B/Y)_i$

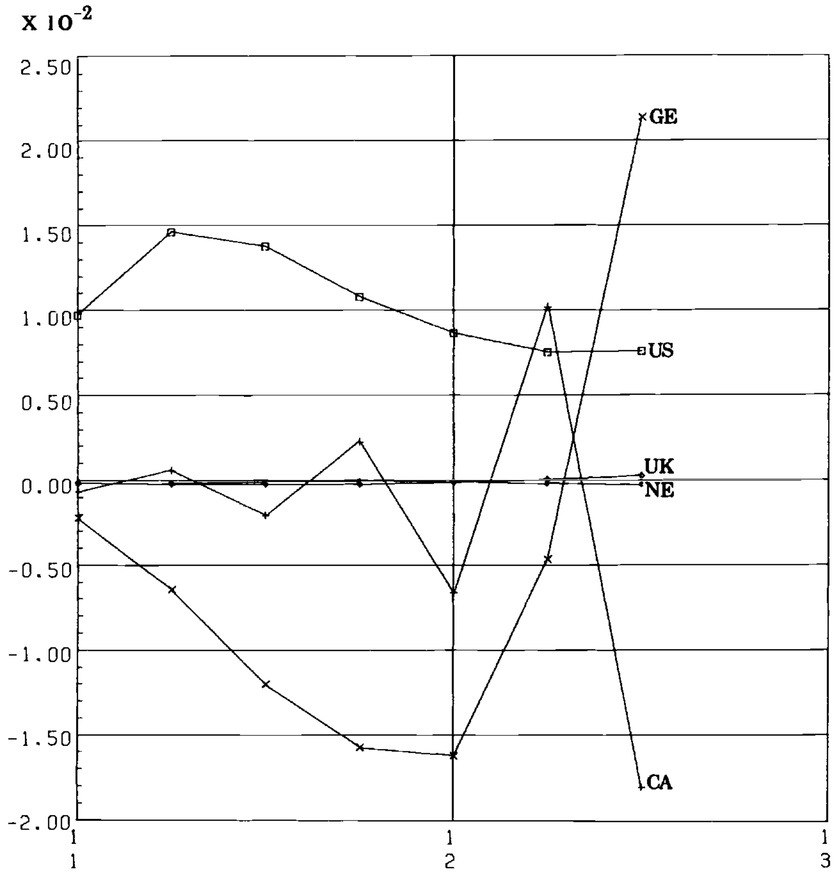

Fig. 7.2 Deviations of key variables from base simulation, American money-shock experiment, floating period.

a) Nominal money—log M_i

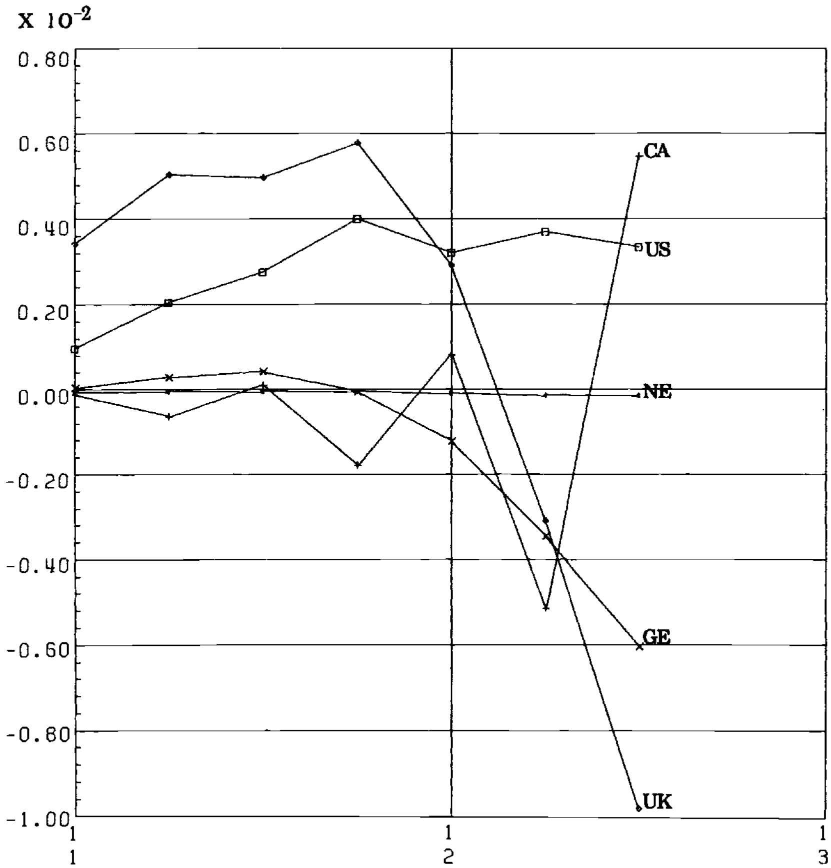

Fig. 7.2 (continued)

b) Price level—log P_i

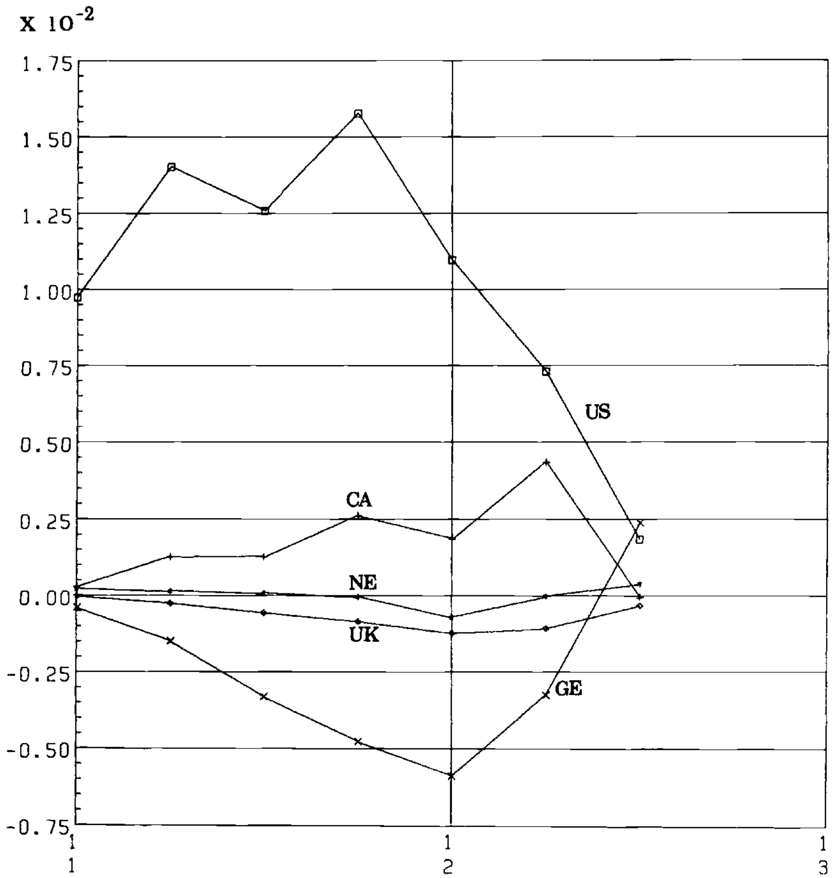

Fig. 7.2 (continued)

c) Real income—log y_i

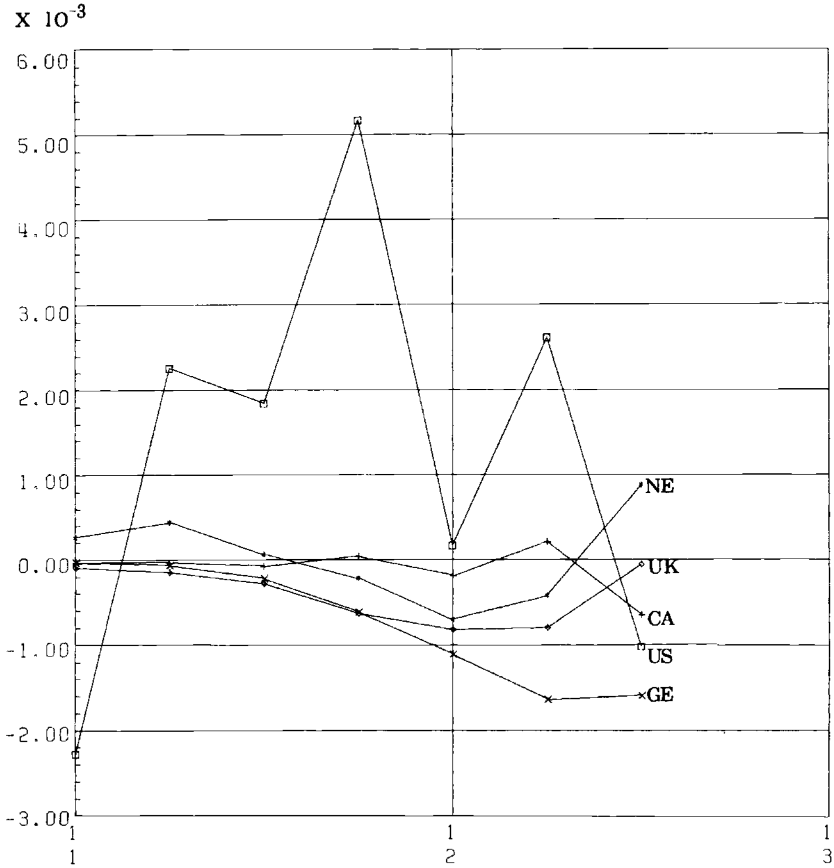

Fig. 7.2 (continued)

d) Short-term interest rate—R_i

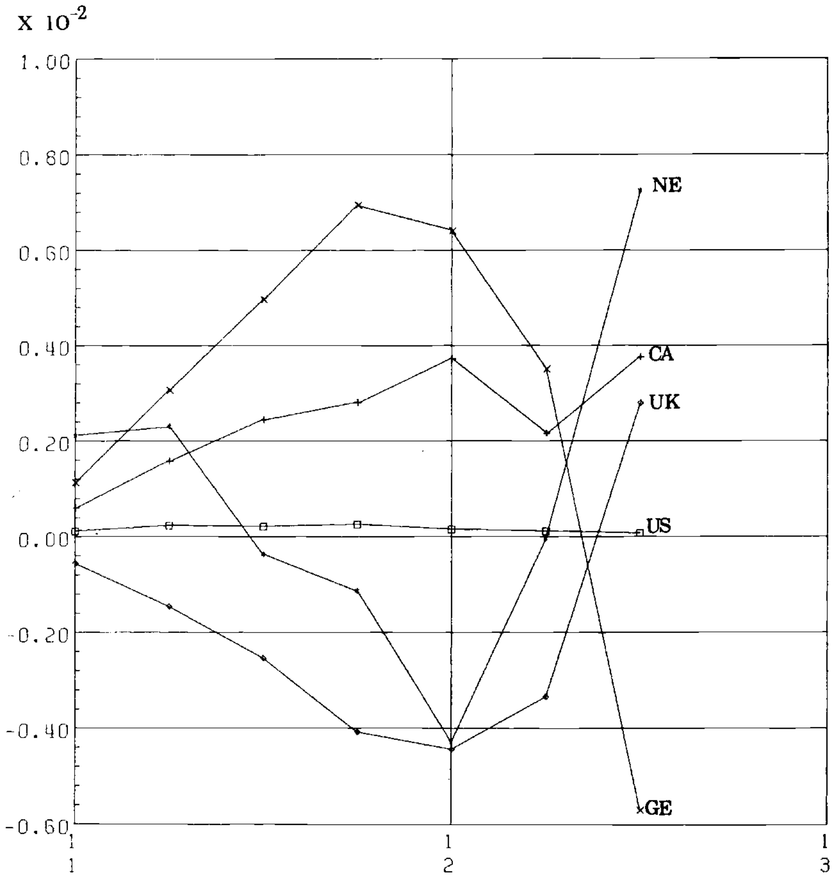

Fig. 7.2 (continued)

e) Scaled exports—$(X/Y)_i$

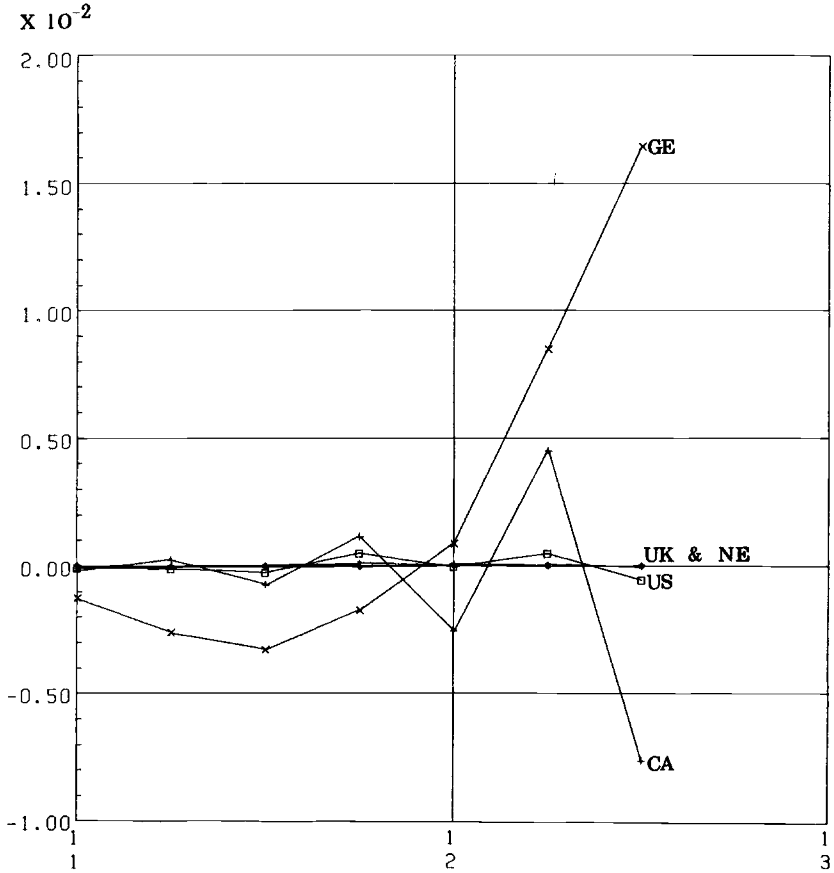

Fig. 7.2 (continued)

f) Scaled balance of payments—$(B/Y)_i$

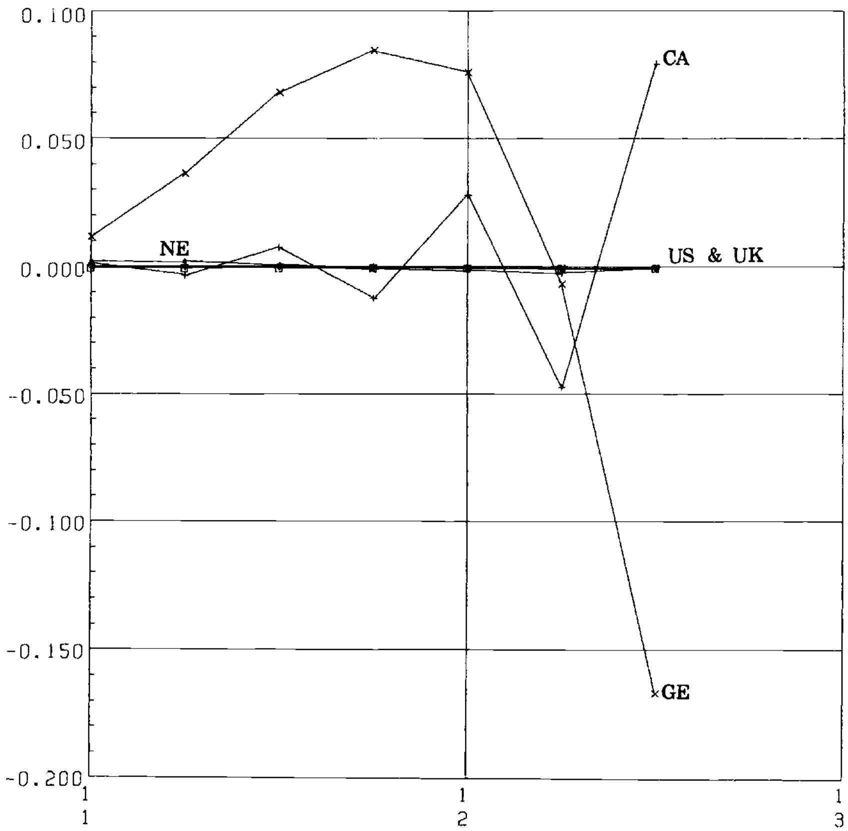

Fig. 7.2 (continued)

g) Exchange rate—log E_i

opposite sign; this theory is consistent with the pegged period estimates. Unfortunately the floating period estimates appear to be dominated by common movements in exchange rates against the dollar. Simulations using the unconstrained, inconsistent coefficients resulted not only in greater dynamic instability in the base simulations but also in nearly universal initial exchange-rate appreciations of 2% which grew much larger over time with no corresponding movements in interest rates or price levels in the experiment at hand. For this reason, the constraint of a single coefficient on the logarithmic change in the ratio of import to rest-of-world prices was imposed. When the constraint is imposed, however, the surprising initial depreciation results. These results are reported since, as explained immediately below, some sense can be made of them and they do illustrate the potentially perverse effects of a *J*-curve phenomenon.

First, note that the simulated effects within the United States are nearly identical to those for the first seven quarters of the pegged experiment so that discussion need not be repeated here. Given an initial exchange-rate depreciation, the German monetary authorities intervene to support the mark and the money supply falls. Prices and income follow the monetary movements. The initial movement in the German exchange rate occurs in the simulation because of an estimated *J*-curve pattern in the import demand (relative-price-of-imports) equation. Since exports rise with the rise in U.S. income and capital outflows fall with the fall in the U.S. interest rate, imports plus the balance-of-payments surplus has to rise given the identity. The balance of payments (intervention) is not very responsive under floating rates, so the dominant movement is an increase in the value of imports. Since the demand curve is somewhat inelastic in the short run, the increase in value requires a substantial increase in the domestic-currency price of imports. The more rapid growth in import prices than dollar-denominated rest-of-world prices leads to a higher (depreciated) exchange rate.

The other countries display less exaggerated simulated effects than does Germany: For the Netherlands all the effects are trivial except for the export effect, and that is much smaller than in the pegged case. The exchange rate initially depreciates and then appreciates, but the range of movement is from 2 to −5 basis points. The United Kingdom displays few effects other than those associated with a perverse decrease in exports. For Canada instability is so severe as to preclude any characterization.

In contrast to the Mark IV–PEG, the Mark IV–FLT Model appears to be so unstable as to provide little information about the international transmission of shocks under floating exchange rates. The main fruit of this exercise appears to be identification of the perverse results which might occur if a *J*-curve pehnomenon is present in import demand.

Further development of the Mark IV–FLT Model must await extension of the data bank to cover a longer floating period.

7.3 Other Experiments

The implications of the Mark IV–PEG model were further explored in five additional experiments. Two of these compare the effects under pegged exchange rates of one-quarter money shocks (as described in section 7.2) in Germany and the United Kingdom. The other three involve a one-quarter increase of 0.01 (1% of government spending) in the government spending shock in the United States, Germany, and the United Kingdom, respectively.

The domestic effects of the German and British money-shock experiments are contrasted in figure 7.3. Examining first the German case, we see that nominal money is in fact increased by almost 1% throughout the first year. The initial increase is less than the amount of the shock to the money-supply reaction function because of the partially offsetting effects of the induced balance-of-payments deficit (see panel *f*). Nonetheless, a remarkably high degree of monetary control is exhibited and the deficits are never large: Nominal money does not start falling until after the first year (largely as a result of the induced increases in inflation and real income) and even after two years a 75 basis point increase in nominal money remains; it takes some four years for the initial increase in the nominal money supply to drop to 20 basis points. The real income, price level, and export effects are predictable given the movements in the nominal money supply. But unlike the United States, no noticeable transmission to any other countries is detected in the simulations (or graphed here): None of these six major variables in any of the other four countries in any quarter deviates from the base simulation by as much as 10 basis points, and *peak* effects on the order of 1 basis point or less are the rule.

The simulated effects of the British money-shock experiment are also plotted in figure 7.3. Not only is the one-quarter shock to the British nominal-money growth rate never offset but indeed British nominal money displays a slight tendency to rise further over time. Domestic prices rise and exports fall as a result, but the simulated balance-of-payments deficits never become unmanageable. The only remarkable result is the (incredible) negative impact of a money shock on British real income.[18] Again there was no noticeable transmission to other countries (on the 10-basis-point-peak criterion) to report.

These two nonreserve money-shock experiments confirm the impres-

18. The negative coefficients on money shocks were not jointly significant in the Mark III Model, but were retained in the reestimation of the Mark IV Model so that this channel was not foreclosed.

sion gained from the U.S. money-shock experiment: The German monetary authorities displayed the tendencies suggested by the monetary approach, although those tendencies are attenuated in magnitude and here slow in effect. For Britain, in contrast, monetary transmission appears to be essentially nil, with policy conducted as if the United Kingdom were a closed economy.

The next set of experiments involves one-quarter increases of 100 basis points in unexpected real government spending. This sort of government-spending shift is consistent with the policy regime for which the model was estimated. However, the implications of this shock for the actual level of real government spending differ according to the actual process observed to govern the evolution of real government spending in each country. Because the logarithm of U.S. real government spending appears to follow a random walk with drift, the 100 basis point increase in real government spending is implicitly a permanent one. The corresponding German variable follows a first-order moving average process, which implies that the level of real government spending is increased by 100 basis points in the initial quarter but by only 25 basis points thereafter. For the United Kingdom the pattern is more complicated due to a second-order autoregressive process, but the effect on the level of real government spending is very nearly approximated by an initial 100 basis point increase and a 57 basis point increase thereafter.[19]

The domestic results of these three experiments are summarized in figure 7.4. The peak effect on U.S. real income is about 27 basis points. Given that real government expenditures average about one-sixth of real income, this implies a peak multiplier of about 1.5. Although on the high end of recent estimates of the bond-financed government-spending multiplier, a value of 1.5 is not surprising since it reflects as well reinforcing effects of a small, lagged induced increase in nominal money. Since the simulated effect of real income in increasing money demand initially dominates interest-rate effects and the small nominal money increase, the price level first falls and then rises as the real income effects die out. As might be supposed from the small size of the home country effects, simulated transmission to other countries is too small to merit discussion.[20]

19. To be precise, the implied increase in U.K. real government spending compared to the base run for the first nine quarters is 100, 56, 44, 63, 59, 55, 58, 58, and 57 basis points, respectively.

20. It is not strictly true that there are no effects greater than 10 basis points, however. As would be inferred from the previous money-shock experiment, a sympathetic variation in German nominal money was simulated, peaking at 12 basis points after two years. Also, British nominal money drifted down passing −10 basis points after four and one-half years and troughing at −19 basis points during the seventh year. An induced decline in the British price level to −14 basis points after seven years completes the list of exceptions to the 10 basis point criterion.

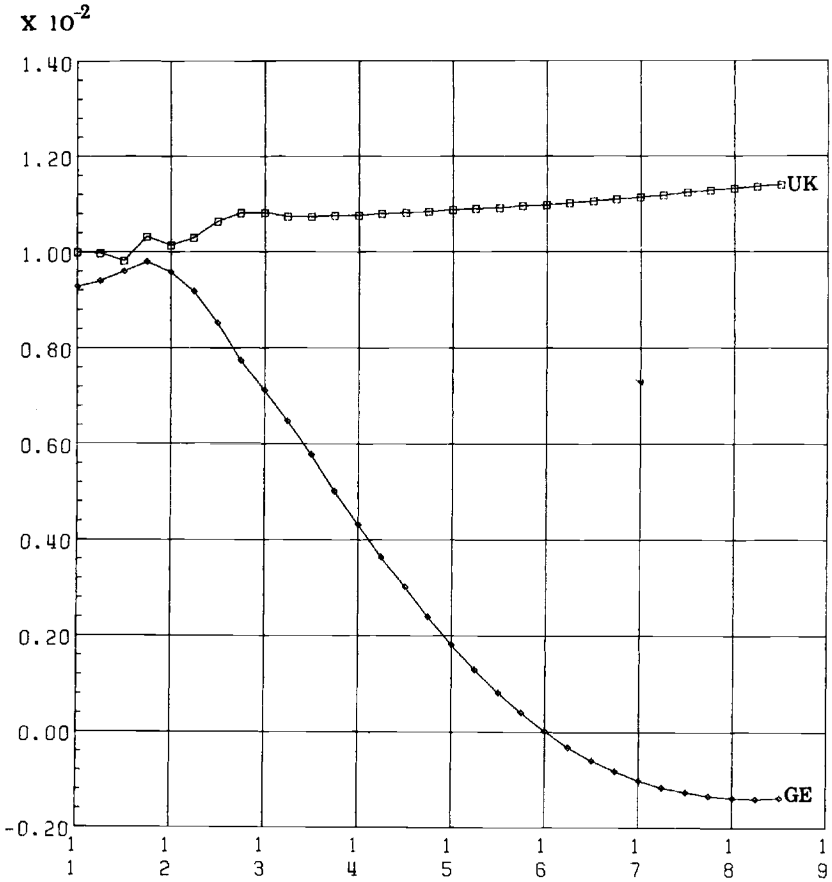

Fig. 7.3 Deviations of key domestic variables from base simulation, British and German money-shock experiments, pegged period.

a) Nominal money—log M_i

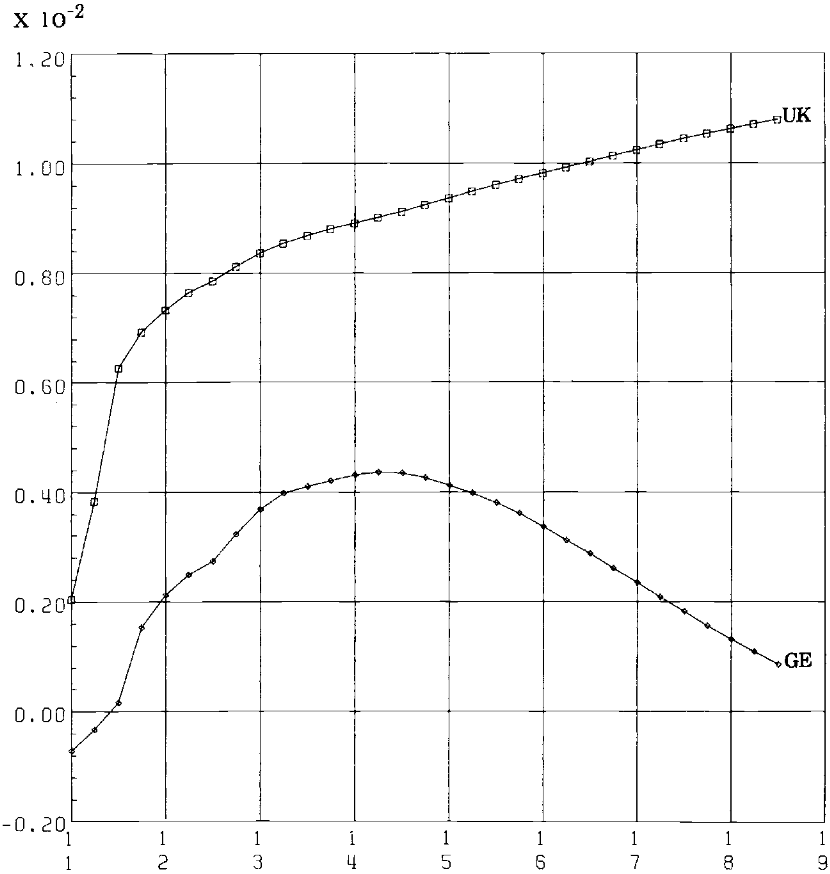

Fig. 7.3 (continued)

b) Price level—log P_i

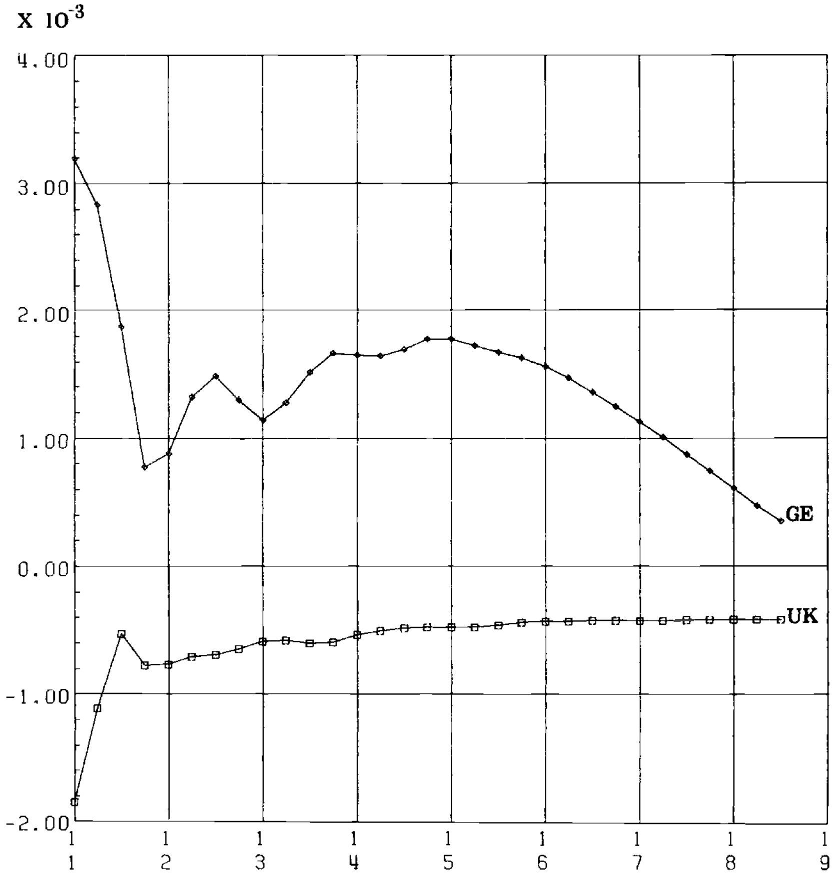

Fig. 7.3 (continued)

c) Real income—log y_i

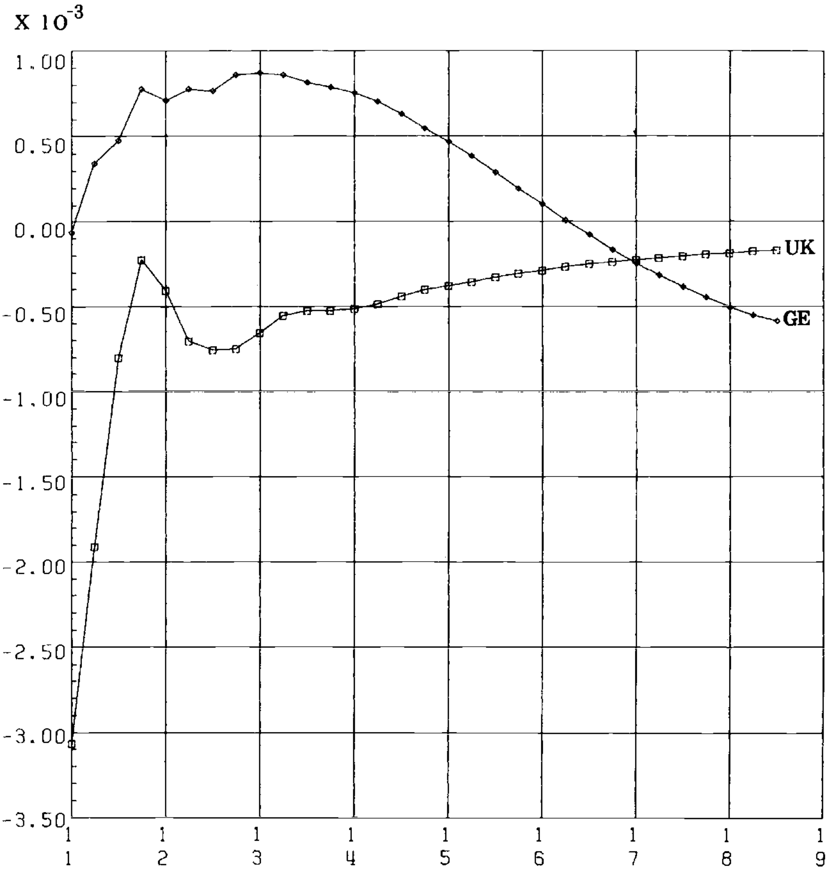

Fig. 7.3 (continued)

d) Short-term interest rate—R_i

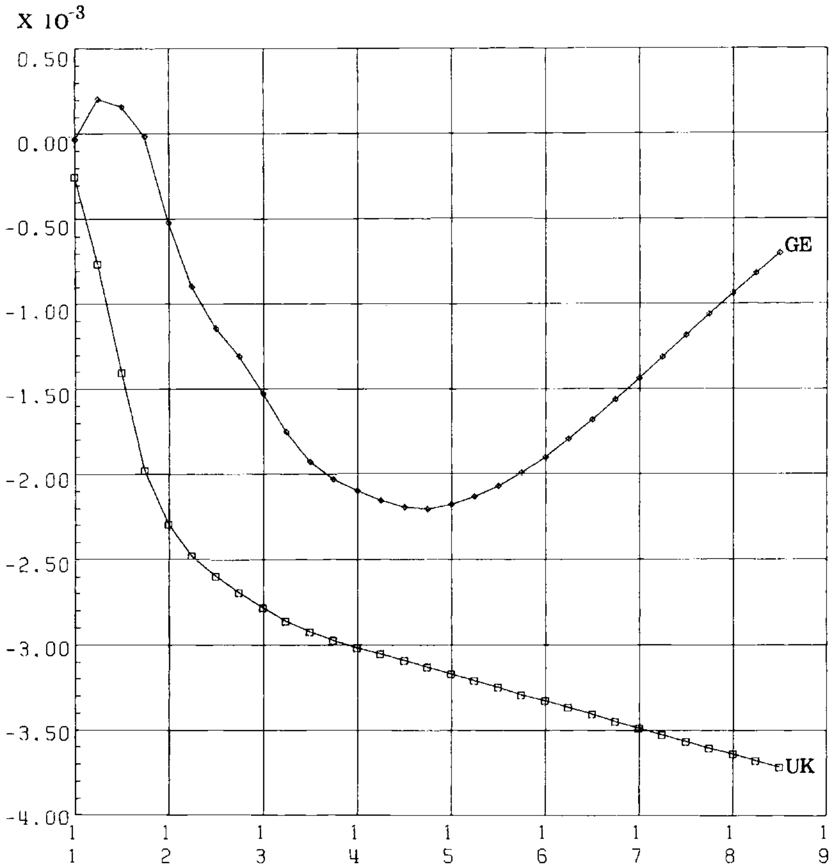

Fig. 7.3 (continued)

e) Scaled exports—$(X/Y)_i$

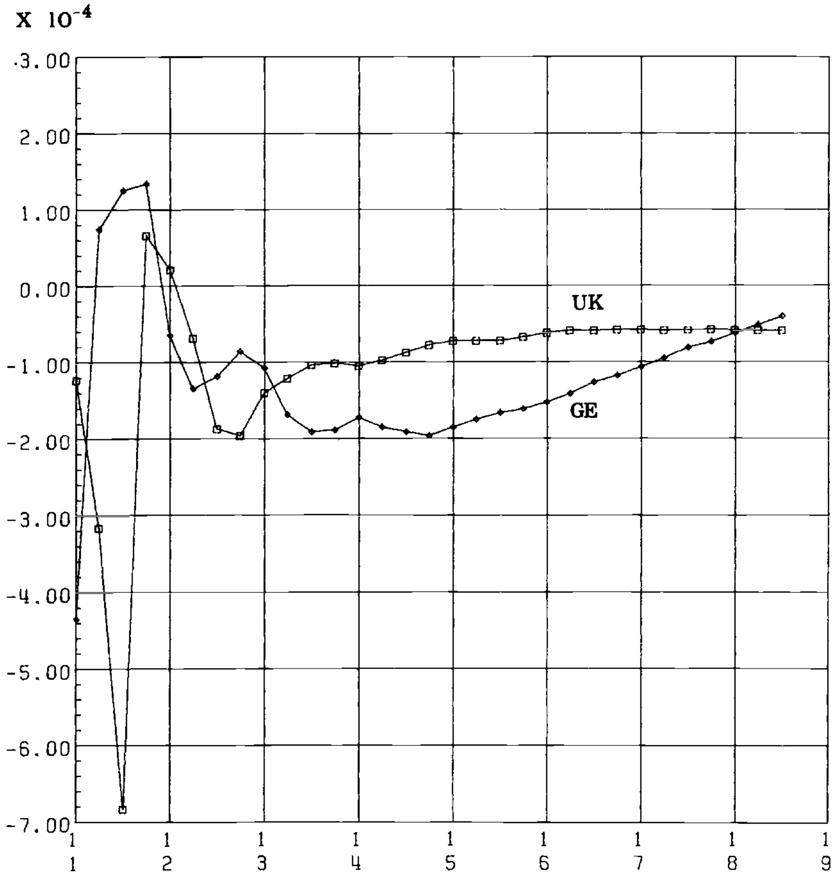

Fig. 7.3 (continued)

f) Scaled balance of payments—$(B/Y)_i$

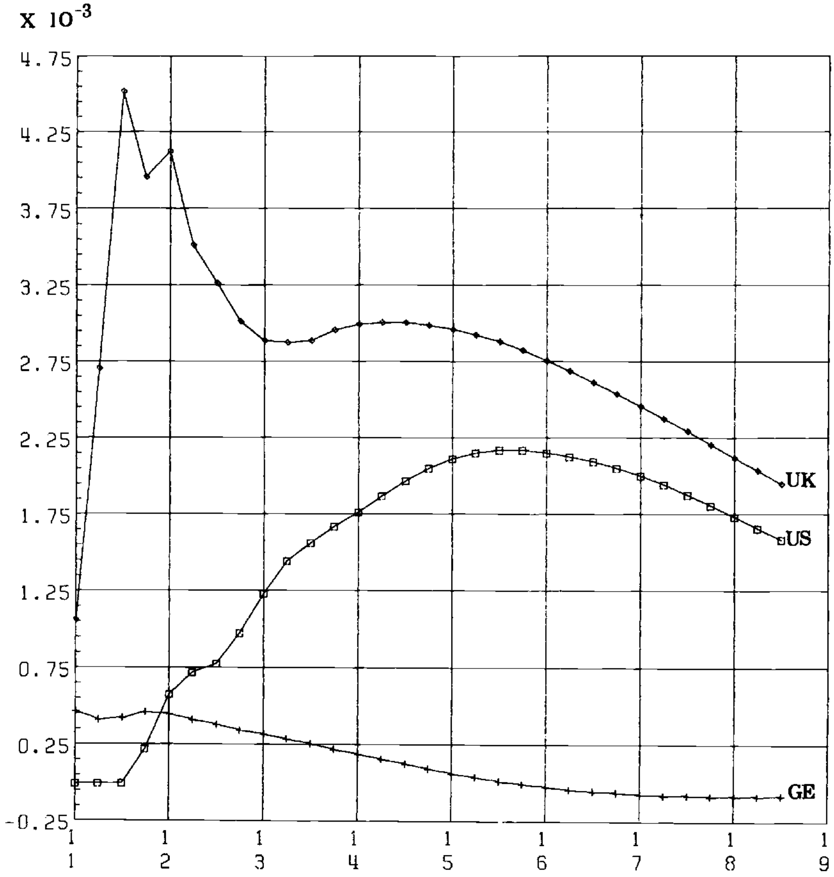

Fig. 7.4 Deviations of key domestic variables from base simulation, American, British, and German government-spending-shock experiments, pegged period.

a) Nominal money—log M_i

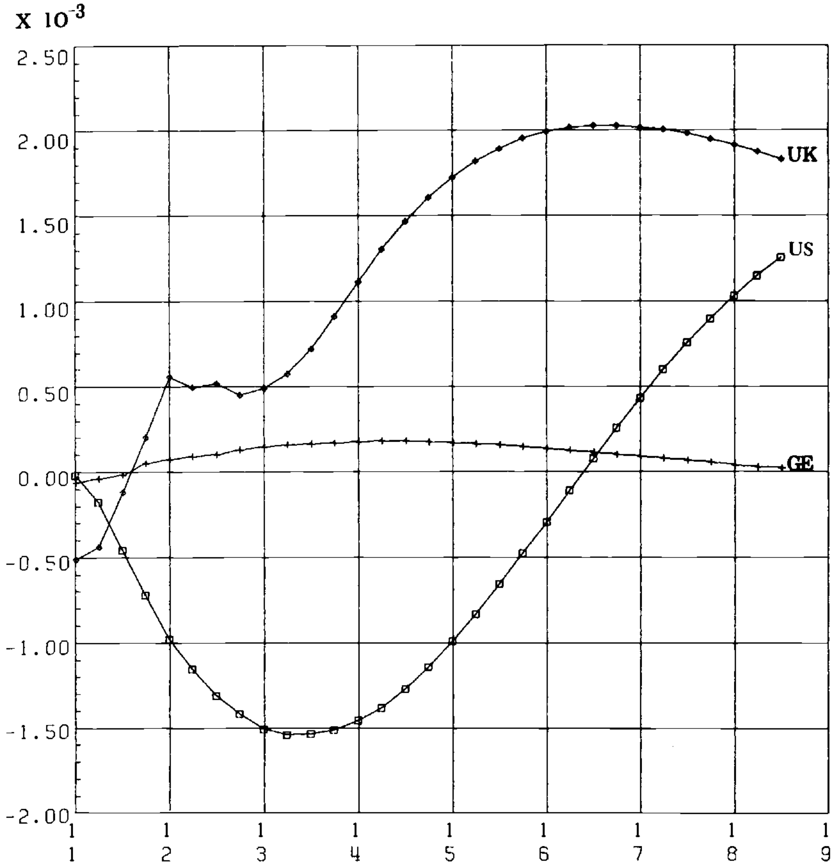

Fig. 7.4 (continued)

b) Price level—log P_i

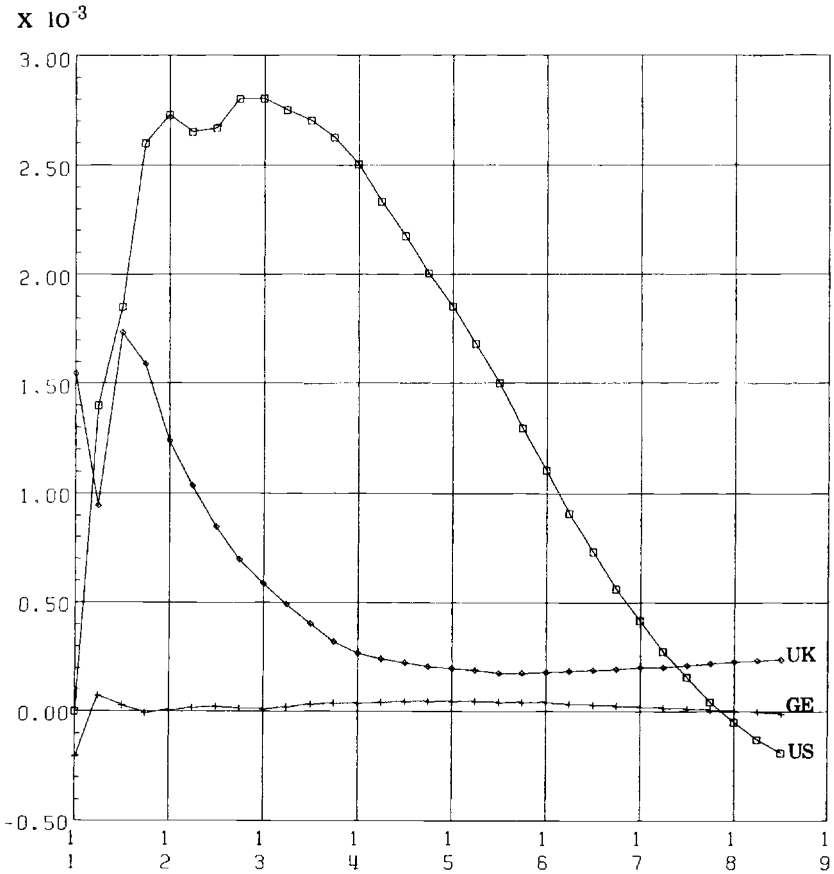

Fig. 7.4 (continued)

c) Real income—log y_i

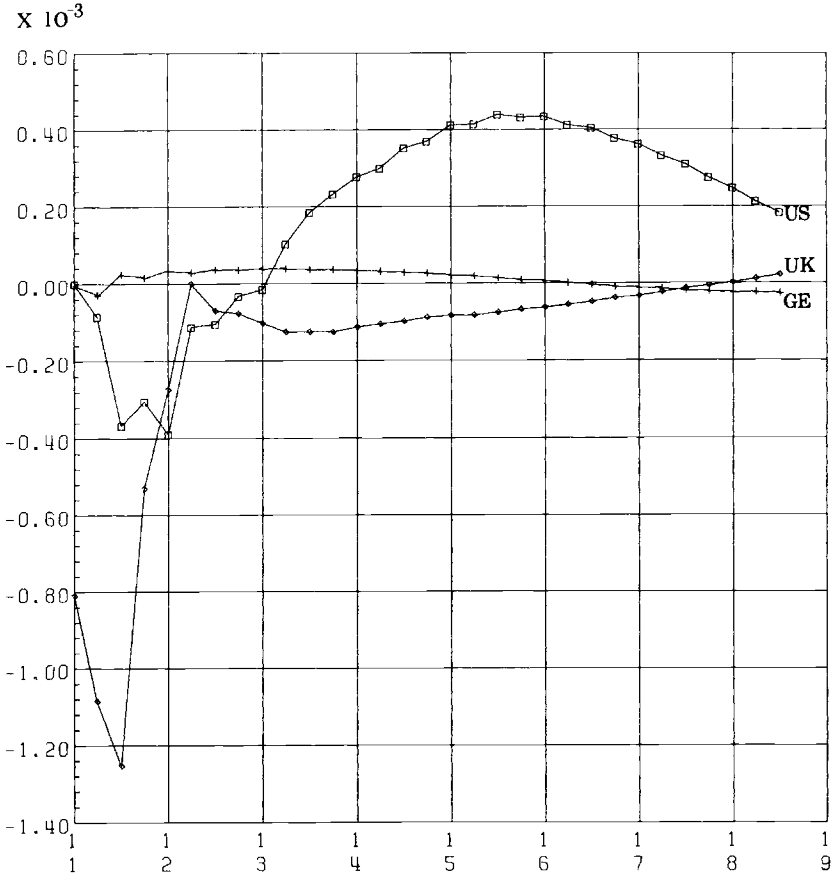

Fig. 7.4 (continued)

d) Short-term interest rate—R_i

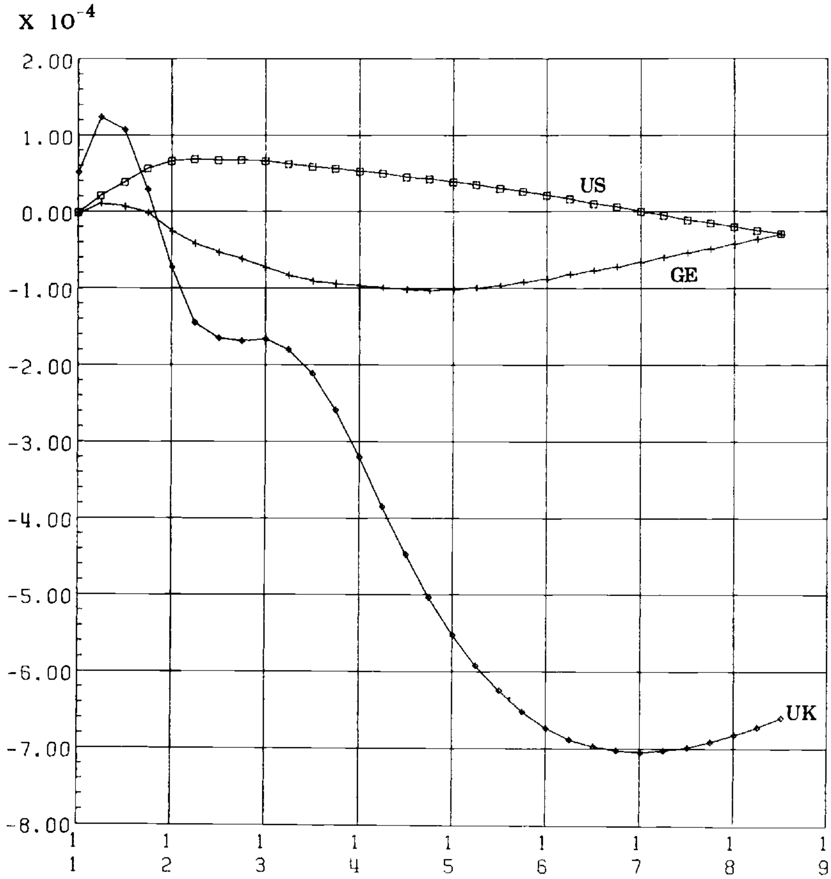

Fig. 7.4 (continued)

e) Scaled exports—$(X/Y)_i$

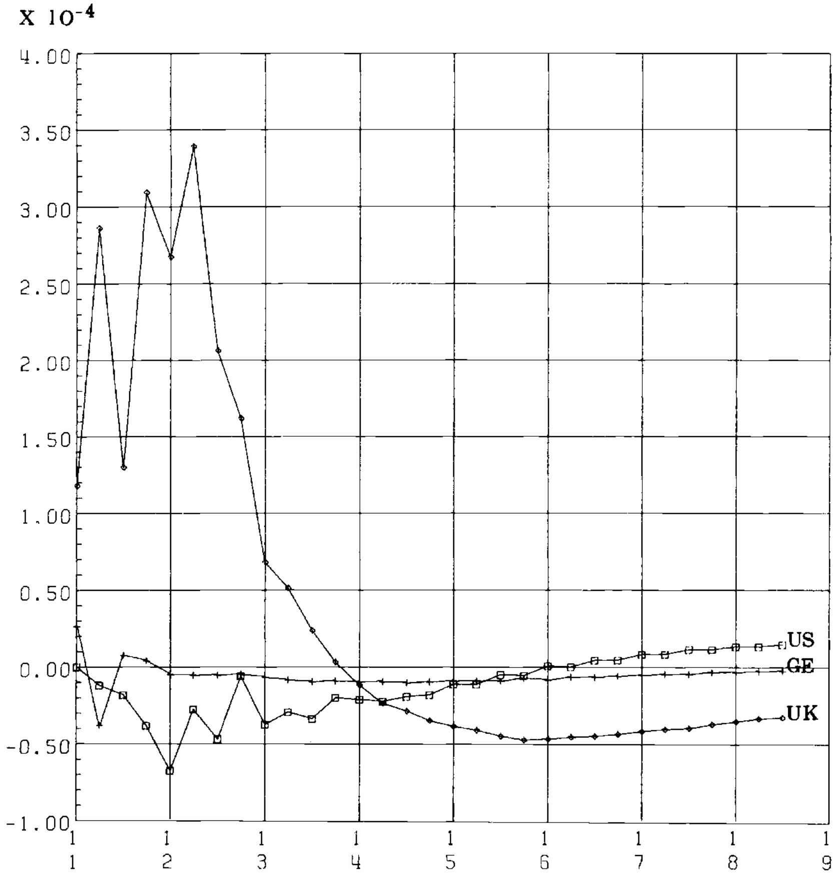

Fig. 7.4 (continued)

f) Scaled balance of payments—$(B/Y)_i$

The simulated British real income effects are not as large as for the United States, but both occur and decay more quickly. The relatively fast decay may reflect the implicit elimination of the government spending increase in the second quarter. For the British experiment, the peak multiplier is only about 0.75, even based on the smaller permanent increase in government spending.[21] This multiplier may be reconciled with the American value of 1.5 by recalling that the induced increase in money is estimated to reduce rather than reinforce the effect on real income. No international transmission was simulated using the 10-basis-point-peak criterion.

For Germany the coefficients of government spending shocks are very small in both the real income and nominal money equations and zero in the interest-rate equations. Perhaps this reflects the estimate that only a quarter of such spending shocks remain after the first quarter. In any case, the simulated effects even within Germany are negligible.

In conclusion, neither British nor German money or government spending shocks appear to have significant international repercussions under pegged exchange rates. An American government-spending shock had slightly larger international effects—perhaps due to the induced increase in American nominal money—but the absolute magnitudes were nonetheless very small. The domestic effects of a British money shock were primarily on the price level, with real income effects negligible; a government spending shock had significant transitory real income effects as well as price effects. A German money shock on the other hand had significant effects on both the domestic price level and real income while a government spending shock had none. The American government-spending shock affected both the domestic price level and real income.

7.4 Conclusion and Implications for Future Research

Simulation experiments help us to understand the workings of a large model in which the simultaneous and dynamic relations are too complicated to consider analytically. The results of the experiments tell us something about how the world would operate for a given model specification and coefficient values which are not inconsistent with a set of data. The results may tell us something about the way the world works, but they surely tell us more about just what simplifications in our *simple* models may lead to erroneous results.

Consider, for example, standard models in which an increased domestic money supply leads to lower domestic relative to foreign interest rates and a resulting adjustment process. This implicitly assumes that the

21. That is, the 100 basis point increase in government spending is implicitly a 57 basis point permanent increase. Government spending averages about 40% of total income in Britain, so this increase is .4 × 57, or 0.228%, of real income.

liquidity effect dominates any inflationary expectations effect on interest rates during the relevant adjustment period. With relatively weak liquidity effects and strong expectations effects as estimated here, the transmission and adjustment process does not follow standard lines.[22]

The simulations confirm the apparent implications of the Mark III estimates: International transmission of inflation through money flows is a weak and slow process even under pegged exchange rates, with nonreserve countries exercising considerable short-run control over their money supplies. Of the four nonreserve countries examined, only Germany appeared to quickly—if partially—adjust its money supply to a U.S. monetary shock while for the United Kingdom and Canada the only simulated transmission was via absorption effects. Further, when a German monetary supply shock was simulated, overwhelming balance-of-payments flows were not simulated so that substantial money, real income, and price effects were observed. These simulations certainly do not disprove the usefulness of the monetary approach to the balance of payments in the short run, but they do contribute to a growing body of literature which raises questions about its short-run usefulness.

The floating results were too unstable to be of much use. At best they suggest that the implications of short-run inelasticity of import demand (*J*-curves) should be investigated further. If the world, like the Mark IV Model, is characterized by imperfect international substitutability among goods and assets, *J*-curves may play a significant role in the adjustment and transmission process.

The nonreserve money-shock experiments revealed no significant international transmission under either pegged or floating rates. Some monetary approach writers[23] have argued that an increase in these countries' domestic credit would result in a generalized increase in the world money supply, but this is incorrect for a system such as Bretton Woods tied to a fiat reserve currency with reserves being dollar-denominated bonds.[24] Since monetary transmission is nil under either pegged or floating rates, only the very small increase in world export demand is operative and this is trivial in magnitude for a money shock in any one of these nonreserve countries.

The government spending shocks were generally too weak in their domestic effects to have any appreciable impact abroad. The largest

22. Dan Lee demonstrates in chapter 12 below that Dornbusch's (1976) famous overshooting result for floating exchange rates follows from allowing participants in the financial markets to have rational expectations with respect to exchange rates but not prices: Recall that Dornbusch argued that lower home interest rates after a money-shock increase must be balanced by (rational) expectations of an appreciating currency and this implies an initial overdepreciation. If the interest rate instead rises with (rational) inflationary expectations, then expectations of depreciation are appropriate and the overshooting argument falls.

23. See, for example, Swoboda (1976), Meiselman and Laffer (1975), and Parkin and Zis (1976*a*, *b*).

24. This point is developed at length in Darby (1980) and chapter 16.

simulated effect was in the United States, with a peak government spending multiplier of about 1.5 *inclusive* of the reinforcing effects of an induced nominal money increase. However, the initial 1% increase in real government spending is implicitly permanent in the United States, half permanent in the United Kingdom, and one-quarter permanent in Germany.

In conclusion, the simulation results suggest a great deal of national economic independence under pegged and—by implication—floating exchange rates. These results, although surprising, are consistent with the evidence reported elsewhere in this volume. A first order for research in international macroeconomics is to explain why the data fail to disclose the strong transmission channels we customarily assume.

Acknowledgments

The good counsel of Arthur Gandolfi, Dan Lee, James Lothian, and Michael Melvin made this paper possible, but they are not to be implicated in the results. Other valuable comments were received from Anthony Cassese, Robert P. Flood, Jr., and especially Anna J. Schwartz and participants in the UCLA Money Workshop and the NBER Summer Institute. The calculations were performed by Michael Melvin and Andrew Vogel on the TROLL system at MIT. An earlier version of this paper is to be found in Bhandari and Putnam (1982).

Appendix
The Mark IV International Transmission Simulation Model

This appendix lists the Mark IV Model. Table 7.2 defines the variables used. Table 7.3 lists the Mark IV–PEG used for simulations in the pegged period. Table 7.4 lists the Mark IV–FLT used for simulations in the floating period. Note that the "Coefficient and Parameter Values" at the ends of tables 7.3 and 7.4 contain a number of extraneous coefficients which are irrelevant to the Mark IV Model. The model is resident in the TROLL system at MIT. The Mark IV is a simplified version of the Mark III Model described in chapters 5 and 6.

A few notes on TROLL's modeling language are in order: An asterisk indicates multiplication. A negative number in parentheses immediately following a variable denotes that the variable is lagged that many quarters: $X(-1) \equiv X_{-1}$. The first difference operator is $DEL(1: X) \equiv X - X(-1)$. Double equal signs (= =) are used for identities with the exception of permanent income identities.

Table 7.2 Definitions of Variables and Parameters in the Mark IV Model

Country mnemonics are indicated in the listing below by double asterisks (**). The mnemonics are:

CA	Canada	JA	Japan
FR	France	NE	Netherlands
GE	Germany	UK	United Kingdom
IT	Italy	US	United States

BTOY**	Balance of payments divided by GNP (or GDP if GNP is unavailable.) The balance of payments is on the official reserve settlements basis.
CTOY**	Net capital outflows as a fraction of GNP (measured as CTOY** = XTOY** − ITOY** − BTOY**).
DMY611 DMY674 DMY693	Revaluation dummies with 0 everywhere except 1961I, 1967IV, or 1969III, respectively.
DV**	Nominal income weight; share of country ** in total sample nominal income.
ER**1L ER**2L	Error terms for ARIMA process of exchange-rate expectation formation as defined in model.
GRE**X11 GRE**X21	Expected annualized growth rate of the exchange rate from present quarter to next quarter.
GRPX1**1 GRPX1**2	Expected annualized growth rate of the price level from present quarter to next quarter.
ITOY**	Imports as a fraction of GNP.
LNE**	Logarithm of the exchange rate measured in domestic currency units (DCUs) per U.S. dollar (LNEUS ≡ 1).
LNG**U	Innovation in the logarithm of real government spending based on a univariate ARIMA process.
LNM**U	Innovation in money; LNMN** − LNMN**EX.
LNMN**	Logarithm of money stock measured in billions of DCUs.
LNMN**EX	Expected value of LNMN** based on a univariate ARIMA process.
LNP**	Logarithm of the price deflator for GNP (or GDP). These deflators are measured in DCUs per 1970 DCU; so LNP** = 0 for 1970.
LNPIM**	Logarithm of import price index (LNPIM** = 0 for 1970).
LNPR**	Logarithm of an index of foreign prices converted by exchange rates into U.S. dollars per 1970 U.S. dollar (LNPR** = 0 for 1970).
LNQIM**	Logarithm of relative price of imports; LNPIM** − LNP**.
LNRPOIL	Logarithm of an index the real price of oil based on deflating the dollar price of Venezuelan oil by the U.S. deflator. (LNRPOIL = 0 for 1970).
LNYR**	Logarithm of real GNP (or GDP if GNP is unavailable) measured in billions of 1970 DCUs.
LNYR**P	Logarithm of permanent income measured in billions of 1970 DCUs.

Table 7.2 (continued)

LNYRR**	Logarithm of an index of foreign real income (LNYRR** = 0 for 1970).
LNYRT**	Logarithmic transitory income; LNYR** − LNYR**P.
PEGDIF**	Logarithmic difference between actual and parity value of the exchange rate.
R**	Short-term nominal interest rate in decimal per annum form. (Three-months treasury bill yield where available; but a long-term government bond yield had to be used for Italy.)
SGRPX1*1 SGRPX1*2	Variables used to simulate the expected-inflation-rate transfer functions.
T	Time index (1955I = 1, 1955II = 2, etc.).
UN**	Unemployment rate in decimal form.
XP**	Trend quarterly growth rate of real income used in computing logarithmic permanent income.
XTOY**	Exports as a fraction of GNP.
XTOY**EX	Expected value of XTOY** based on a univariate ARIMA process.
XTOY**U	Innovation in scaled exports; XTOY** − XTOY**EX.
Z1**1 Z1**1L Z1**2 Z2**1	Variables used to simulate the expected-inflation-rate transfer functions.
ZP**	Weight of current income in forming logarithmic permanent income (taken as 0.025 in all cases).

Table 7.3 The Pegged Period Model: Mark IV–PEG

```
SYMBOL DECLARATIONS

ENDOGENOUS:
   BTOYCA  BTOYFR  BTOYGE  BTOYIT  BTOYJA  BTOYNE  BTOYUK  BTOYUS  CTOYCA
   CTOYFR  CTOYGE  CTOYIT  CTOYJA  CTOYNE  CTOYUK  CTOYUS  ERCA1L  ERFR1L
   ERIT1L  ERJA2L  GRECAX11  GREFRX11  GREGEX21  GREITX11  GREJAX21  GRENEX11
   GREUKX11  GRPX1CA1  GRPX1FR1  GRPX1GE1  GRPX1IT1  GRPX1JA2  GRPX1NE1
   GRPX1UK1  GRPX1US1  ITOYCA  ITOYFR  ITOYGE  ITOYIT  ITOYJA  ITOYNE  ITOYUK
   ITOYUS  LNMCAU  LNMFRU  LNMGEU  LNMITU  LNMJAU  LNMNCA  LNMNCAEX  LNMNEU
   LNMNFR  LNMNFREX  LNMNGE  LNMNGEEX  LNMNIT  LNMNITEX  LNMNJA  LNMNJAEX
   LNMNNE  LNMNNEEX  LNMNUK  LNMNUKEX  LNMNUS  LNMNUSEX  LNMUKU  LNMUSU  LNPCA
   LNPFR  LNPGE  LNPIMCA  LNPIMFR  LNPIMIT  LNPIMJA  LNPIMNE  LNPIMUK  LNPIMUS
   LNPIT  LNPJA  LNPNE  LNPRCA  LNPRFR  LNPRGE  LNPRIT  LNPRJA  LNPRNE  LNPRUK
   LNPRUS  LNPUK  LNPUS  LNQIMCA  LNQIMFR  LNQIMIT  LNQIMJA  LNQIMNE  LNQIMUK
   LNQIMUS  LNYRCA  LNYRCAP  LNYRFR  LNYRFRP  LNYRGE  LNYRGEP  LNYRIT  LNYRITP
   LNYRJA  LNYRJAP  LNYRNE  LNYRNEP  LNYRRCA  LNYRRFR  LNYRRGE  LNYRRIT  LNYRRJA
   LNYRRNE  LNYRRUK  LNYRRUS  LNYRTCA  LNYRTFR  LNYRTGE  LNYRTIT  LNYRTJA
   LNYRTNE  LNYRTUK  LNYRTUS  LNYRUK  LNYRUKP  LNYRUS  LNYRUSP  RCA  RFR  RGE
   RIT  RJA  RNE  RUK  RUS  SGRPX1C1  SGRPX1F1  SGRPX1I1  SGRPX1J2  UNFR  UNUK
   UNUS  XTOYCA  XTOYCAEX  XTOYCAU  XTOYFR  XTOYFREX  XTOYFRU  XTOYGE  XTOYGEEX
   XTOYGEU  XTOYIT  XTOYITEX  XTOYITU  XTOYJA  XTOYJAEX  XTOYJAU  XTOYNE
   XTOYNEEX  XTOYNEU  XTOYUK  XTOYUKEX  XTOYUKU  XTOYUS  XTOYUSEX  XTOYUSU
   Z1CA1L  Z1GE1L  Z1IT1  Z1JA2  Z1NE1L  Z1UK1L  Z1US1L  Z2FR1

EXOGENOUS:
   DMY611  DMY674  DMY693  LNECA  LNEFR  LNEGE  LNEIT  LNEJA  LNENE  LNEUK
   LNEUS  LNGCAU  LNGFRU  LNGGEU  LNGITU  LNGJAU  LNGNEU  LNGUKU  LNGUSU
   LNRPOIL  PEGDIFIT  PEGDIFJA  PEGDIFNE  T

COEFFICIENT:
   A1CA  A1FR  A1GE  A1IT  A1JA  A1NE  A1UK  A1US  A10IT  A10JA  A10NE  A10US
   A11CA  A11FR  A11GE  A11IT  A11JA  A11NE  A11US  A12GE  A12NE  A12UK  A12US
   A13GE  A13IT  A13JA  A13NE  A14CA  A14GE  A14JA  A14NE  A2CA  A2FR  A2GE
   A2IT  A2JA  A2NE  A2UK  A2US  A3CA  A3FR  A3GE  A3NE  A3UK  A3US  A4CA  A4NE
   A4US  A5CA  A5IT  A5JA  A5NE  A6CA  A6NE  A6US  A7FR  A7GE  A7NE  A7UK  A8CA
   A8GE  A8NE  A8US  A9FR  A9NE  A9UK  A9US  B1CA  B1FR  B1GE  B1IT  B1JA  B1NE
   B1UK  B1US  B10FR  B10JA  B10NE  B10UK  B2CA  B2FR  B2GE  B2IT  B2JA  B2NE
   B2UK  B2US  B3CA  B3JA  B3NE  B3UK  B3US  B4CA  B4FR  B4GE  B4IT  B4JA  B4NE
   B4UK  B4US  B5CA  B5FR  B5GE  B5IT  B5JA  B5NE  B5UK  B5US  B6CA  B6FR  B6GE
   B6IT  B6JA  B6NE  B6UK  B6US  B7CA  B7FR  B7GE  B7IT  B7JA  B7NE  B7US  B8CA
   B8GE  B8IT  B8JA  B8NE  B8US  B9CA  B9GE  B9IT  B9JA  B9NE  C1FR  C1UK  C1US
   C20FR  C20UK  C20US  C21FR  C21UK  C21US  C22FR  C22UK  C22US  C23FR  C23UK
   C23US  C24UK  C24US  C25FR  C25UK  C26US  C27FR  C27US  D0CA  D0FR  D0GE
   D0IT  D0JA  D0NE  D0UK  D0US  D1CA  D1FR  D1GE  D1IT  D1JA  D1NE  D1UK  D1US
   D10IT  D10NE  D10UK  D10US  D11IT  D11NE  D11US  D12FR  D12US  D13NE  D13UK
   D14CA  D14FR  D14GE  D14IT  D14JA  D14NE  D14UK  D14US  D15CA  D15FR  D15JA
   D15NE  D15UK  D15US  D16JA  D16US  D2FR  D2JA  D2UK  D2US  D3FR  D3JA  D3NE
   D3US  D4CA  D4IT  D4JA  D4NE  D5CA  D5JA  D5UK  D5US  D6CA  D6FR  D6UK  D7IT
   D7JA  D8CA  D9CA  E1CA  E1FR  E1GE  E1IT  E1JA  E1NE  E1UK  E1US  E10CA
   E11FR  E11NE  E11UK  E11US  E12FR  E12JA  E12NE  E12UK  E12US  E13FR  E13IT
   E13JA  E13UK  E14CA  E14FR  E14GE  E14IT  E14JA  E14NE  E14UK  E15CA  E15IT
   E15UK  E16CA  E16FR  E16IT  E16JA  E16NE  E16UK  E17CA  E17JA  E17NE  E18FR
   E18GE  E18JA  E18UK  E19CA  E19JA  E2CA  E2FR  E2IT  E2NE  E2US  E20US  E21US
   E3CA  E3GE  E3NE  E3UK  E4CA  E4FR  E4IT  E4NE  E4UK  E5IT  E5NE  E5US  E6FR
   E6IT  E6JA  E6NE  E7GE  E7JA  E7NE  E8FR  E8GE  E8JA  E8US  E9FR  E9GE  F0CA
   F0FR  F0IT  F0JA  F0NE  F0UK  F0US  F10NE  F10US  F20IT  F20NE  F20US  F30JA
   F30UK  F40CA  F40FR  F40JA  F40NE  F40US  F50CA  F50FR  F50IT  F50JA  F50NE
   F50UK  F50US  F60FR  F60JA  F60NE  F60UK  G0CA  G0FR  G0GE  G0IT  G0JA  G0NE
   G0UK  G0US  G1JA  G1NE  G1US  G10CA  G10GE  G12UK  G12US  G2NE  G2UK  G20CA
   G20GE  G22UK  G22US  G3FR  G3IT  G3JA  G3NE  G30CA  G30GE  G32UK  G32US  G4FR
   G4IT  G4JA  G4NE  G5FR  G5IT  G5JA  G5NE  G6CA  G6FR  G6GE  G6IT  G6NE  G6UK
   G6US  G7NE  G7UK  G8CA  G8FR  G8GE  G8JA  G8UK  G9CA  G9FR  G9GE  H0CA  H0FR
   H0GE  H0IT  H0JA  H0NE  H0UK  H0US  H1FR  H1GE  H1JA  H1NE  H1UK  H1US  H10GE
   H10JA  H10NE  H10UK  H11CA  H11FR  H11IT  H11UK  H12CA  H12FR  H12GE  H12JA
   H12NE  H13CA  H13IT  H13JA  H13NE  H13UK  H14JA  H14NE  H14UK  H15CA  H15FR
   H15GE  H15IT  H15UK  H2US  H3CA  H3FR  H3IT  H3UK  H3US  H4CA  H4UK  H4US
   H5CA  H5FR  H5GE  H5IT  H5JA  H5NE  H5UK  H6IT  H6JA  H6NE  H7CA  H7FR  H7IT
   H7JA  H7NE  H7UK  H8CA  H8FR  H8GE  H8IT  H8JA  H8NE  H8UK  H8US  H9CA  H9FR
   H9IT  H9JA  I0CA  I0FR  I0GE  I0IT  I0JA  I0NE  I0UK  I0US  I1CA  I1FR  I1GE
   I1IT  I1JA  I1NE  I1UK  I1US  I2CA  I2FR  I2GE  I2IT  I2JA  I2NE  I2UK  I2US
   I3FR  I3GE  I3IT  I3JA  I3NE  I3UK  I3US  I4CA  I4FR  I4US  I5CA  I5FR  I5NE
   I5UK  I5US  I6IT  I6JA  I6UK  I6US  I7FR  I7IT  I7US  I8JA  K0CA  K0FR  K0GE
```

Table 7.3 (continued)

```
   K0IT  K0JA  K0NE  K0UK  K0US  K1GE  K1NE  K1UK  K10CA  K10UK  K10US  K11FR
   K11IT  K11NE  K11UK  K11US  K12IT  K13CA  K13IT  K14FR  K14IT  K14JA  K14NE
   K14UK  K14US  K15FR  K15IT  K15JA  K15NE  K15UK  K15US  K2CA  K2FR  K2IT
   K2JA  K2NE  K2UK  K2US  K3CA  K3UK  K3US  K4GE  K4IT  K4NE  K4UK  K4US  K5CA
   K5JA  K5US  K6CA  K6FR  K6GE  K6IT  K6JA  K6NE  K7JA  K7UK  K8UK  K9CA  K9FR
   K9GE  K9IT  K9JA  K9NE  K9UK  K9US  L0CA  L0FR  L0GE  L0IT  L0JA  L0NE  L0UK
   L1CA  L1FR  L1GE  L1JA  L3IT  L3JA  L3NE  L4CA  L4FR  L4GE  L4IT  L4JA  L4NE
   L4UK  L5CA  L5FR  L5IT  L5JA  L5NE  L5UK  L6FR  L6JA  L7FR

PARAMETER:
   DVCA  DVFR  DVGE  DVIT  DVJA  DVNE  DVUK  DVUS  XPCA  XPFR  XPGE  XPIT  XPJA
   XPNE  XPUK  XPUS  ZPCA  ZPFR  ZPGE  ZPIT  ZPJA  ZPNE  ZPUK  ZPUS

EQUATIONS

    1:      LNYRUSP = (1-ZPUS)*XPUS+ZPUS*LNYRUS+(1-ZPUS)*LNYRUSP(-1)

    2:      4*BTOYUS == XTOYUS-ITOYUS-CTOYUS

    3:      LNQIMUS == LNPIMUS-LNPUS

    4:      LNMUSU == LNMNUS-LNMNUSEX

    5:      LNMNUSEX == 2*LNMNUS(-1)-LNMNUS(-2)-0.44937*(DEL(1 : LNMNUS(-1))-
            DEL(1 : LNMNUS(-2)))+0.00021-0.80994*LNMUSU(-2)

    6:      XTOYUSU == XTOYUS-XTOYUSEX

    7:      XTOYUSEX == XTOYUS(-1)+0.35462*XTOYUSU(-2)+0.20228*XTOYUSU(-3)+
            0.00053

    8:      LNYRTUS == LNYRUS-LNYRUSP

    9:      LNYRRUS == (DVUK*LNYRUK+DVCA*LNYRCA+DVFR*LNYRFR+DVGE*LNYRGE+DVIT*
            LNYRIT+DVJA*LNYRJA+DVNE*LNYRNE)*1/(1-DVUS)-7.40946

   10:      LNPRUS == (DVUK*(LNPUK-LNEUK)+DVCA*(LNPCA-LNECA)+DVFR*(LNPFR-LNEFR
            )+DVGE*(LNPGE-LNEGE)+DVIT*(LNPIT-LNEIT)+DVJA*(LNPJA-LNEJA)+DVNE*(
            LNPNE-LNENE))*1/(1-DVUS)+2.53058

   11:      GREUKX11 == 4*(L0UK+L4UK*DEL(1 : LNEUK)+L5UK*DMY674(-1))

   12:      Z1US1L == 4*DEL(1 : LNPUS)-GRPX1US1(-1)

   13:      GRPX1US1 == 4*(K0US+K2US*LNMNUS(-1)+K3US*LNMNUS(-2)+K4US*DEL(1 :
            LNYRUS(-1))+K5US*RUS+K9US*LNPUS(-1)+K10US*LNPUS(-2)+K11US*LNMUSU(
            -1))+K14US*Z1US1L+K15US*Z1US1L(-1)

   14:      LNPUS = B1US+LNMNUS+B2US*LNYRUSP+B3US*LNYRTUS+B4US*RUS+B5US*(
            LNMNUS(-1)-LNPUS(-1))+B6US*LNMUSU+B7US*LNMUSU(-1)+B8US*LNMUSU(-2)+
            0*LNMUSU(-3)

   15:      LNYRUS = A1US+A2US*LNYRUSP(-1)+(1-A2US)*LNYRUS(-1)+A3US*LNMUSU+
            A4US*LNMUSU(-1)+0*LNMUSU(-2)+A6US*LNMUSU(-3)+0*LNGUSU+A8US*LNGUSU(
            -1)+A9US*LNGUSU(-2)+A10US*LNGUSU(-3)+A11US*XTOYUSU+A12US*XTOYUSU(
            -1)+0*XTOYUSU(-2)+0*XTOYUSU(-3)

   16:      DEL(1 : UNUS) = C1US+C20US*DEL(1 : LNYRUS)+C21US*DEL(1 : LNYRUS(-1
            ))+C22US*DEL(1 : LNYRUS(-2))+C23US*DEL(1 : LNYRUS(-3))+C24US*DEL(1
             : LNYRUS(-4))+C26US*DEL(1 : LNYRUS(-6))+C27US*DEL(1 : LNYRUS(-7))

   17:      DEL(1 : LNMNUS) = E1US+E2US*T+0*LNGUSU+E5US*(LNGUSU(-3)+LNGUSU(-4)
            )+E8US*(LNPUS(-3)-LNPUS(-5))+0*UNUS(-1)+E11US*UNUS(-2)+E12US*UNUS(
            -3)+0*UNUS(-4)+E20US*DEL(1 : LNMNUS(-1))+E21US*DEL(1 : LNMNUS(-2))

   18:      RUS = D0US+D1US*GRPX1US1+D14US*RUS(-1)+D16US*GRPX1US1(-1)+D15US*T+
            D2US*LNMUSU+D3US*LNMUSU(-1)+0*LNMUSU(-2)+D5US*LNMUSU(-3)+0*LNGUSU+
            0*LNGUSU(-1)+0*LNGUSU(-2)+0*LNGUSU(-3)+D10US*XTOYUSU+D11US*XTOYUSU
            (-1)+D12US*XTOYUSU(-2)+0*XTOYUSU(-3)

   19:      LNPIMUS = LNPIMUS(-1)+F0US+F10US*DEL(1 : LNPIMUS(-1))+F20US*DEL(1
             : LNRPOIL)+0*DEL(1 : LNYRRUS)+F40US*DEL(1 : ITOYUS)+F50US*DEL(1
             : LNPRUS)

   20:      ITOYUS = I0US+I1US*ITOYUS(-1)+I2US*LNYRUSP+I3US*LNYRTUS+I4US*
            LNYRTUS(-1)+I5US*LNQIMUS+I6US*LNQIMUS(-1)+I7US*LNQIMUS(-2)+0*
            LNQIMUS(-3)

   21:      XTOYUS = H0US+H1US*LNRPOIL+H2US*LNYRTUS+H3US*T+H4US*XTOYUS(-1)+0*
            XTOYUS(-2)+0*LNPRUS+0*LNPRUS(-1)+H8US*LNYRRUS+0*LNYRRUS(-1)+0*
            LNPUS+0*LNPUS(-1)
```

Table 7.3 (continued)

```
22:   CTOYUS = G0US+G1US*T+0*LNRPOIL+0*RUS+0*GREUKX11+0*RUK+G6US*(XTOYUS
      -ITOYUS)+0*LNYRTUS+0*DEL(1 : LNYRUS)+0*DEL(1 : LNYRRUS)+0*DEL(1 :
      RUS)+0*DEL(1 : RUS(-1))+G12US*DEL(1 : RUS(-2))+0*DEL(1 : RUK)+0*
      DEL(1 : RUK(-1))+G22US*DEL(1 : RUK(-2))+0*DEL(1 : GREUKX11)+0*DEL(
      1 : GREUKX11(-1))+G32US*DEL(1 : GREUKX11(-2))

23:   LNYRUKP = (1-ZPUK)*XPUK+ZPUK*LNYRUK+(1-ZPUK)*LNYRUKP(-1)

24:   LNQIMUK == LNPIMUK-LNPUK

25:   LNMUKU == LNMNUK-LNMNUKEX

26:   LNMNUKEX == LNMNUK(-1)+0.21096*(LNMNUK(-1)-LNMNUK(-2))+0.28454*(
      LNMNUK(-2)-LNMNUK(-3))+0.00627

27:   XTOYUKU == XTOYUK-XTOYUKEX

28:   XTOYUKEX == XTOYUK(-1)+0.2491*XTOYUKU(-2)-0.14272*XTOYUKU(-4)-
      0.37838*XTOYUKU(-7)+0.00084

29:   4*BTOYUK == XTOYUK-ITOYUK-CTOYUK

30:   LNYRTUK == LNYRUK-LNYRUKP

31:   LNYRRUK == (DVUS*LNYRUS+DVCA*LNYRCA+DVFR*LNYRFR+DVGE*LNYRGE+DVIT*
      LNYRIT+DVJA*LNYRJA+DVNE*LNYRNE)*1/(1-DVUK)-7.36068

32:   LNPRUK == (DVUS*(LNPUS-LNEUS)+DVCA*(LNPCA-LNECA)+DVFR*(LNPFR-LNEFR
      )+DVGE*(LNPGE-LNEGE)+DVIT*(LNPIT-LNEIT)+DVJA*(LNPJA-LNEJA)+DVNE*(
      LNPNE-LNENE))*1/(1-DVUK)+1.32478

33:   Z1UK1L == 4*DEL(1 : LNPUK)-GRPX1UK1(-1)

34:   GRPX1UK1 == 4*(K0UK+K1UK*LNMNUKEX+K2UK*LNMNUK(-1)+K3UK*LNMNUK(-2)+
      K4UK*DEL(1 : LNYRUK(-1))+0*RUK+0*RUK(-1)+K7UK*(RUS+GREUKX11)+K8UK*
      (RUS(-1)+GREUKX11(-1))+K9UK*LNPUK(-1)+K10UK*LNPUK(-2)+K11UK*LNMUKU
      (-1)+0*LNMUKU(-2)+0*LNMUKU(-3))+K14UK*Z1UK1L+K15UK*Z1UK1L(-1)

35:   LNPUK = B1UK+LNMNUK+B2UK*LNYRUKP+B3UK*LNYRTUK+B4UK*RUK+B10UK*(RUS+
      GREUKX11)+B5UK*(LNMNUK(-1)-LNPUK(-1))+B6UK*LNMUKU+0*LNMUKU(-1)+0*
      LNMUKU(-2)+0*LNMUKU(-3)

36:   LNYRUK = A1UK+A2UK*LNYRUKP(-1)+(1-A2UK)*LNYRUK(-1)+A3UK*LNMUKU+0*
      LNMUKU(-1)+0*LNMUKU(-2)+0*LNMUKU(-3)+A7UK*LNGUKU+0*LNGUKU(-1)+A9UK
      *LNGUKU(-2)+0*LNGUKU(-3)+0*XTOYUKU+A12UK*XTOYUKU(-1)+0*XTOYUKU(-2)
      +0*XTOYUKU(-3)

37:   DEL(1 : UNUK) = C1UK+C20UK*DEL(1 : LNYRUK)+C21UK*DEL(1 : LNYRUK(-1
      ))+C22UK*DEL(1 : LNYRUK(-2))+C23UK*DEL(1 : LNYRUK(-3))+C24UK*DEL(1
       : LNYRUK(-4))+C25UK*DEL(1 : LNYRUK(-5))

38:   DEL(1 : LNMNUK) = E1UK+0*T+E3UK*LNGUKU+E4UK*(LNGUKU(-1)+LNGUKU(-2)
      )+E11UK*UNUK(-2)+E12UK*UNUK(-3)+E13UK*UNUK(-4)+E14UK*BTOYUK+E15UK*
      0*BTOYUK+E16UK*(BTOYUK(-1)+BTOYUK(-2))+E18UK*(BTOYUK(-3)+BTOYUK(-4
      ))

39:   RUK = D0UK+D1UK*GRPX1UK1+D14UK*RUK(-1)+0*GRPX1UK1(-1)+D15UK*T+D2UK
      *LNMUKU+0*LNMUKU(-1)+0*LNMUKU(-2)+D5UK*LNMUKU(-3)+D6UK*LNGUKU+0*
      LNGUKU(-1)+0*LNGUKU(-2)+0*LNGUKU(-3)+D10UK*XTOYUKU+0*XTOYUKU(-1)+0
      *XTOYUKU(-2)+D13UK*XTOYUKU(-3)

40:   LNPIMUK = LNPIMUK(-1)+F0UK+F30UK*DEL(1 : LNYRRUK)+F50UK*DEL(1 :
      LNPRUK)+F60UK*DEL(1 : LNEUK)

41:   ITOYUK = I0UK+I1UK*ITOYUK(-1)+I2UK*LNYRUKP+I3UK*LNYRTUK+0*LNYRTUK(
      -1)+I5UK*LNQIMUK+I6UK*LNQIMUK(-1)+0*LNQIMUK(-2)+0*LNQIMUK(-3)

42:   XTOYUK = H0UK+H1UK*LNEUK+(H3UK+H4UK*0)*LNEUK(-1)+H5UK*LNRPOIL+0*
      LNYRTUK+H7UK*T+H8UK*XTOYUK(-1)+0*XTOYUK(-2)+H10UK*LNPRUK+H11UK*
      LNPRUK(-1)+0*LNYRRUK+H13UK*LNYRRUK(-1)+H14UK*LNPUK+H15UK*LNPUK(-1)

43:   CTOYUK = G0UK+G2UK*LNRPOIL+G6UK*(XTOYUK-ITOYUK)+G7UK*LNYRTUK+G8UK*
      DEL(1 : LNYRUK)+G12UK*DEL(1 : RUK(-2))+G22UK*DEL(1 : RUS(-2))+
      G32UK*DEL(1 : GREUKX11(-2))

44:   LNYRCAP = (1-ZPCA)*XPCA+ZPCA*LNYRCA+(1-ZPCA)*LNYRCAP(-1)

45:   LNQIMCA == LNPIMCA-LNPCA

46:   LNMCAU == LNMNCA-LNMNCAEX

47:   XTOYCAU == XTOYCA-XTOYCAEX
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Table 7.3 (continued)

```
48:   XTOYCAEX == XTOYCA(-1)-0.20227*(XTOYCA(-1)-XTOYCA(-2))+0.00075-
      0.30644*XTOYCAU(-8)

49:   LNMNCAEX == 2*LNMNCA(-1)-LNMNCA(-2)-0.64605*(DEL(1 : LNMNCA(-1))-
      DEL(1 : LNMNCA(-2)))-0.65993*(DEL(1 : LNMNCA(-2))-DEL(1 : LNMNCA(
      -3)))+0.0004-0.46226*LNMCAU(-3)-0.58997*LNMCAU(-4)

50:   4*BTOYCA == XTOYCA-ITOYCA-CTOYCA

51:   LNYRTCA == LNYRCA-LNYRCAP

52:   LNYRRCA == (DVUS*LNYRUS+DVUK*LNYRUK+DVFR*LNYRFR+DVGE*LNYRGE+DVIT*
      LNYRIT+DVJA*LNYRJA+DVNE*LNYRNE)*1/(1-DVCA)-7.26361

53:   LNPRCA == (DVUS*(LNPUS-LNEUS)+DVUK*(LNPUK-LNEUK)+DVFR*(LNPFR-LNEFR
      )+DVGE*(LNPGE-LNEGE)+DVIT*(LNPIT-LNEIT)+DVJA*(LNPJA-LNEJA)+DVNE*(
      LNPNE-LNENE))*1/(1-DVCA)+1.24117

54:   Z1CA1L == 4*DEL(1 : LNPCA)-SGRPX1C1(-1)

55:   SGRPX1C1 == 4*(K0CA+K2CA*LNMNCA(-1)+K3CA*LNMNCA(-2)+K5CA*RCA+K6CA*
      RCA(-1)+K9CA*LNPCA(-1)+K10CA*LNPCA(-2)+K13CA*LNMCAU(-3))

56:   GRPX1CA1 == SGRPX1C1-0.64968*Z1CA1L(-1)

57:   ERCA1L == 4*DEL(1 : LNECA)-GRECAX11(-1)

58:   GRECAX11 = 4*(L0CA+L1CA*BTOYCA+L4CA*DEL(1 : LNECA))+L5CA*ERCA1L

59:   LNPCA = B1CA+LNMNCA+B2CA*LNYRCAP+B3CA*LNYRTCA+B4CA*RCA+B5CA*(
      LNMNCA(-1)-LNPCA(-1))+B6CA*LNMCAU+B7CA*LNMCAU(-1)+B8CA*LNMCAU(-2)+
      B9CA*LNMCAU(-3)

60:   LNYRCA = A1CA+A2CA*LNYRCAP(-1)+(1-A2CA)*LNYRCA(-1)+A3CA*LNMCAU+
      A4CA*LNMCAU(-1)+A5CA*LNMCAU(-2)+A6CA*LNMCAU(-3)+A8CA*LNGCAU(-1)+
      A11CA*XTOYCAU+A14CA*XTOYCAU(-3)

61:   DEL(1 : LNMNCA) = E1CA+E2CA*T+E3CA*LNGCAU+E4CA*(LNGCAU(-1)+LNGCAU(
      -2))+E10CA*LNYRTCA(-1)+E14CA*BTOYCA+E15CA*0*BTOYCA+E16CA*(BTOYCA(
      -1)+BTOYCA(-2))+E17CA*(0*(BTOYCA(-1)+BTOYCA(-2)))+E19CA*(0*(BTOYCA
      (-3)+BTOYCA(-4)))

62:   RCA = D0CA+D1CA*GRPX1CA1+D14CA*RCA(-1)+D15CA*T+D4CA*LNMCAU(-2)+
      D5CA*LNMCAU(-3)+D6CA*LNGCAU+D8CA*LNGCAU(-2)+D9CA*LNGCAU(-3)

63:   LNPIMCA = LNPIMCA(-1)+F0CA+F40CA*DEL(1 : ITOYCA)+F50CA*DEL(1 :
      LNPRCA)

64:   ITOYCA = I0CA+I1CA*ITOYCA(-1)+I2CA*LNYRCAP+I4CA*LNYRTCA(-1)+I5CA*
      LNQIMCA

65:   XTOYCA = H0CA+(H3CA+H4CA*0)*LNECA(-1)+H5CA*LNRPOIL+0*LNYRTCA+H7CA*
      T+H8CA*XTOYCA(-1)+H9CA*XTOYCA(-2)+0*LNPRCA+H11CA*LNPRCA(-1)+H12CA*
      LNYRRCA+H13CA*LNYRRCA(-1)+0*LNPCA+H15CA*LNPCA(-1)

66:   CTOYCA = G0CA+G6CA*(XTOYCA-ITOYCA)+G8CA*DEL(1 : LNYRCA)+G9CA*DEL(1
       : LNYRRCA)+G10CA*DEL(1 : RCA)+G20CA*DEL(1 : RUS)+G30CA*DEL(1 :
      GRECAX11)

67:   LNYRFRP = (1-ZPFR)*XPFR+ZPFR*LNYRFR+(1-ZPFR)*LNYRFRP(-1)

68:   LNQIMFR == LNPIMFR-LNPFR

69:   LNMFRU == LNMNFR-LNMNFREX

70:   LNMNFREX == LNMNFR(-1)+0.54204*(LNMNFR(-1)-LNMNFR(-2))+0.01294+
      0.45793*LNMFRU(-6)

71:   XTOYFRU == XTOYFR-XTOYFREX

72:   XTOYFREX == XTOYFR(-1)-0.23545*(XTOYFR(-1)-XTOYFR(-2))+0.26219*
      XTOYFRU(-2)-0.36552*XTOYFRU(-4)+0.00131

73:   4*BTOYFR == XTOYFR-ITOYFR-CTOYFR

74:   LNYRTFR == LNYRFR-LNYRFRP

75:   LNYRRFR == (DVUS*LNYRUS+DVUK*LNYRUK+DVCA*LNYRCA+DVGE*LNYRGE+DVIT*
      LNYRIT+DVJA*LNYRJA+DVNE*LNYRNE)*1/(1-DVFR)-7.18014

76:   LNPRFR == (DVUS*(LNPUS-LNEUS)+DVUK*(LNPUK-LNEUK)+DVCA*(LNPCA-LNECA
      )+DVGE*(LNPGE-LNEGE)+DVIT*(LNPIT-LNEIT)+DVJA*(LNPJA-LNEJA)+DVNE*(
      LNPNE-LNENE))*1/(1-DVFR)+1.14182
```

Table 7.3 (continued)

77:	Z2FR1 == 4*DEL(1 : LNPFR)-SGRPX1F1(-1)
78:	SGRPX1F1 == 4*(K0FR+K2FR*DEL(1 : LNMNFR(-1))+K6FR*RFR(-1)+K9FR*DEL (1 : LNPFR(-1))+K11FR*LNMFRU(-1))
79:	GRPX1FR1 == SGRPX1F1+K14FR*Z2FR1+K15FR*Z2FR1(-1)
80:	ERFR1L == 4*DEL(1 : LNEFR)-GREFRX11(-1)
81:	GREFRX11 = 4*(L0FR+L1FR*BTOYFR+L4FR*DEL(1 : LNEFR)+L5FR*DMY693(-1))+L6FR*ERFR1L+L7FR*ERFR1L(-1)
82:	LNPFR = B1FR+LNMNFR+B2FR*LNYRFRP+0*LNYRTFR+B4FR*RFR+B10FR*(RUS+ GREFRX11)+B5FR*(LNMNFR(-1)-LNPFR(-1))+B6FR*LNMFRU+B7FR*LNMFRU(-1)+ 0*LNMFRU(-2)+0*LNMFRU(-3)
83:	LNYRFR = A1FR+A2FR*LNYRFRP(-1)+(1-A2FR)*LNYRFR(-1)+A3FR*LNMFRU+ A7FR*LNGFRU+A9FR*LNGFRU(-2)+A11FR*XTOYFRU
84:	DEL(1 : UNFR) = C1FR+C20FR*DEL(1 : LNYRFR)+C21FR*DEL(1 : LNYRFR(-1))+C22FR*DEL(1 : LNYRFR(-2))+C23FR*DEL(1 : LNYRFR(-3))+C25FR*DEL(1 : LNYRFR(-5))+C27FR*DEL(1 : LNYRFR(-7))
85:	DEL(1 : LNMNFR) = E1FR+E2FR*T+E4FR*(LNGFRU(-1)+LNGFRU(-2))+E6FR*(LNPFR(-1)-LNPFR(-3))+E8FR*(LNPFR(-3)-LNPFR(-5))+E9FR*(0*(LNPFR(-3) -LNPFR(-5)))+E11FR*UNFR(-2)+E12FR*UNFR(-3)+E13FR*UNFR(-4)+E14FR* BTOYFR+E16FR*(BTOYFR(-1)+BTOYFR(-2))+E18FR*(BTOYFR(-3)+BTOYFR(-4))
86:	RFR = D0FR+D1FR*GRPX1FR1+D14FR*RFR(-1)+D15FR*T+D2FR*LNMFRU+D3FR* LNMFRU(-1)+D6FR*LNGFRU+D12FR*XTOYFRU(-2)
87:	LNPIMFR = LNPIMFR(-1)+F0FR+F40FR*DEL(1 : ITOYFR)+F50FR*DEL(1 : LNPRFR)+F60FR*DEL(1 : LNEFR)
88:	ITOYFR = I0FR+I1FR*ITOYFR(-1)+I2FR*LNYRFRP+I3FR*LNYRTFR+I4FR* LNYRTFR(-1)+I5FR*LNQIMFR+0*LNQIMFR(-1)+I7FR*LNQIMFR(-2)+0*LNQIMFR(-3)
89:	XTOYFR = H0FR+H1FR*LNEFR+H3FR*LNEFR(-1)+H5FR*LNRPOIL+H7FR*T+H8FR* XTOYFR(-1)+H9FR*XTOYFR(-2)+H11FR*LNPRFR(-1)+H12FR*LNYRRFR+H15FR* LNPFR(-1)
90:	CTOYFR = G0FR+G3FR*RFR+G4FR*GREFRX11+G5FR*RUS+G6FR*(XTOYFR-ITOYFR) +G8FR*DEL(1 : LNYRFR)+G9FR*DEL(1 : LNYRRFR)
91:	LNYRGEP = (1-ZPGE)*XPGE+ZPGE*LNYRGE+(1-ZPGE)*LNYRGEP(-1)
92:	LNMGEU == LNMNGE-LNMNGEEX
93:	LNMNGEEX == LNMNGE(-1)+0.02266+0.1074*LNMGEU(-1)+0.27425*LNMGEU(-2)+0.35616*LNMGEU(-3)
94:	XTOYGEU == XTOYGE-XTOYGEEX
95:	4*BTOYGE == XTOYGE-ITOYGE-CTOYGE
96:	XTOYGEEX == XTOYGE(-1)-0.42012*XTOYGEU(-4)+0.00141
97:	LNYRTGE == LNYRGE-LNYRGEP
98:	LNYRRGE == (DVUS*LNYRUS+DVUK*LNYRUK+DVCA*LNYRCA+DVFR*LNYRFR+DVIT* LNYRIT+DVJA*LNYRJA+DVNE*LNYRNE)*1/(1-DVGE)-7.20584
99:	LNPRGE == (DVUS*(LNPUS-LNEUS)+DVUK*(LNPUK-LNEUK)+DVCA*(LNPCA-LNECA)+DVFR*(LNPFR-LNEFR)+DVIT*(LNPIT-LNEIT)+DVJA*(LNPJA-LNEJA)+DVNE*(LNPNE-LNENE))*1/(1-DVGE)+1.17274
100:	Z1GE1L == 4*DEL(1 : LNPGE)-GRPX1GE1(-1)
101:	GRPX1GE1 == 4*(K0GE+K1GE*(LNMNGEEX-LNMNGE(-1))+K4GE*DEL(1 : LNYRGE (-1))+K6GE*RGE(-1)+K9GE*(LNPGE(-1)-LNPGE(-2)))+0.0475*Z1GE1L- 0.4236*Z1GE1L(-1)
102:	GREGEX21 == 4*(L0GE+L1GE*BTOYGE+L4GE*DEL(1 : LNEGE))
103:	LNPGE = B1GE+LNMNGE+B2GE*LNYRGEP+0*LNYRTGE+B4GE*RGE+0*(RUS+ GREGEX21)+B5GE*(LNMNGE(-1)-LNPGE(-1))+B6GE*LNMGEU+B7GE*LNMGEU(-1)+ B8GE*LNMGEU(-2)+B9GE*LNMGEU(-3)
104:	LNYRGE = A1GE+A2GE*LNYRGEP(-1)+(1-A2GE)*LNYRGE(-1)+A3GE*LNMGEU+0* LNMGEU(-1)+0*LNMGEU(-2)+0*LNMGEU(-3)+A7GE*LNGGEU+A8GE*LNGGEU(-1)+0 *LNGGEU(-2)+0*LNGGEU(-3)+A11GE*XTOYGEU+A12GE*XTOYGEU(-1)+A13GE* XTOYGEU(-2)+A14GE*XTOYGEU(-3)

Table 7.3 (continued)

```
105:   DEL(1 : LNMNGE) = E1GE+0*T+E3GE*LNGGEU+E7GE*(0*(LNPGE(-1)-LNPGE(-3
       )))+E8GE*(LNPGE(-3)-LNPGE(-5))+E9GE*(0*(LNPGE(-3)-LNPGE(-5)))+0*
       LNYRTGE(-1)+0*LNYRTGE(-2)+0*LNYRTGE(-3)+0*LNYRTGE(-4)+E14GE*BTOYGE
       +0*0*BTOYGE+E18GE*(BTOYGE(-3)+BTOYGE(-4))

106:   RGE = D0GE+D1GE*GRPX1GE1+D14GE*RGE(-1)+0*GRPX1GE1(-1)+0*T+0*LNMGEU
       +0*LNMGEU(-1)+0*LNMGEU(-2)+0*LNMGEU(-3)+0*LNGGEU+0*LNGGEU(-1)+0*
       LNGGEU(-2)+0*LNGGEU(-3)+0*XTOYGEU+0*XTOYGEU(-1)+0*XTOYGEU(-2)+0*
       XTOYGEU(-3)

107:   ITOYGE = I0GE+I1GE*ITOYGE(-1)+I2GE*LNYRGEP+I3GE*LNYRTGE+0*LNYRTGE(
       -1)

108:   XTOYGE = H0GE+H1GE*LNEGE+0*LNEGE(-1)+H5GE*LNRPOIL+0*LNYRTGE+0*T+
       H8GE*XTOYGE(-1)+0*XTOYGE(-2)+H10GE*LNPRGE+0*LNPRGE(-1)+H12GE*
       LNYRRGE+0*LNYRRGE(-1)+0*LNPGE+H15GE*LNPGE(-1)

109:   CTOYGE = G0GE+0*T+0*LNRPOIL+0*RGE+0*GREGEX21+0*RUS+G6GE*(XTOYGE-
       ITOYGE)+0*LNYRTGE+G8GE*DEL(1 : LNYRGE)+G9GE*DEL(1 : LNYRRGE)+G10GE
       *DEL(1 : RGE)+0*DEL(1 : RGE(-1))+0*DEL(1 : RGE(-2))+G20GE*DEL(1 :
       RUS)+0*DEL(1 : RUS(-1))+0*DEL(1 : RUS(-2))+G30GE*DEL(1 : GREGEX21)
       +0*DEL(1 : GREGEX21(-1))+0*DEL(1 : GREGEX21(-2))

110:   LNYRITP = (1-ZPIT)*XPIT+ZPIT*LNYRIT+(1-ZPIT)*LNYRITP(-1)

111:   LNQIMIT == LNPIMIT-LNPIT

112:   LNMITU == LNMNIT-LNMNITEX

113:   LNMNITEX == LNMNIT(-1)+0.15625*(LNMNIT(-1)-LNMNIT(-2))+0.02829+
       0.35998*LNMITU(-2)+0.10908*LNMITU(-3)

114:   XTOYITU == XTOYIT-XTOYITEX

115:   XTOYITEX == XTOYIT(-1)-0.15095*(XTOYIT(-1)-XTOYIT(-2))+0.19592*(
       XTOYIT(-2)-XTOYIT(-3))-0.14307*XTOYITU(-8)+0.29814*XTOYITU(-11)+
       0.00221

116:   4*BTOYIT == XTOYIT-ITOYIT-CTOYIT

117:   LNYRTIT == LNYRIT-LNYRITP

118:   LNYRRIT == (DVUS*LNYRUS+DVUK*LNYRUK+DVCA*LNYRCA+DVFR*LNYRFR+DVGE*
       LNYRGE+DVJA*LNYRJA+DVNE*LNYRNE)*1/(1-DVIT)-6.93985

119:   LNPRIT == (DVUS*(LNPUS-LNEUS)+DVUK*(LNPUK-LNEUK)+DVCA*(LNPCA-LNECA
       )+DVFR*(LNPFR-LNEFR)+DVGE*(LNPGE-LNEGE)+DVJA*(LNPJA-LNEJA)+DVNE*(
       LNPNE-LNENE))*1/(1-DVIT)+0.920318

120:   Z1IT1 == 4*DEL(1 : LNPIT)-SGRPX1I1(-1)

121:   SGRPX1I1 == 4*(K0IT+K2IT*DEL(1 : LNMNIT(-1))+K4IT*DEL(1 : LNYRIT(
       -1))+K9IT*DEL(1 : LNPIT(-1))+K11IT*LNMITU(-1)+K12IT*LNMITU(-2)+
       K13IT*LNMITU(-3))

122:   GRPX1IT1 == SGRPX1I1+K14IT*Z1IT1+K15IT*Z1IT1(-1)

123:   ERIT1L == 4*DEL(1 : LNEIT)-GREITX11(-1)

124:   GREITX11 == 4*(L0IT+L3IT*PEGDIFIT+L4IT*DEL(1 : LNEIT))+L5IT*ERIT1L

125:   LNPIT = B1IT+LNMNIT+B2IT*LNYRITP+0*LNYRTIT+B4IT*RIT+B5IT*(LNMNIT(
       -1)-LNPIT(-1))+B6IT*LNMITU+B7IT*LNMITU(-1)+B8IT*LNMITU(-2)+B9IT*
       LNMITU(-3)

126:   LNYRIT = A1IT+A2IT*LNYRITP(-1)+(1-A2IT)*LNYRIT(-1)+A5IT*LNMITU(-2)
       +A10IT*LNGITU(-3)+A11IT*XTOYITU+A13IT*XTOYITU(-2)

127:   DEL(1 : LNMNIT) = E1IT+E2IT*T+E4IT*(LNGITU(-1)+LNGITU(-2))+E5IT*(
       LNGITU(-3)+LNGITU(-4))+E6IT*(LNPIT(-1)-LNPIT(-3))+E13IT*LNYRTIT(-4
       )+E14IT*BTOYIT+E15IT*0*BTOYIT+E16IT*(BTOYIT(-1)+BTOYIT(-2))

128:   RIT = D0IT+D1IT*GRPX1IT1+D14IT*RIT(-1)+D4IT*LNMITU(-2)+K6IT*LNGITU
       +D7IT*LNGITU(-1)+D10IT*XTOYITU+D11IT*XTOYITU(-1)

129:   LNPIMIT = LNPIMIT(-1)+F0IT+F20IT*DEL(1 : LNRPOIL)+F50IT*DEL(1 :
       LNPRIT)

130:   ITOYIT = I0IT+I1IT*ITOYIT(-1)+I2IT*LNYRITP+I3IT*LNYRTIT+0*LNYRTIT(
       -1)+0*LNQIMIT+I6IT*LNQIMIT(-1)+I7IT*LNQIMIT(-2)+0*LNQIMIT(-3)
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Table 7.3 (continued)

131:	XTOYIT = H0IT+H3IT*LNEIT(-1)+H5IT*LNRPOIL+H6IT*LNYRTIT+H7IT*T+H8IT *XTOYIT(-1)+H9IT*XTOYIT(-2)+H11IT*LNPRIT(-1)+H13IT*LNYRRIT(-1)+ H15IT*LNPIT(-1)
132:	CTOYIT = G0IT+G3IT*RIT+G4IT*GREITX11+G5IT*RUS+G6IT*(XTOYIT-ITOYIT)
133:	LNYRJAP = (1-ZPJA)*XPJA+ZPJA*LNYRJA+(1-ZPJA)*LNYRJAP(-1)
134:	LNQIMJA == LNPIMJA-LNPJA
135:	LNMJAU == LNMNJA-LNMNJAEX
136:	LNMNJAEX == LNMNJA(-1)+0.45216*(LNMNJA(-1)-LNMNJA(-2))+0.18984*(LNMNJA(-2)-LNMNJA(-3))+0.01423-0.41074*LNMJAU(-4)
137:	XTOYJAU == XTOYJA-XTOYJAEX
138:	XTOYJAEX == 2*XTOYJA(-1)-XTOYJA(-2)-1.1134*(DEL(1 : XTOYJA(-1))- DEL(1 : XTOYJA(-2)))-0.38594*(DEL(1 : XTOYJA(-2))-DEL(1 : XTOYJA(-3)))-0.60316*XTOYJAU(-4)+0.36554*XTOYJAU(-9)+5.000000E-05
139:	4*BTOYJA == XTOYJA-ITOYJA-CTOYJA
140:	LNYRTJA == LNYRJA-LNYRJAP
141:	LNYRRJA == (DVUS*LNYRUS+DVUK*LNYRUK+DVCA*LNYRCA+DVFR*LNYRFR+DVGE* LNYRGE+DVIT*LNYRIT+DVNE*LNYRNE)*1/(1-DVJA)-6.64583
142:	LNPRJA == (DVUS*(LNPUS-LNEUS)+DVUK*(LNPUK-LNEUK)+DVCA*(LNPCA-LNECA)+DVFR*(LNPFR-LNEFR)+DVGE*(LNPGE-LNEGE)+DVIT*(LNPIT-LNEIT)+DVNE*(LNPNE-LNENE))*1/(1-DVJA)+0.617771
143:	Z1JA2 == 4*DEL(1 : LNPJA)-SGRPX1J2(-1)
144:	SGRPX1J2 == 4*(K0JA+K2JA*DEL(1 : LNMNJA(-1))+K5JA*RJA+K6JA*RJA(-1) +K7JA*(RUS+GREJAX21)+K9JA*DEL(1 : LNPJA(-1)))
145:	GRPX1JA2 == SGRPX1J2+K14JA*Z1JA2+K15JA*Z1JA2(-1)
146:	ERJA2L == 4*DEL(1 : LNEJA)-GREJAX21(-1)
147:	GREJAX21 == 4*(L0JA+L1JA*BTOYJA+L3JA*PEGDIFJA+L4JA*DEL(1 : LNEJA)) +L5JA*ERJA2L+L6JA*ERJA2L(-1)
148:	LNPJA = B1JA+LNMNJA+B2JA*LNYRJAP+B3JA*LNYRTJA+B4JA*RJA+B10JA*(RUS+ GREJAX21)+B5JA*(LNMNJA(-1)-LNPJA(-1))+B6JA*LNMJAU+B7JA*LNMJAU(-1)+ B8JA*LNMJAU(-2)+B9JA*LNMJAU(-3)
149:	LNYRJA = A1JA+A2JA*LNYRJAP(-1)+(1-A2JA)*LNYRJA(-1)+A5JA*LNMJAU(-2) +A10JA*LNGJAU(-3)+A11JA*XTOYJAU+A13JA*XTOYJAU(-2)+A14JA*XTOYJAU(-3)
150:	DEL(1 : LNMNJA) = E1JA+E6JA*(LNPJA(-1)-LNPJA(-3))+E7JA*(0*(LNPJA(-1)-LNPJA(-3)))+E8JA*(LNPJA(-3)-LNPJA(-5))+E12JA*LNYRTJA(-3)+E13JA *LNYRTJA(-4)+E14JA*BTOYJA+E16JA*(BTOYJA(-1)+BTOYJA(-2))+E17JA*(0*(BTOYJA(-1)+BTOYJA(-2)))+E18JA*(BTOYJA(-3)+BTOYJA(-4))+E19JA*(0*(BTOYJA(-3)+BTOYJA(-4)))
151:	RJA = D0JA+D1JA*GRPX1JA2+D14JA*RJA(-1)+D16JA*GRPX1JA2(-1)+D15JA*T+ D2JA*LNMJAU+D3JA*LNMJAU(-1)+D4JA*LNMJAU(-2)+D5JA*LNMJAU(-3)+0* LNGJAU+D7JA*LNGJAU(-1)
152:	LNPIMJA = LNPIMJA(-1)+F0JA+F30JA*DEL(1 : LNYRRJA)+F40JA*DEL(1 : ITOYJA)+F50JA*DEL(1 : LNPRJA)+F60JA*DEL(1 : LNEJA)
153:	ITOYJA = I0JA+I1JA*ITOYJA(-1)+I2JA*LNYRJAP+I3JA*LNYRTJA+0*LNYRTJA(-1)+0*LNQIMJA+I6JA*LNQIMJA(-1)+0*LNQIMJA(-2)+I8JA*LNQIMJA(-3)
154:	XTOYJA = H0JA+H1JA*LNEJA+H5JA*LNRPOIL+H6JA*LNYRTJA+H7JA*T+H8JA* XTOYJA(-1)+H9JA*XTOYJA(-2)+H10JA*LNPRJA+H12JA*LNYRRJA+H13JA* LNYRRJA(-1)+H14JA*LNPJA
155:	CTOYJA = G0JA+G1JA*T+G3JA*RJA+G4JA*GREJAX21+G5JA*RUS+G8JA*DEL(1 : LNYRJA)
156:	LNYRNEP = (1-ZPNE)*XPNE+ZPNE*LNYRNE+(1-ZPNE)*LNYRNEP(-1)
157:	LNQIMNE == LNPIMNE-LNPNE
158:	LNMNEU == LNMNNE-LNMNNEEX
159:	LNMNNEEX == LNMNNE(-1)+0.34717*(LNMNNE(-1)-LNMNNE(-2))+0.37492*(LNMNNE(-2)-LNMNNE(-3))-0.43951*LNMNEU(-4)+0.00681

Table 7.3 (continued)

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160:    XTOYNEU == XTOYNE-XTOYNEEX

161:    XTOYNEEX == XTOYNE(-1)-0.31379*XTOYNEU(-1)-0.33862*XTOYNEU(-9)+
        0.00094

162:    4*BTOYNE == XTOYNE-ITOYNE-CTOYNE

163:    LNYRTNE == LNYRNE-LNYRNEP

164:    LNYRRNE == (DVUS*LNYRUS+DVUK*LNYRUK+DVCA*LNYRCA+DVFR*LNYRFR+DVGE*
        LNYRGE+DVIT*LNYRIT+DVJA*LNYRJA)*1/(1-DVNE)-7.17908

165:    LNPRNE == (DVUS*(LNPUS-LNEUS)+DVUK*(LNPUK-LNEUK)+DVCA*(LNPCA-LNECA
        )+DVFR*(LNPFR-LNEFR)+DVGE*(LNPGE-LNEGE)+DVIT*(LNPIT-LNEIT)+DVJA*(
        LNPJA-LNEJA))*1/(1-DVNE)+1.1838

166:    Z1NE1L == 4*DEL(1 : LNPNE)-GRPX1NE1(-1)

167:    GRPX1NE1 == 4*(K0NE+K1NE*LNMNNEEX+K2NE*LNMNNE(-1)+K4NE*DEL(1 :
        LNYRNE(-1))+K6NE*RNE(-1)+K9NE*DEL(1 : LNPNE(-1))+K11NE*LNMNEU(-1))
        +K14NE*Z1NE1L+K15NE*Z1NE1L(-1)

168:    GRENEX11 == 4*(L0NE+L3NE*PEGDIFNE+L4NE*DEL(1 : LNENE)+L5NE*DMY611(
        -1))

169:    LNPNE = B1NE+LNMNNE+B2NE*LNYRNEP+B3NE*LNYRTNE+B4NE*RNE+B10NE*(RUS+
        GRENEX11)+B5NE*(LNMNNE(-1)-LNPNE(-1))+B6NE*LNMNEU+B7NE*LNMNEU(-1)+
        B8NE*LNMNEU(-2)+B9NE*LNMNEU(-3)

170:    LNYRNE = A1NE+A2NE*LNYRNEP(-1)+(1-A2NE)*LNYRNE(-1)+A3NE*LNMNEU+
        A4NE*LNMNEU(-1)+A5NE*LNMNEU(-2)+A6NE*LNMNEU(-3)+A7NE*LNGNEU+A8NE*
        LNGNEU(-1)+A9NE*LNGNEU(-2)+A10NE*LNGNEU(-3)+A11NE*XTOYNEU+A12NE*
        XTOYNEU(-1)+A13NE*XTOYNEU(-2)+A14NE*XTOYNEU(-3)

171:    DEL(1 : LNMNNE) = E1NE+E2NE*T+E3NE*LNGNEU+E4NE*(LNGNEU(-1)+LNGNEU(
        -2))+E5NE*(LNGNEU(-3)+LNGNEU(-4))+E6NE*(LNPNE(-1)-LNPNE(-3))+E7NE*
        (0*(LNPNE(-1)-LNPNE(-3)))+E11NE*LNYRTNE(-2)+E12NE*LNYRTNE(-1)+
        E14NE*BTOYNE+E16NE*(BTOYNE(-1)+BTOYNE(-2))+E17NE*(0*(BTOYNE(-1)+
        BTOYNE(-2)))

172:    RNE = D0NE+D1NE*GRPX1NE1+D14NE*RNE(-1)+D15NE*T+D3NE*LNMNEU(-1)+
        D4NE*LNMNEU(-2)+D10NE*XTOYNEU+D11NE*XTOYNEU(-1)+D13NE*XTOYNEU(-3)

173:    LNPIMNE = LNPIMNE(-1)+F0NE+F10NE*DEL(1 : LNPIMNE(-1))+F20NE*DEL(1
         : LNRPOIL)+F40NE*DEL(1 : ITOYNE)+F50NE*DEL(1 : LNPRNE)+F60NE*DEL(
        1 : LNENE)

174:    ITOYNE = I0NE+I1NE*ITOYNE(-1)+I2NE*LNYRNEP+I3NE*LNYRTNE+I5NE*
        LNQIMNE

175:    XTOYNE = H0NE+H1NE*LNENE+H5NE*LNRPOIL+H6NE*LNYRTNE+H7NE*T+H8NE*
        XTOYNE(-1)+H10NE*LNPRNE+H12NE*LNYRRNE+H13NE*LNYRRNE(-1)+H14NE*
        LNPNE

176:    CTOYNE = G0NE+G1NE*T+G2NE*LNRPOIL+G3NE*RNE+G4NE*GRENEX11+G5NE*RUS+
        G6NE*(XTOYNE-ITOYNE)+G7NE*LNYRTNE
```

COEFFICIENT AND PARAMETER VALUES (CONST_MARK4PEG)

A1CA	0.010803	A1FR	0.012619	A1GE	0.010821
A1IT	0.011699	A1JA	0.020614	A1NE	0.009964
A1UK	0.005561	A1US	0.007884	A10CA	-0.01349
A10FR	0.016439	A10GE	0.013896	A10IT	0.025164
A10JA	-0.026697	A10NE	0.035157	A10UK	-0.023974
A10US	0.067441	A11CA	0.679057	A11FR	0.213191
A11GE	0.296236	A11IT	-0.383459	A11JA	-1.91914
A11NE	0.097619	A11UK	0.189683	A11US	0.717539
A12CA	0.164836	A12FR	-0.715374	A12GE	-0.23778
A12IT	-0.044277	A12JA	0.349852	A12NE	-0.064686
A12UK	0.42402	A12US	0.532314	A13CA	-0.028676
A13FR	0.015316	A13GE	-0.333226	A13IT	-0.227114
A13JA	-1.15516	A13NE	0.104741	A13UK	-0.21287
A13US	-0.0415	A14CA	0.544787	A14FR	0.121494
A14GE	-0.514582	A14IT	-0.465483	A14JA	-1.09256
A14NE	-0.113143	A14UK	0.006859	A14US	-0.925131
A2CA	0.134071	A2FR	0.102126	A2GE	0.04147
A2IT	0.02481	A2JA	-0.038396	A2NE	0.090174
A2UK	0.240655	A2US	0.088859	A3CA	0.244862
A3FR	-0.264118	A3GE	0.344867	A3IT	0.093876
A3JA	0.142673	A3NE	0.241184	A3UK	-0.18449

Table 7.3 (continued)

A3US	0.967393	A4CA	0.177733	A4FR	0.068796
A4GE	0.069415	A4IT	0.079064	A4JA	0.1083
A4NE	0.094424	A4UK	0.040359	A4US	0.548935
A5CA	0.075535	A5FR	0.10011	A5GE	-0.01725
A5IT	0.266542	A5JA	0.211515	A5NE	-0.03886
A5UK	-0.026207	A5US	-0.04704	A6CA	0.193415
A6FR	-0.055212	A6GE	0.04078	A6IT	-0.01757
A6JA	0.088371	A6NE	0.006819	A6UK	-0.126895
A6US	0.935403	A7CA	-0.004872	A7FR	0.072732
A7GE	-0.036326	A7IT	-0.001348	A7JA	0.044268
A7NE	0.037422	A7UK	0.174624	A7US	-0.034466
A8CA	-0.149956	A8FR	0.007462	A8GE	0.030281
A8IT	0.000596	A8JA	-0.019563	A8NE	-0.031181
A8UK	0.027366	A8US	0.138711	A9CA	-0.02829
A9FR	0.049895	A9GE	-0.00762	A9IT	-0.001628
A9JA	0.044973	A9NE	0.016572	A9UK	0.118697
A9US	0.05507	B1CA	0.119397	B1FR	0.05478
B1GE	0.073547	B1IT	0.206264	B1JA	0.448139
B1NE	-0.005675	B1UK	-0.151938	B1US	0.083905
B10CA	-0.056102	B10FR	0.029941	B10GE	-0.008847
B10IT	-0.037786	B10JA	0.080375	B10NE	0.000617
B10UK	0.078828	B10US	-0.001131	B2CA	-0.218794
B2FR	-0.018392	B2GE	-0.063613	B2IT	-0.069682
B2JA	-0.201664	B2NE	-0.081835	B2UK	-0.046894
B2US	-0.022227	B3CA	-0.152691	B3FR	-0.018886
B3GE	-0.006227	B3IT	-0.042952	B3JA	-0.065941
B3NE	0.107645	B3UK	-0.276035	B3US	-0.09072
B4CA	0.244962	B4FR	0.462903	B4GE	0.023618
B4IT	0.160445	B4JA	0.95586	B4NE	-0.013744
B4UK	0.504004	B4US	0.346502	B5CA	-0.628784
B5FR	-0.996486	B5GE	-0.935252	B5IT	-0.947684
B5JA	-0.827685	B5NE	-0.890964	B5UK	-0.872932
B5US	-0.9906	B6CA	-1.07886	B6FR	-0.724769
B6GE	-1.07676	B6IT	-1.24523	B6JA	-0.988582
B6NE	-0.977966	B6UK	-0.689923	B6US	-0.725851
B7CA	-0.267171	B7FR	-0.237026	B7GE	-0.141736
B7IT	-0.191914	B7JA	-0.356822	B7NE	-0.451249
B7UK	0.037385	B7US	-0.393195	B8CA	-0.271711
B8FR	0.024827	B8GE	-0.311723	B8IT	-0.378815
B8JA	-0.312743	B8NE	-0.621455	B8UK	-0.151933
B8US	0.169832	B9CA	-0.635726	B9FR	0.04942
B9GE	-0.308631	B9IT	-0.151063	B9JA	-0.289714
B9NE	-0.309134	B9UK	-0.167466	B9US	0.016405
C1FR	0.001842	C1UK	0.002293	C1US	0.004693
C20FR	-0.033332	C20UK	-0.087536	C20US	-0.198491
C21FR	-0.036075	C21UK	-0.032481	C21US	-0.187741
C22FR	-0.024205	C22UK	-0.064932	C22US	-0.050647
C23FR	-0.011601	C23UK	-0.054861	C23US	-0.063531
C24FR	-0.003691	C24UK	-0.041132	C24US	0.059092
C25FR	-0.010717	C25UK	-0.01505	C25US	0.017716
C26FR	0.000474	C26UK	-0.005727	C26US	-0.027592
C27FR	0.0072	C27UK	0.000353	C27US	-0.061705
DVCA	0.046296	DVFR	0.077221	DVGE	0.107001
DVIT	0.048061	DVJA	0.107898	DVNE	0.018771
DVUK	0.063287	DVUS	0.531464	D0CA	0.002086
D0FR	0.003366	D0GE	0.003628	D0IT	-0.002471
D0JA	-0.000932	D0NE	0.003585	D0UK	0.003081
D0US	0.010089	D1CA	0.049893	D1FR	0.073674
D1GE	0.231726	D1IT	0.027008	D1JA	0.027117
D1NE	-0.043995	D1UK	0.009035	D1US	0.434367
D10CA	-0.007863	D10FR	0.20013	D10GE	0.20221
D10IT	0.239529	D10JA	0.007364	D10NE	0.137002
D10UK	0.192508	D10US	0.508074	D11CA	0.037268
D11FR	0.12238	D11GE	-0.24158	D11IT	0.161757
D11JA	-0.025161	D11NE	0.06167	D11UK	0.018407
D11US	0.23597	D12CA	-0.013955	D12FR	0.194568
D12GE	0.0877	D12IT	0.054745	D12JA	0.025661
D12NE	0.03381	D12UK	-0.003938	D12US	0.544253
D13CA	-0.032712	D13FR	0.07675	D13GE	-0.24942
D13IT	-0.009773	D13JA	0.002267	D13NE	0.048054
D13UK	0.213998	D13US	-0.213716	D14CA	0.961863
D14FR	0.763452	D14GE	0.76264	D14IT	1.02768
D14JA	0.983108	D14NE	0.799926	D14UK	0.825858
D14US	0.539202	D15CA	-3.498167E-05	D15FR	0.000154
D15GE	3.845550E-05	D15IT	1.960370E-05	D15JA	-2.144426E-05
D15NE	0.000151	D15UK	0.000183	D15US	-6.091796E-06
D16CA	0.005978	D16FR	0.0124	D16GE	-0.06953
D16IT	-0.019956	D16JA	0.030428	D16NE	0.04514
D16UK	-0.022298	D16US	-0.154852	D2CA	-0.078202
D2FR	-0.49829	D2GE	0.1307	D2IT	-0.020386
D2JA	-0.006893	D2NE	0.07838	D2UK	-0.299766
D2US	-0.230722	D3CA	0.015319	D3FR	-0.154023
D3GE	0.07571	D3IT	0.004611	D3JA	-0.021473

Table 7.3 (continued)

D3NE	-0.162029	D3UK	0.025404	D3US	0.163077
D4CA	0.092836	D4FR	-0.09139	D4GE	0.10942
D4IT	0.037063	D4JA	-0.032911	D4NE	0.06593
D4UK	0.036448	D4US	0.091665	D5CA	0.116664
D5FR	0.03674	D5GE	0.05852	D5IT	0.02739
D5JA	-0.016782	D5NE	0.00622	D5UK	0.077159
D5US	0.103347	D6CA	-0.073145	D6FR	-0.034926
D6GE	-0.02391	D6IT	-0.005287	D6JA	0.000489
D6NE	0.00239	D6UK	-0.050417	D6US	-0.020453
D7CA	-0.001992	D7FR	0.01672	D7GE	0.00277
D7IT	-0.004384	D7JA	0.001793	D7NE	0.00041
D7UK	0.022854	D7US	0.01894	D8CA	0.032561
D8FR	-0.01609	D8GE	-0.0128	D8IT	-0.000764
D8JA	0.000889	D8NE	0.00664	D8UK	0.014188
D8US	0.02294	D9CA	0.017438	D9FR	-0.00794
D9GE	0.01666	D9IT	-0.003281	D9JA	0.000607
D9NE	0.01609	D9UK	0.001453	D9US	0.015392
E1CA	0.007281	E1FR	0.03332	E1GE	0.013288
E1IT	0.019544	E1JA	0.054274	E1NE	0.010131
E1UK	-0.00433	E1US	0.00329	E10CA	-0.034398
E10FR	1.58587	E10GE	-0.036416	E10IT	0.105504
E10JA	0.005894	E10NE	0.033838	E10UK	1.23133
E10US	-0.116645	E11CA	-0.054589	E11FR	-1.02545
E11GE	0.102443	E11IT	-0.126347	E11JA	-0.022105
E11NE	0.004899	E11UK	-0.550499	E11US	0.426361
E12CA	-0.077664	E12FR	4.39695	E12GE	-0.191149
E12IT	0.126007	E12JA	-0.158405	E12NE	0.019509
E12UK	5.57298	E12US	-0.468037	E13CA	-0.041273
E13FR	-3.24907	E13GE	0.084755	E13IT	-0.151066
E13JA	0.284267	E13NE	-0.028792	E13UK	-4.2394
E13US	-0.054576	E14CA	-0.396027	E14FR	0.10534
E14GE	1.628	E14IT	-3.88655	E14JA	1.95052
E14NE	0.403001	E14UK	-0.068485	E15CA	3.68752
E15FR	0.103117	E15GE	0.019635	E15IT	4.10458
E15JA	-0.574234	E15NE	0.700825	E15UK	0.596763
E16CA	0.670052	E16FR	0.108524	E16GE	0.09378
E16IT	1.57536	E16JA	1.83261	E16NE	0.292781
E16UK	0.282168	E17CA	-2.84711	E17FR	-0.132219
E17GE	0.332797	E17IT	-0.686828	E17JA	-2.53069
E17NE	-0.892653	E17UK	-0.521172	E18CA	0.286188
E18FR	0.761771	E18GE	0.625931	E18IT	-0.372264
E18JA	1.71901	E18NE	0.091526	E18UK	0.187571
E19CA	2.14929	E19FR	0.060458	E19GE	0.039871
E19IT	0.810022	E19JA	-1.78208	E19NE	-0.971241
E19UK	-0.204191	E2CA	0.000184	E2FR	-0.000192
E2GE	-8.064001E-05	E2IT	0.000454	E2JA	-1.888251E-05
E2NE	0.000421	E2UK	-6.443714E-07	E2US	0.000243
E20US	0.496825	E21US	-0.248602	E3CA	0.10149
E3FR	0.00301	E3GE	0.043045	E3IT	-0.014448
E3JA	-0.021866	E3NE	0.058633	E3UK	0.107434
E3US	0.004036	E4CA	0.138066	E4FR	0.011217
E4GE	-0.014921	E4IT	-0.03104	E4JA	0.031742
E4NE	-0.027174	E4UK	0.163098	E4US	0.001552
E5CA	-0.003532	E5FR	-0.017824	E5GE	-0.0225
E5IT	-0.023132	E5JA	0.026185	E5NE	-0.040335
E5UK	0.02989	E5US	0.033956	E6CA	-0.197234
E6FR	-0.057298	E6GE	0.097666	E6IT	-0.09435
E6JA	-0.564806	E6NE	-0.316001	E6UK	0.07705
E6US	-0.057597	E7CA	0.264871	E7FR	0.574765
E7GE	-0.763707	E7IT	0.037192	E7JA	0.415324
E7NE	0.206985	E7UK	0.024239	E8CA	-0.113296
E8FR	-0.0748	E8GE	-0.343714	E8IT	0.262491
E8JA	-0.226858	E8NE	0.05664	E8UK	0.156708
E8US	-0.286081	E9CA	-0.001604	E9FR	0.28364
E9GE	0.700672	E9IT	-0.129687	E9JA	0.014509
E9NE	0.062226	E9UK	-0.074746	F0CA	0.001455
F0FR	-0.00816	F0GE	-0.010675	F0IT	-0.009255
F0JA	-0.018463	F0NE	-0.004765	F0UK	-0.015403
F0US	0.000225	F10CA	-0.053768	F10FR	-0.099353
F10GE	0.242206	F10IT	0.072819	F10JA	0.124816
F10NE	0.223077	F10UK	-0.002007	F10US	0.616185
F20CA	-0.245403	F20FR	0.052207	F20GE	0.006946
F20IT	0.176537	F20JA	-0.07173	F20NE	0.09354
F20UK	-0.040341	F20US	0.067515	F30CA	0.279496
F30FR	-0.026652	F30GE	0.290149	F30IT	-0.14876
F30JA	0.804933	F30NE	-0.255302	F30UK	0.740935
F30US	0.15222	F40CA	0.784069	F40FR	1.76086
F40GE	-0.377934	F40IT	-0.221008	F40JA	3.84313
F40NE	0.138543	F40UK	0.189983	F40US	2.25319
F50CA	0.270787	F50FR	1.25097	F50GE	1.20028
F50IT	1.31648	F50JA	1.30657	F50NE	0.968503
F50UK	1.28695	F50US	0.153811	F60CA	0.02143
F60FR	0.612717	F60GE	0.468396	F60IT	-1.1264

Table 7.3 (continued)

F60JA	0.710113	F60NE	0.799582	F60UK	0.533112
G0CA	-0.003648	G0FR	-0.001236	G0GE	-0.012056
G0IT	-0.003179	G0JA	0.045769	G0NE	-0.008552
G0UK	0.013468	G0US	0.004428	G1CA	-0.000105
G1FR	-9.407155E-05	G1GE	-3.927120E-06	G1IT	0.000155
G1JA	-3.658464E-05	G1NE	2.173991E-05	G1UK	-0.000265
G1US	5.279754E-05	G10CA	-0.050435	G10FR	0.636369
G10GE	-0.002451	G10IT	1.38277	G10JA	-0.610265
G10NE	0.696158	G10UK	0.757122	G10US	-0.299741
G11CA	-0.298437	G11FR	0.258753	G11GE	-0.422543
G11IT	0.442983	G11JA	-1.14262	G11NE	-0.687287
G11UK	-0.828963	G11US	0.347438	G12CA	0.16578
G12FR	0.908516	G12GE	0.405291	G12IT	0.361741
G12JA	-0.346612	G12NE	0.363585	G12UK	-0.680074
G12US	-0.480483	G2CA	0.007542	G2FR	0.013437
G2GE	0.0044	G2IT	0.000184	G2JA	0.031405
G2NE	0.015183	G2UK	-0.046579	G2US	-0.001341
G20CA	0.259146	G20FR	-0.654758	G20GE	0.621408
G20IT	-0.172217	G20JA	-0.826017	G20NE	0.983567
G20UK	0.317069	G20US	0.007598	G21CA	0.213911
G21FR	-0.994672	G21GE	0.132577	G21IT	-0.352289
G21JA	-0.091766	G21NE	0.171835	G21UK	-0.576976
G21US	0.034483	G22CA	-0.194408	G22FR	0.386726
G22GE	0.546939	G22IT	-0.02103	G22JA	-0.232578
G22NE	0.979839	G22UK	0.525568	G22US	0.111434
G3CA	-0.209463	G3FR	-0.249651	G3GE	-0.3022
G3IT	-0.204769	G3JA	-0.583978	G3NE	-0.679193
G3UK	0.752483	G3US	-0.100705	G30CA	0.04415
G30FR	-0.002254	G30GE	0.052299	G30IT	-0.045144
G30JA	0.038284	G30NE	-0.086553	G30UK	-0.342353
G30US	-0.003303	G31CA	-0.048232	G31FR	0.000667
G31GE	0.046935	G31IT	0.037957	G31JA	0.033051
G31NE	-0.051527	G31UK	-0.076486	G31US	0.003961
G32CA	-0.06872	G32FR	-0.017283	G32GE	0.051619
G32IT	0.071145	G32JA	0.023627	G32NE	0.04683
G32UK	0.016799	G32US	-0.004193	G4CA	0.399296
G4FR	0.073793	G4GE	0.097097	G4IT	0.071244
G4JA	0.05497	G4NE	0.024806	G4UK	0.444298
G4US	-0.034747	G5CA	0.525327	G5FR	0.332204
G5GE	0.243101	G5IT	0.328725	G5JA	0.064557
G5NE	0.543858	G5UK	-0.927833	G5US	-0.209762
G6CA	0.854509	G6FR	0.184551	G6GE	0.679257
G6IT	0.4522	G6JA	-0.212536	G6NE	0.53443
G6UK	-1.08654	G6US	0.571938	G7CA	0.101733
G7FR	0.060923	G7GE	-0.065372	G7IT	-0.006446
G7JA	0.04405	G7NE	0.077908	G7UK	-0.696908
G7US	-0.053545	G8CA	-0.115046	G8FR	0.076835
G8GE	0.516343	G8IT	-0.125914	G8JA	-0.219103
G8NE	-0.045435	G8UK	0.51128	G8US	-0.106903
G9CA	0.037359	G9FR	-0.195855	G9GE	-0.940238
G9IT	-0.262394	G9JA	0.034766	G9NE	-0.454351
G9UK	0.080414	G9US	0.05499	H0CA	0.203896
H0FR	0.129624	H0GE	0.089664	H0IT	-0.878539
H0JA	-0.060943	H0NE	0.253769	H0UK	0.548739
H0US	0.077502	H1CA	-0.152912	H1FR	0.073406
H1GE	0.040487	H1IT	-0.018547	H1JA	0.016673
H1NE	0.12252	H1UK	0.051451	H1US	0.014957
H10CA	0.025102	H10FR	0.010249	H10GE	0.247567
H10IT	-0.071293	H10JA	0.018682	H10NE	0.586296
H10UK	0.091918	H10US	0.00826	H11CA	-0.049448
H11FR	0.239274	H11GE	0.044574	H11IT	0.081144
H11JA	-0.048667	H11NE	-0.41788	H11UK	0.306618
H11US	0.01138	H12CA	0.113463	H12FR	0.248513
H12GE	0.1238	H12IT	0.05552	H12JA	-0.119308
H12NE	0.500342	H12UK	-0.010101	H13CA	0.08955
H13FR	0.054154	H13GE	-0.021665	H13IT	0.201372
H13JA	0.149767	H13NE	-0.165191	H13UK	0.113126
H14CA	0.085483	H14FR	-0.021497	H14GE	-0.066495
H14IT	0.055937	H14JA	-0.010149	H14NE	-0.499385
H14UK	-0.103932	H15CA	0.035674	H15FR	-0.077889
H15GE	-0.326702	H15IT	-0.109401	H15JA	-0.03302
H15NE	0.186242	H15UK	-0.124118	H2CA	0.085196
H2FR	-0.000659	H2GE	-0.001326	H2IT	0.001095
H2JA	0.000277	H2NE	-0.003371	H2UK	-0.006863
H2US	0.01107	H3CA	-0.038753	H3FR	0.049731
H3GE	0.009901	H3IT	0.164379	H3JA	-0.012907
H3NE	-0.065659	H3UK	0.148371	H3US	-0.00087
H4CA	0.053718	H4FR	-0.003771	H4GE	0.003139
H4IT	-0.000501	H4JA	-0.000414	H4NE	0.000248
H4UK	0.003317	H4US	0.610356	H5CA	0.012595
H5FR	0.01573	H5GE	0.028759	H5IT	0.018264
H5JA	-0.000268	H5NE	0.032386	H5UK	0.014503

Table 7.3 (continued)

H5US	0.072265	H6CA	-0.068748	H6FR	0.011124
H6GE	0.043488	H6IT	-0.116616	H6JA	-0.030858
H6NE	0.154034	H6UK	-0.038433	H6US	0.010184
H7CA	-0.001767	H7FR	-0.00426	H7GE	-0.001028
H7IT	-0.001111	H7JA	-0.000251	H7NE	-0.002796
H7UK	-0.002765	H7US	-0.008498	H8CA	0.342569
H8FR	0.234953	H8GE	0.347365	H8IT	0.235021
H8JA	0.292216	H8NE	0.51165	H8UK	0.329246
H8US	0.067992	H9CA	0.272154	H9FR	0.250369
H9GE	0.113401	H9IT	0.229865	H9JA	0.123404
H9NE	0.081916	H9UK	0.102093	H9US	0.018369
I0CA	-0.372035	I0FR	-0.040159	I0GE	-0.113784
I0IT	-0.361626	I0JA	-0.023309	I0NE	-1.37868
I0UK	-0.334918	I0US	-0.104698	I1CA	0.202255
I1FR	0.795262	I1GE	0.545657	I1IT	0.772121
I1JA	0.720108	I1NE	0.326505	I1UK	0.346076
I1US	0.661462	I2CA	0.127849	I2FR	0.010317
I2GE	0.032126	I2IT	0.036875	I2JA	0.002864
I2NE	0.364942	I2UK	0.13774	I2US	0.018057
I3CA	-0.017921	I3FR	0.062886	I3GE	0.032967
I3IT	0.093963	I3JA	0.013094	I3NE	0.277274
I3UK	-0.08037	I3US	0.082842	I4CA	0.179301
I4FR	-0.059963	I4GE	0.014642	I4IT	-0.013925
I4JA	0.00033	I4NE	0.042767	I4UK	0.034769
I4US	-0.066497	I5CA	0.131179	I5FR	0.037033
I5GE	-0.007693	I5IT	-0.040057	I5JA	0.010134
I5NE	0.406705	I5UK	0.129456	I5US	0.036839
I6CA	-0.075556	I6FR	-0.018874	I6GE	0.033623
I6IT	0.117275	I6JA	0.053008	I6NE	-0.157412
I6UK	0.085876	I6US	0.052165	I7CA	-0.055634
I7FR	-0.041407	I7GE	0.053553	I7IT	-0.091501
I7JA	-8.886478E-05	I7NE	-0.074126	I7UK	-0.031961
I7US	-0.068607	I8CA	0.066109	I8FR	0.018122
I8GE	-0.028847	I8IT	0.016146	I8JA	-0.041865
I8NE	-0.04174	I8UK	0.014522	I8US	0.004386
K0CA	-0.03672	K0FR	-0.007933	K0GE	-0.004188
K0IT	0.030647	K0JA	0.066137	K0NE	-0.019439
K0UK	-0.08629	K0US	-0.118647	K1CA	-1.00189
K1FR	0.09518	K1GE	0.084483	K1IT	-70.1123
K1JA	-0.28134	K1NE	0.074312	K1UK	-0.21725
K1US	-1.704	K10CA	-0.50794	K10FR	-0.10998
K10GE	-0.05558	K10IT	0.1779	K10JA	-0.05976
K10NE	0.11578	K10UK	-0.36774	K10US	-0.266557
K11CA	0.43356	K11FR	-0.205692	K11GE	8.54003
K11IT	0.510238	K11JA	0.10676	K11NE	-0.120811
K11UK	0.7103	K11US	-0.011724	K12CA	-0.16197
K12FR	-0.04162	K12GE	21.9658	K12IT	0.196408
K12JA	0.15317	K12NE	-7.00023	K12UK	-0.40683
K12US	0.222	K13CA	-0.19053	K13FR	-0.07258
K13GE	28.5363	K13IT	0.182301	K13JA	0.0343
K13NE	-5.78759	K13UK	0.28402	K13US	0.02
K14CA	-0.2753	K14FR	0.6105	K14GE	0.1874
K14IT	0.36478	K14JA	0.2194	K14NE	-0.2528
K14UK	-0.21338	K14US	0.2778	K15CA	-0.6962
K15FR	-0.1698	K15GE	0.5547	K15IT	0.42363
K15JA	0.4259	K15NE	0.5438	K15UK	0.5093
K15US	-0.1317	K2CA	-0.04238	K2FR	0.275907
K2GE	79.9045	K2IT	-0.372853	K2JA	0.14682
K2NE	-0.064781	K2UK	-0.29567	K2US	0.087633
K3CA	0.06676	K3FR	-0.34383	K3GE	-0.02164
K3IT	-10.1092	K3JA	-0.18028	K3NE	-5.04602
K3UK	0.56026	K3US	-0.065193	K4CA	0.06475
K4FR	0.0028	K4GE	0.138669	K4IT	-0.185426
K4JA	-0.02574	K4NE	0.243743	K4UK	0.13262
K4US	-0.055842	K5CA	0.34558	K5FR	0.05509
K5GE	-0.01241	K5IT	0.07162	K5JA	1.33237
K5NE	-0.04987	K5UK	0.02992	K5US	0.140337
K6CA	-0.51519	K6FR	0.216151	K6GE	0.089455
K6IT	-0.004496	K6JA	-2.03841	K6NE	0.108302
K6UK	0.14599	K6US	-0.038	K7CA	0.01197
K7FR	0.00344	K7GE	0.01888	K7IT	-0.03065
K7JA	0.056447	K7NE	-0.03923	K7UK	0.04164
K7US	0.008	K8CA	-0.0327	K8FR	0.01106
K8GE	0.01352	K8IT	-0.01914	K8JA	0.00436
K8NE	-0.02741	K8UK	-0.02842	K8US	-0.009
K9CA	0.49477	K9FR	0.11732	K9GE	0.579013
K9IT	-0.15663	K9JA	-0.212914	K9NE	-0.392292
K9UK	0.35337	K9US	0.246549	L0CA	-0.000111
L0FR	0.001753	L0GE	0.001334	L0IT	-0.000106
L0JA	-0.000313	L0NE	-0.001407	L0UK	0.001221
L1CA	-0.044797	L1FR	-0.736738	L1GE	-0.672213
L1IT	-0.2118	L1JA	-0.579833	L1NE	-0.1362
L1UK	-0.5398	L2CA	33.9022	L2FR	131.55

Table 7.3 (continued)

L2GE	-113.957	L2IT	17.655	L2JA	-405.337
L2NE	10.9493	L2UK	29.8764	L3CA	-0.0089
L3FR	0.6546	L3GE	-0.2109	L3IT	-0.032609
L3JA	0.076104	L3NE	-0.192914	L3UK	0.1369
L4CA	0.510603	L4FR	0.916987	L4GE	0.238757
L4IT	0.970475	L4JA	0.142382	L4NE	0.624358
L4UK	0.564549	L5CA	-1.	L5FR	-0.036492
L5GE	0.0106	L5IT	-1.	L5JA	-0.0779
L5NE	0.024793	L5UK	-0.023716	L6FR	-0.65
L6GE	-0.0086	L6JA	-0.3398	L7FR	-0.35
M0CA	-0.00314	M0FR	0.06315	M0GE	0.00064
M0IT	0.0232	M0JA	0.00323	M0NE	0.02739
M0UK	0.00597	M1CA	0.05183	M1FR	0.13361
M1GE	-0.95133	M1IT	-0.08897	M1JA	-0.03233
M1NE	0.11611	M1UK	0.80037	M2CA	-0.00683
M2FR	-0.06955	M2GE	0.05737	M2IT	-0.029
M2JA	-0.03956	M2NE	-0.07818	M2UK	-0.02808
M3CA	0.07509	M3FR	-1.13931	M3GE	-0.73465
M3IT	0.76727	M3JA	-0.87177	M3NE	-0.66181
M3UK	1.20971	M4CA	-0.30121	M4FR	1.42566
M4GE	2.98731	M4IT	0.1553	M4JA	3.92447
M4NE	-0.10364	M4UK	-2.03867	M5CA	0.18038
M5FR	-3.15593	M5GE	-0.13434	M5IT	-0.35833
M5JA	-0.02198	M5NE	-1.97462	M5UK	-0.98978
M6CA	0.31538	M6FR	-0.39385	M6GE	0.18685
M6IT	0.15115	M6JA	0.20401	M6NE	-0.35813
M6UK	-0.20116	P	4.	XPCA	0.012
XPFR	0.01379	XPGE	0.01143	XPIT	0.01218
XPJA	0.0228	XPNE	0.01161	XPUK	0.0067
XPUS	0.00866	ZPCA	0.025	ZPFR	0.025
ZPGE	0.025	ZPIT	0.025	ZPJA	0.025
ZPNE	0.025	ZPUK	0.025	ZPUS	0.025

Table 7.4 The Floating Period Model: Mark IV–FLT

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SYMBOL DECLARATIONS


ENDOGENOUS:
   BTOYCA  BTOYFR  BTOYGE  BTOYIT  BTOYJA  BTOYNE  BTOYUK  BTOYUS  CTOYCA
   CTOYFR  CTOYGE  CTOYIT  CTOYJA  CTOYNE  CTOYUK  CTOYUS  GRECAX11  GREFRX11
   GREGEX21  GREITX11  GREJAX21  GRENEX11  GREUKX11  GRPX1CA1  GRPX1FR1
   GRPX1GE1  GRPX1IT1  GRPX1JA2  GRPX1NE1  GRPX1UK1  GRPX1US1  ITOYCA  ITOYFR
   ITOYGE  ITOYIT  ITOYJA  ITOYNE  ITOYUK  ITOYUS  LNECA  LNEFR  LNEGE  LNEIT
   LNEJA  LNENE  LNEUK  LNMCAU  LNMFRU  LNMGEU  LNMITU  LNMJAU  LNMNCA  LNMNCAEX
   LNMNEU  LNMNFR  LNMNFREX  LNMNGE  LNMNGEEX  LNMNIT  LNMNITEX  LNMNJA
   LNMNJAEX  LNMNNE  LNMNNEEX  LNMNUK  LNMNUKEX  LNMNUS  LNMNUSEX  LNMUKU
   LNMUSU  LNPCA  LNPFR  LNPGE  LNPIMCA  LNPIMFR  LNPIMGE  LNPIMIT  LNPIMJA
   LNPIMNE  LNPIMUK  LNPIMUS  LNPIT  LNPJA  LNPNE  LNPRCA  LNPRFR  LNPRGE
   LNPRIT  LNPRJA  LNPRNE  LNPRUK  LNPRUS  LNPUK  LNPUS  LNQIMCA  LNQIMFR
   LNQIMGE  LNQIMIT  LNQIMJA  LNQIMNE  LNQIMUK  LNQIMUS  LNYRCA  LNYRCAP  LNYRFR
   LNYRFRP  LNYRGE  LNYRGEP  LNYRIT  LNYRITP  LNYRJA  LNYRJAP  LNYRNE  LNYRNEP
   LNYRRCA  LNYRRFR  LNYRRGE  LNYRRIT  LNYRRJA  LNYRRNE  LNYRRUK  LNYRRUS
   LNYRTCA  LNYRTFR  LNYRTGE  LNYRTIT  LNYRTJA  LNYRTNE  LNYRTUK  LNYRTUS
   LNYRUK  LNYRUKP  LNYRUS  LNYRUSP  RCA  RFR  RGE  RIT  RJA  RNE  RUK  RUS
   SGRPX1C1  SGRPX1F1  SGRPX1I1  SGRPX1J2  UNFR  UNUK  UNUS  XTOYCA  XTOYCAEX
   XTOYCAU  XTOYFR  XTOYFREX  XTOYFRU  XTOYGE  XTOYGEEX  XTOYGEU  XTOYIT
   XTOYITEX  XTOYITU  XTOYJA  XTOYJAEX  XTOYJAU  XTOYNE  XTOYNEEX  XTOYNEU
   XTOYUK  XTOYUKEX  XTOYUKU  XTOYUS  XTOYUSEX  XTOYUSU  Z1CA1L  Z1GE1L  Z1IT1
   Z1JA2  Z1NE1L  Z1UK1L  Z1US1L  Z2FR1

EXOGENOUS:
   LNEUS  LNGCAU  LNGFRU  LNGGEU  LNGITU  LNGJAU  LNGNEU  LNGUKU  LNGUSU
   LNRPOIL  T

COEFFICIENT:
   A1CA  A1FR  A1GE  A1IT  A1JA  A1NE  A1UK  A1US  A10IT  A10JA  A10NE  A10US
   A11CA  A11FR  A11GE  A11IT  A11JA  A11NE  A11US  A12GE  A12NE  A12UK  A12US
   A13GE  A13IT  A13JA  A13NE  A14CA  A14GE  A14JA  A14NE  A2CA  A2FR  A2GE
   A2IT  A2JA  A2NE  A2UK  A2US  A3CA  A3FR  A3GE  A3NE  A3UK  A3US  A4CA  A4NE
   A4US  A5CA  A5IT  A5JA  A5NE  A6CA  A6NE  A6US  A7FR  A7GE  A7NE  A7UK  A8CA
   A8GE  A8NE  A8US  A9FR  A9NE  A9UK  A9US  B1CA  B1FR  B1GE  B1IT  B1JA  B1NE
   B1UK  B1US  B10FR  B10JA  B10NE  B10UK  B2CA  B2FR  B2GE  B2IT  B2JA  B2NE
   B2UK  B2US  B3CA  B3JA  B3NE  B3UK  B3US  B4CA  B4FR  B4GE  B4IT  B4JA  B4NE
   B4UK  B4US  B5CA  B5FR  B5GE  B5IT  B5JA  B5NE  B5UK  B5US  B6CA  B6FR  B6GE
   B6IT  B6JA  B6NE  B6UK  B6US  B7CA  B7FR  B7GE  B7IT  B7JA  B7NE  B7US  B8CA
   B8GE  B8IT  B8JA  B8NE  B8US  B9CA  B9GE  B9IT  B9JA  B9NE  C1FR  C1UK  C1US
   C20FR  C20UK  C20US  C21FR  C21UK  C21US  C22FR  C22UK  C22US  C23FR  C23UK
   C23US  C24UK  C24US  C25FR  C25UK  C26US  C27FR  C27US  D0CA  D0FR  D0GE
   D0IT  D0JA  D0NE  D0UK  D0US  D1CA  D1FR  D1GE  D1IT  D1JA  D1NE  D1UK  D1US
   D10IT  D10NE  D10UK  D10US  D11IT  D11NE  D11US  D12FR  D12US  D13NE  D13UK
   D14CA  D14FR  D14GE  D14IT  D14JA  D14NE  D14UK  D14US  D15CA  D15FR  D15JA
   D15NE  D15UK  D15US  D16JA  D16US  D2FR  D2JA  D2UK  D2US  D3FR  D3JA  D3NE
   D3US  D4CA  D4IT  D4JA  D4NE  D5CA  D5JA  D5UK  D5US  D6CA  D6FR  D6UK  D7IT
   D7JA  D8CA  D9CA  E1CA  E1FR  E1GE  E1IT  E1JA  E1NE  E1UK  E1US  E10CA
   E11FR  E11NE  E11UK  E11US  E12FR  E12JA  E12NE  E12UK  E12US  E13FR  E13IT
   E13JA  E13UK  E14CA  E14FR  E14GE  E14IT  E14JA  E14NE  E14UK  E15CA  E15IT
   E15UK  E16CA  E16FR  E16IT  E16JA  E16NE  E16UK  E17CA  E17JA  E17NE  E17UK
   E18FR  E18GE  E18JA  E18UK  E19CA  E19JA  E2CA  E2FR  E2IT  E2NE  E2US  E20US
   E21US  E3CA  E3GE  E3NE  E3UK  E4CA  E4FR  E4IT  E4NE  E4UK  E5IT  E5NE  E5US
   E6FR  E6IT  E6JA  E6NE  E7GE  E7JA  E7NE  E8FR  E8GE  E8JA  E8US  E9FR  E9GE
   F0CA  F0FR  F0GE  F0IT  F0JA  F0NE  F0UK  F0US  F1CA  F1FR  F1GE  F1IT  F1JA
   F1NE  F1UK  F10US  F2FR  F20US  F3CA  F3FR  F3GE  F4GE  F4JA  F40US  F50US
   F6CA  F6FR  F6GE  F6IT  F6JA  F6NE  F6UK  G0CA  G0FR  G0GE  G0IT  G0JA  G0NE
   G0UK  G0US  G1JA  G1NE  G1US  G10CA  G10GE  G12UK  G12US  G2NE  G2UK  G20CA
   G20GE  G22UK  G22US  G3FR  G3IT  G3JA  G3NE  G30CA  G30GE  G32UK  G32US  G4FR
   G4IT  G4JA  G4NE  G5FR  G5IT  G5JA  G5NE  G6CA  G6FR  G6GE  G6IT  G6NE  G6UK
   G6US  G7NE  G7UK  G8CA  G8FR  G8GE  G8JA  G8UK  G9CA  G9FR  G9GE  H0CA  H0FR
   H0GE  H0IT  H0JA  H0NE  H0UK  H0US  H1FR  H1GE  H1JA  H1NE  H1UK  H1US  H10GE
   H10JA  H10NE  H10UK  H11CA  H11FR  H11IT  H11UK  H12CA  H12FR  H12GE  H12JA
   H12NE  H13CA  H13IT  H13JA  H13NE  H13UK  H14JA  H14NE  H14UK  H15CA  H15FR
   H15GE  H15IT  H15UK  H2US  H3CA  H3FR  H3IT  H3UK  H3US  H4CA  H4UK  H4US
   H5CA  H5FR  H5GE  H5IT  H5JA  H5NE  H5UK  H6IT  H6JA  H6NE  H7CA  H7FR  H7IT
   H7JA  H7NE  H7UK  H8CA  H8FR  H8GE  H8IT  H8JA  H8NE  H8UK  H8US  H9CA  H9FR
   H9IT  H9JA  I0CA  I0FR  I0GE  I0IT  I0JA  I0NE  I0UK  I0US  I1CA  I1FR  I1GE
   I1IT  I1JA  I1NE  I1UK  I1US  I2US  I3CA  I3FR  I3US  I4FR  I4IT  I4JA  I4US
   I5CA  I5NE  I5UK  I5US  I6CA  I6FR  I6GE  I6IT  I6JA  I6NE  I6UK  I6US  I7US
   J0CA  J0FR  J0GE  J0IT  J0JA  J0NE  J0UK  J1CA  J1JA  J1UK  J2CA  J2FR  J2GE
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Table 7.4 (continued)

```
   J2IT  J2NE  J3IT  J3NE  J3UK  J4GE  K0CA  K0FR  K0GE  K0IT  K0JA  K0NE  K0UK
   K0US  K1GE  K1NE  K1UK  K10CA  K10UK  K10US  K11FR  K11IT  K11NE  K11UK
   K11US  K12IT  K13CA  K13IT  K14FR  K14IT  K14JA  K14NE  K14UK  K14US  K15FR
   K15IT  K15JA  K15NE  K15UK  K15US  K2CA  K2FR  K2IT  K2JA  K2NE  K2UK  K2US
   K3CA  K3UK  K3US  K4GE  K4IT  K4NE  K4UK  K4US  K5CA  K5JA  K5US  K6CA  K6FR
   K6GE  K6IT  K6JA  K6NE  K7JA  K7UK  K8UK  K9CA  K9FR  K9GE  K9IT  K9JA  K9NE
   K9UK  K9US  M0CA  M0FR  M0GE  M0IT  M0JA  M0NE  M0UK  M1CA  M1FR  M1GE  M1IT
   M1JA  M1NE  M1UK  M2CA  M2FR  M2GE  M2IT  M2JA  M2NE  M2UK  M3CA  M3FR  M3GE
   M3IT  M3JA  M3NE  M3UK  M4CA  M4FR  M4GE  M4IT  M4JA  M4NE  M4UK  M5CA  M5FR
   M5GE  M5IT  M5JA  M5NE  M5UK  M6CA  M6FR  M6GE  M6IT  M6JA  M6NE  M6UK

PARAMETER:
   DVCA  DVFR  DVGE  DVIT  DVJA  DVNE  DVUK  DVUS  XPCA  XPFR  XPGE  XPIT  XPJA
   XPNE  XPUK  XPUS  ZPCA  ZPFR  ZPGE  ZPIT  ZPJA  ZPNE  ZPUK  ZPUS

EQUATIONS

   1:    LNYRUSP = (1-ZPUS)*XPUS+ZPUS*LNYRUS+(1-ZPUS)*LNYRUSP(-1)

   2:    4*BTOYUS == XTOYUS-ITOYUS-CTOYUS

   3:    LNQIMUS == LNPIMUS-LNPUS

   4:    LNMUSU == LNMNUS-LNMNUSEX

   5:    LNMNUSEX == 2*LNMNUS(-1)-LNMNUS(-2)-0.44937*(DEL(1 : LNMNUS(-1))-
         DEL(1 : LNMNUS(-2)))+0.00021-0.80994*LNMUSU(-2)

   6:    XTOYUSU == XTOYUS-XTOYUSEX

   7:    XTOYUSEX == XTOYUS(-1)+0.35462*XTOYUSU(-2)+0.20228*XTOYUSU(-3)+
         0.00053

   8:    LNYRTUS == LNYRUS-LNYRUSP

   9:    LNYRRUS == (DVUK*LNYRUK+DVCA*LNYRCA+DVFR*LNYRFR+DVGE*LNYRGE+DVIT*
         LNYRIT+DVJA*LNYRJA+DVNE*LNYRNE)*1/(1-DVUS)-7.40946

  10:    LNPRUS == (DVUK*(LNPUK-LNEUK)+DVCA*(LNPCA-LNECA)+DVFR*(LNPFR-LNEFR
         )+DVGE*(LNPGE-LNEGE)+DVIT*(LNPIT-LNEIT)+DVJA*(LNPJA-LNEJA)+DVNE*(
         LNPNE-LNENE))*1/(1-DVUS)+2.53058

  11:    GREUKX11 == 4*(1*(M0UK+M1UK*DEL(1 : LNPIMUK)+M2UK*DEL(1 : LNRPOIL)
         +M3UK*DEL(1 : LNYRRUK)+M4UK*DEL(1 : ITOYUK)+M5UK*DEL(1 : LNPRUK)+
         M6UK*DEL(1 : LNEUK)))

  12:    Z1US1L == 4*DEL(1 : LNPUS)-GRPX1US1(-1)

  13:    GRPX1US1 == 4*(K0US+K2US*LNMNUS(-1)+K3US*LNMNUS(-2)+K4US*DEL(1 :
         LNYRUS(-1))+K5US*RUS+K9US*LNPUS(-1)+K10US*LNPUS(-2)+K11US*LNMUSU(
         -1))+K14US*Z1US1L+K15US*Z1US1L(-1)

  14:    LNPUS = B1US+LNMNUS+B2US*LNYRUSP+B3US*LNYRTUS+B4US*RUS+B5US*(
         LNMNUS(-1)-LNPUS(-1))+B6US*LNMUSU+B7US*LNMUSU(-1)+B8US*LNMUSU(-2)+
         0*LNMUSU(-3)

  15:    LNYRUS = A1US+A2US*LNYRUSP(-1)+(1-A2US)*LNYRUS(-1)+A3US*LNMUSU+
         A4US*LNMUSU(-1)+0*LNMUSU(-2)+A6US*LNMUSU(-3)+0*LNGUSU+A8US*LNGUSU(
         -1)+A9US*LNGUSU(-2)+A10US*LNGUSU(-3)+A11US*XTOYUSU+A12US*XTOYUSU(
         -1)+0*XTOYUSU(-2)+0*XTOYUSU(-3)

  16:    DEL(1 : UNUS) = C1US+C20US*DEL(1 : LNYRUS)+C21US*DEL(1 : LNYRUS(-1
         ))+C22US*DEL(1 : LNYRUS(-2))+C23US*DEL(1 : LNYRUS(-3))+C24US*DEL(1
          : LNYRUS(-4))+C26US*DEL(1 : LNYRUS(-6))+C27US*DEL(1 : LNYRUS(-7))

  17:    DEL(1 : LNMNUS) = E1US+E2US*T+0*LNGUSU+E5US*(LNGUSU(-3)+LNGUSU(-4)
         )+E8US*(LNPUS(-3)-LNPUS(-5))+0*UNUS(-1)+E11US*UNUS(-2)+E12US*UNUS(
         -3)+0*UNUS(-4)+E20US*DEL(1 : LNMNUS(-1))+E21US*DEL(1 : LNMNUS(-2))

  18:    RUS = D0US+D1US*GRPX1US1+D14US*RUS(-1)+D16US*GRPX1US1(-1)+D15US*T+
         D2US*LNMUSU+D3US*LNMUSU(-1)+0*LNMUSU(-2)+D5US*LNMUSU(-3)+0*LNGUSU+
         0*LNGUSU(-1)+0*LNGUSU(-2)+0*LNGUSU(-3)+D10US*XTOYUSU+D11US*XTOYUSU
         (-1)+D12US*XTOYUSU(-2)+0*XTOYUSU(-3)

  19:    LNPIMUS = LNPIMUS(-1)+F0US+F10US*DEL(1 : LNPIMUS(-1))+F20US*DEL(1
          : LNRPOIL)+0*DEL(1 : LNYRRUS)+F40US*DEL(1 : ITOYUS)+F50US*DEL(1
          : LNPRUS)

  20:    ITOYUS = I0US+I1US*ITOYUS(-1)+I2US*LNYRUSP+I3US*LNYRTUS+I4US*
         LNYRTUS(-1)+I5US*LNQIMUS+I6US*LNQIMUS(-1)+I7US*LNQIMUS(-2)+0*
         LNQIMUS(-3)
```

Table 7.4 (continued)

21:	XTOYUS = HOUS+H1US*LNRPOIL+H2US*LNYRTUS+H3US*T+H4US*XTOYUS(-1)+H8US*LNYRRUS
22:	CTOYUS = GOUS+G1US*T+0*LNRPOIL+0*RUS+0*GREUKX11+0*RUK+G6US*(XTOYUS-ITOYUS)+0*LNYRTUS+0*DEL(1 : LNYRUS)+0*DEL(1 : LNYRRUS)+0*DEL(1 : RUS)+0*DEL(1 : RUS(-1))+G12US*DEL(1 : RUS(-2))+0*DEL(1 : RUK)+0*DEL(1 : RUK(-1))+G22US*DEL(1 : RUK(-2))+0*DEL(1 : GREUKX11)+0*DEL(1 : GREUKX11(-1))+G32US*DEL(1 : GREUKX11(-2))
23:	LNYRUKP = (1-ZPUK)*XPUK+ZPUK*LNYRUK+(1-ZPUK)*LNYRUKP(-1)
24:	LNPIMUK == LNQIMUK+LNPUK
25:	LNMUKU == LNMNUK-LNMNUKEX
26:	LNMNUKEX == LNMNUK(-1)+0.21096*(LNMNUK(-1)-LNMNUK(-2))+0.28454*(LNMNUK(-2)-LNMNUK(-3))+0.00627
27:	XTOYUKU == XTOYUK-XTOYUKEX
28:	XTOYUKEX == XTOYUK(-1)+0.2491*XTOYUKU(-2)-0.14272*XTOYUKU(-4)-0.37838*XTOYUKU(-7)+0.00084
29:	ITOYUK == XTOYUK-4*BTOYUK-CTOYUK
30:	LNYRTUK == LNYRUK-LNYRUKP
31:	LNYRRUK == (DVUS*LNYRUS+DVCA*LNYRCA+DVFR*LNYRFR+DVGE*LNYRGE+DVIT*LNYRIT+DVJA*LNYRJA+DVNE*LNYRNE)*1/(1-DVUK)-7.36068
32:	LNPRUK == (DVUS*(LNPUS-LNEUS)+DVCA*(LNPCA-LNECA)+DVFR*(LNPFR-LNEFR)+DVGE*(LNPGE-LNEGE)+DVIT*(LNPIT-LNEIT)+DVJA*(LNPJA-LNEJA)+DVNE*(LNPNE-LNENE))*1/(1-DVUK)+1.32478
33:	Z1UK1L == 4*DEL(1 : LNPUK)-GRPX1UK1(-1)
34:	GRPX1UK1 == 4*(K0UK+K1UK*LNMNUKEX+K2UK*LNMNUK(-1)+K3UK*LNMNUK(-2)+K4UK*DEL(1 : LNYRUK(-1))+0*RUK+0*RUK(-1)+K7UK*(RUS+GREUKX11)+K8UK*(RUS(-1)+GREUKX11(-1))+K9UK*LNPUK(-1)+K10UK*LNPUK(-2)+K11UK*LNMUKU(-1)+0*LNMUKU(-2)+0*LNMUKU(-3))+K14UK*Z1UK1L+K15UK*Z1UK1L(-1)
35:	LNPUK = B1UK+LNMNUK+B2UK*LNYRUKP+B3UK*LNYRTUK+B4UK*RUK+B10UK*(RUS+GREUKX11)+B5UK*(LNMNUK(-1)-LNPUK(-1))+B6UK*LNMUKU+0*LNMUKU(-1)+0*LNMUKU(-2)+0*LNMUKU(-3)
36:	LNYRUK = A1UK+A2UK*LNYRUKP(-1)+(1-A2UK)*LNYRUK(-1)+A3UK*LNMUKU+0*LNMUKU(-1)+0*LNMUKU(-2)+0*LNMUKU(-3)+A7UK*LNGUKU+0*LNGUKU(-1)+A9UK*LNGUKU(-2)+0*LNGUKU(-3)+0*XTOYUKU+A12UK*XTOYUKU(-1)+0*XTOYUKU(-2)+0*XTOYUKU(-3)
37:	DEL(1 : UNUK) = C1UK+C20UK*DEL(1 : LNYRUK)+C21UK*DEL(1 : LNYRUK(-1))+C22UK*DEL(1 : LNYRUK(-2))+C23UK*DEL(1 : LNYRUK(-3))+C24UK*DEL(1 : LNYRUK(-4))+C25UK*DEL(1 : LNYRUK(-5))
38:	DEL(1 : LNMNUK) = E1UK+0*T+E3UK*LNGUKU+E4UK*(LNGUKU(-1)+LNGUKU(-2))+E11UK*UNUK(-2)+E12UK*UNUK(-3)+E13UK*UNUK(-4)+E14UK*BTOYUK+E15UK*1*BTOYUK+E16UK*(BTOYUK(-1)+BTOYUK(-2))+E17UK*(1*(BTOYUK(-1)+BTOYUK(-2)))+E18UK*(BTOYUK(-3)+BTOYUK(-4))
39:	RUK = D0UK+D1UK*GRPX1UK1+D14UK*RUK(-1)+0*GRPX1UK1(-1)+D15UK*T+D2UK*LNMUKU+0*LNMUKU(-1)+0*LNMUKU(-2)+D5UK*LNMUKU(-3)+D6UK*LNGUKU+0*LNGUKU(-1)+0*LNGUKU(-2)+0*LNGUKU(-3)+D10UK*XTOYUKU+0*XTOYUKU(-1)+0*XTOYUKU(-2)+D13UK*XTOYUKU(-3)
40:	DEL(1 : LNEUK) = F0UK+F1UK*DEL(1 : LNPIMUK)-F1UK*DEL(1 : LNPRUK)
41:	LNQIMUK = I0UK+I1UK*ITOYUK+I5UK*LNYRTUK(-1)+I6UK*LNQIMUK(-1)
42:	BTOYUK = J0UK+J1UK*BTOYUK(-1)+J3UK*DEL(1 : LNEUK(-1))
43:	XTOYUK = H0UK+H1UK*LNEUK+(H3UK+H4UK*0)*LNEUK(-1)+H5UK*LNRPOIL+0*LNYRTUK+H7UK*T+H8UK*XTOYUK(-1)+0*XTOYUK(-2)+H10UK*LNPRUK+H11UK*LNPRUK(-1)+0*LNYRRUK+H13UK*LNYRRUK(-1)+H14UK*LNPUK+H15UK*LNPUK(-1)
44:	CTOYUK = G0UK+G2UK*LNRPOIL+G6UK*(XTOYUK-ITOYUK)+G7UK*LNYRTUK+G8UK*DEL(1 : LNYRUK)+G12UK*DEL(1 : RUK(-2))+G22UK*DEL(1 : RUS(-2))+G32UK*DEL(1 : GREUKX11(-2))
45:	LNYRCAP = (1-ZPCA)*XPCA+ZPCA*LNYRCA+(1-ZPCA)*LNYRCAP(-1)
46:	LNPIMCA == LNQIMCA+LNPCA

Table 7.4 (continued)

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47:   LNMCAU == LNMNCA-LNMNCAEX

48:   XTOYCAU == XTOYCA-XTOYCAEX

49:   XTOYCAEX == XTOYCA(-1)-0.20227*(XTOYCA(-1)-XTOYCA(-2))+0.00075-
      0.30644*XTOYCAU(-8)

50:   LNMNCAEX == 2*LNMNCA(-1)-LNMNCA(-2)-0.64605*(DEL(1 : LNMNCA(-1))-
      DEL(1 : LNMNCA(-2)))-0.65993*(DEL(1 : LNMNCA(-2))-DEL(1 : LNMNCA(
      -3)))+0.0004-0.46226*LNMCAU(-3)-0.58997*LNMCAU(-4)

51:   ITOYCA == XTOYCA-4*BTOYCA-CTOYCA

52:   LNYRTCA == LNYRCA-LNYRCAP

53:   LNYRRCA == (DVUS*LNYRUS+DVUK*LNYRUK+DVFR*LNYRFR+DVGE*LNYRGE+DVIT*
      LNYRIT+DVJA*LNYRJA+DVNE*LNYRNE)*1/(1-DVCA)-7.26361

54:   LNPRCA == (DVUS*(LNPUS-LNEUS)+DVUK*(LNPUK-LNEUK)+DVFR*(LNPFR-LNEFR
      )+DVGE*(LNPGE-LNEGE)+DVIT*(LNPIT-LNEIT)+DVJA*(LNPJA-LNEJA)+DVNE*(
      LNPNE-LNENE))*1/(1-DVCA)+1.24117

55:   Z1CA1L == 4*DEL(1 : LNPCA)-SGRPX1C1(-1)

56:   SGRPX1C1 == 4*(K0CA+K2CA*LNMNCA(-1)+K3CA*LNMNCA(-2)+K5CA*RCA+K6CA*
      RCA(-1)+K9CA*LNPCA(-1)+K10CA*LNPCA(-2)+K13CA*LNMCAU(-3))

57:   GRPX1CA1 == SGRPX1C1-0.64968*Z1CA1L(-1)

58:   GRECAX11 == 4*(1*(M0CA+M1CA*DEL(1 : LNPIMCA)+M2CA*DEL(1 : LNRPOIL)
      +M3CA*DEL(1 : LNYRRCA)+M4CA*DEL(1 : ITOYCA)+M5CA*DEL(1 : LNPRCA)+
      M6CA*DEL(1 : LNECA)))

59:   LNPCA = B1CA+LNMNCA+B2CA*LNYRCAP+B3CA*LNYRTCA+B4CA*RCA+B5CA*(
      LNMNCA(-1)-LNPCA(-1))+B6CA*LNMCAU+B7CA*LNMCAU(-1)+B8CA*LNMCAU(-2)+
      B9CA*LNMCAU(-3)

60:   LNYRCA = A1CA+A2CA*LNYRCAP(-1)+(1-A2CA)*LNYRCA(-1)+A3CA*LNMCAU+
      A4CA*LNMCAU(-1)+A5CA*LNMCAU(-2)+A6CA*LNMCAU(-3)+A8CA*LNGCAU(-1)+
      A11CA*XTOYCAU+A14CA*XTOYCAU(-3)

61:   DEL(1 : LNMNCA) = E1CA+E2CA*T+E3CA*LNGCAU+E4CA*(LNGCAU(-1)+LNGCAU(
      -2))+E10CA*LNYRTCA(-1)+E14CA*BTOYCA+E15CA*1*BTOYCA+E16CA*(BTOYCA(
      -1)+BTOYCA(-2))+E17CA*(1*(BTOYCA(-1)+BTOYCA(-2)))+E19CA*(1*(BTOYCA
      (-3)+BTOYCA(-4)))

62:   RCA = D0CA+D1CA*GRPX1CA1+D14CA*RCA(-1)+D15CA*T+D4CA*LNMCAU(-2)+
      D5CA*LNMCAU(-3)+D6CA*LNGCAU+D8CA*LNGCAU(-2)+D9CA*LNGCAU(-3)

63:   DEL(1 : LNECA) = F0CA+F1CA*DEL(1 : LNPIMCA)+F3CA*DEL(1 : LNRPOIL)-
      F1CA*DEL(1 : LNPRCA)

64:   LNQIMCA = I0CA+I1CA*ITOYCA+I3CA*LNYRCAP+I5CA*LNYRTCA(-1)+I6CA*
      LNQIMCA(-1)

65:   BTOYCA = J0CA+J1CA*BTOYCA(-1)+J2CA*DEL(1 : LNECA)

66:   XTOYCA = H0CA+H3CA*LNECA(-1)+H5CA*LNRPOIL+H7CA*T+H8CA*XTOYCA(-1)+
      H9CA*XTOYCA(-2)+H11CA*LNPRCA(-1)+H12CA*LNYRRCA+H13CA*LNYRRCA(-1)+
      H15CA*LNPCA(-1)

67:   CTOYCA = G0CA+G6CA*(XTOYCA-ITOYCA)+G8CA*DEL(1 : LNYRCA)+G9CA*DEL(1
       : LNYRRCA)+G10CA*DEL(1 : RCA)+G20CA*DEL(1 : RUS)+G30CA*DEL(1 :
      GRECAX11)

68:   LNYRFRP = (1-ZPFR)*XPFR+ZPFR*LNYRFR+(1-ZPFR)*LNYRFRP(-1)

69:   LNPIMFR == LNQIMFR+LNPFR

70:   LNMFRU == LNMNFR-LNMNFREX

71:   LNMNFREX == LNMNFR(-1)+0.54204*(LNMNFR(-1)-LNMNFR(-2))+0.01294+
      0.45793*LNMFRU(-6)

72:   XTOYFRU == XTOYFR-XTOYFREX

73:   XTOYFREX == XTOYFR(-1)-0.23545*(XTOYFR(-1)-XTOYFR(-2))+0.26219*
      XTOYFRU(-2)-0.36552*XTOYFRU(-4)+0.00131

74:   ITOYFR == XTOYFR-4*BTOYFR-CTOYFR

75:   LNYRTFR == LNYRFR-LNYRFRP
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Table 7.4 (continued)

76:	LNYRRFR == (DVUS*LNYRUS+DVUK*LNYRUK+DVCA*LNYRCA+DVGE*LNYRGE+DVIT*LNYRIT+DVJA*LNYRJA+DVNE*LNYRNE)*1/(1-DVFR)-7.18014
77:	LNPRFR == (DVUS*(LNPUS-LNEUS)+DVUK*(LNPUK-LNEUK)+DVCA*(LNPCA-LNECA)+DVGE*(LNPGE-LNEGE)+DVIT*(LNPIT-LNEIT)+DVJA*(LNPJA-LNEJA)+DVNE*(LNPNE-LNENE))*1/(1-DVFR)+1.14182
78:	Z2FR1 == 4*DEL(1 : LNPFR)-SGRPX1F1(-1)
79:	SGRPX1F1 == 4*(K0FR+K2FR*DEL(1 : LNMNFR(-1))+K6FR*RFR(-1)+K9FR*DEL(1 : LNPFR(-1))+K11FR*LNMFRU(-1))
80:	GRPX1FR1 == SGRPX1F1+K14FR*Z2FR1+K15FR*Z2FR1(-1)
81:	GREFRX11 == 4*(1*(M0FR+M1FR*DEL(1 : LNPIMFR)+M2FR*DEL(1 : LNRPOIL)+M3FR*DEL(1 : LNYRRFR)+M4FR*DEL(1 : ITOYFR)+M5FR*DEL(1 : LNPRFR)+M6FR*DEL(1 : LNEFR)))
82:	LNPFR = B1FR+LNMNFR+B2FR*LNYRFRP+0*LNYRTFR+B4FR*RFR+B10FR*(RUS+GREFRX11)+B5FR*(LNMNFR(-1)-LNPFR(-1))+B6FR*LNMFRU+B7FR*LNMFRU(-1)+0*LNMFRU(-2)+0*LNMFRU(-3)
83:	LNYRFR = A1FR+A2FR*LNYRFRP(-1)+(1-A2FR)*LNYRFR(-1)+A3FR*LNMFRU+A7FR*LNGFRU+A9FR*LNGFRU(-2)+A11FR*XTOYFRU
84:	DEL(1 : UNFR) = C1FR+C20FR*DEL(1 : LNYRFR)+C21FR*DEL(1 : LNYRFR(-1))+C22FR*DEL(1 : LNYRFR(-2))+C23FR*DEL(1 : LNYRFR(-3))+C25FR*DEL(1 : LNYRFR(-5))+C27FR*DEL(1 : LNYRFR(-7))
85:	DEL(1 : LNMNFR) = E1FR+E2FR*T+E4FR*(LNGFRU(-1)+LNGFRU(-2))+E6FR*(LNPFR(-1)-LNPFR(-3))+E8FR*(LNPFR(-3)-LNPFR(-5))+E9FR*(1*(LNPFR(-3)-LNPFR(-5)))+E11FR*UNFR(-2)+E12FR*UNFR(-3)+E13FR*UNFR(-4)+E14FR*BTOYFR+E16FR*(BTOYFR(-1)+BTOYFR(-2))+E18FR*(BTOYFR(-3)+BTOYFR(-4))
86:	RFR = D0FR+D1FR*GRPX1FR1+D14FR*RFR(-1)+D15FR*T+D2FR*LNMFRU+D3FR*LNMFRU(-1)+D6FR*LNGFRU+D12FR*XTOYFRU(-2)
87:	DEL(1 : LNEFR) = F0FR+F1FR*DEL(1 : LNPIMFR)+F3FR*DEL(1 : LNRPOIL)-F1FR*DEL(1 : LNPRFR)
88:	LNQIMFR = I0FR+I1FR*ITOYFR+I3FR*LNYRFRP+I4FR*LNYRTFR+I6FR*LNQIMFR(-1)
89:	BTOYFR = J0FR+J2FR*DEL(1 : LNEFR)
90:	XTOYFR = H0FR+H1FR*LNEFR+H3FR*LNEFR(-1)+H5FR*LNRPOIL+H7FR*T+H8FR*XTOYFR(-1)+H9FR*XTOYFR(-2)+H11FR*LNPRFR(-1)+H12FR*LNYRRFR+H15FR*LNPFR(-1)
91:	CTOYFR = G0FR+G3FR*RFR+G4FR*GREFRX11+G5FR*RUS+G6FR*(XTOYFR-ITOYFR)+G8FR*DEL(1 : LNYRFR)+G9FR*DEL(1 : LNYRRFR)
92:	LNYRGEP = (1-ZPGE)*XPGE+ZPGE*LNYRGE+(1-ZPGE)*LNYRGEP(-1)
93:	LNPIMGE == LNQIMGE+LNPGE
94:	LNMGEU == LNMNGE-LNMNGEEX
95:	LNMNGEEX == LNMNGE(-1)+0.02266+0.1074*LNMGEU(-1)+0.27425*LNMGEU(-2)+0.35616*LNMGEU(-3)
96:	XTOYGEU == XTOYGE-XTOYGEEX
97:	ITOYGE == XTOYGE-4*BTOYGE-CTOYGE
98:	XTOYGEEX == XTOYGE(-1)-0.42012*XTOYGEU(-4)+0.00141
99:	LNYRTGE == LNYRGE-LNYRGEP
100:	LNYRRGE == (DVUS*LNYRUS+DVUK*LNYRUK+DVCA*LNYRCA+DVFR*LNYRFR+DVIT*LNYRIT+DVJA*LNYRJA+DVNE*LNYRNE)*1/(1-DVGE)-7.20584
101:	LNPRGE == (DVUS*(LNPUS-LNEUS)+DVUK*(LNPUK-LNEUK)+DVCA*(LNPCA-LNECA)+DVFR*(LNPFR-LNEFR)+DVIT*(LNPIT-LNEIT)+DVJA*(LNPJA-LNEJA)+DVNE*(LNPNE-LNENE))*1/(1-DVGE)+1.17274
102:	Z1GE1L == 4*DEL(1 : LNPGE)-GRPX1GE1(-1)
103:	GRPX1GE1 == 4*(K0GE+K1GE*(LNMNGEEX-LNMNGE(-1))+K4GE*DEL(1 : LNYRGE(-1))+K6GE*RGE(-1)+K9GE*(LNPGE(-1)-LNPGE(-2)))+0.0475*Z1GE1L-0.4236*Z1GE1L(-1)

Table 7.4 (continued)

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104:  GREGEX21 == 4*(1*(M0GE+M1GE*DEL(1 : LNPIMGE)+M2GE*DEL(1 : LNRPOIL)
      +M3GE*DEL(1 : LNYRRGE)+M4GE*DEL(1 : ITOYGE)+M5GE*DEL(1 : LNPRGE)+
      M6GE*DEL(1 : LNEGE)))

105:  LNPGE = B1GE+LNMNGE+B2GE*LNYRGEP+0*LNYRTGE+B4GE*RGE+0*(RUS+
      GREGEX21)+B5GE*(LNMNGE(-1)-LNPGE(-1))+B6GE*LNMGEU+B7GE*LNMGEU(-1)+
      B8GE*LNMGEU(-2)+B9GE*LNMGEU(-3)

106:  LNYRGE = A1GE+A2GE*LNYRGEP(-1)+(1-A2GE)*LNYRGE(-1)+A3GE*LNMGEU+0*
      LNMGEU(-1)+0*LNMGEU(-2)+0*LNMGEU(-3)+A7GE*LNGGEU+A8GE*LNGGEU(-1)+0
      *LNGGEU(-2)+0*LNGGEU(-3)+A11GE*XTOYGEU+A12GE*XTOYGEU(-1)+A13GE*
      XTOYGEU(-2)+A14GE*XTOYGEU(-3)

107:  DEL(1 : LNMNGE) = E1GE+0*T+E3GE*LNGGEU+E7GE*(1*(LNPGE(-1)-LNPGE(-3
      )))+E8GE*(LNPGE(-3)-LNPGE(-5))+E9GE*(1*(LNPGE(-3)-LNPGE(-5)))+0*
      LNYRTGE(-1)+0*LNYRTGE(-2)+0*LNYRTGE(-3)+0*LNYRTGE(-4)+E14GE*BTOYGE
      +0*0*BTOYGE+E18GE*(BTOYGE(-3)+BTOYGE(-4))

108:  RGE = D0GE+D1GE*GRPX1GE1+D14GE*RGE(-1)+0*GRPX1GE1(-1)+0*T+0*LNMGEU
      +0*LNMGEU(-1)+0*LNMGEU(-2)+0*LNMGEU(-3)+0*LNGGEU+0*LNGGEU(-1)+0*
      LNGGEU(-2)+0*LNGGEU(-3)+0*XTOYGEU+0*XTOYGEU(-1)+0*XTOYGEU(-2)+0*
      XTOYGEU(-3)

109:  DEL(1 : LNEGE) = F0GE+F1GE*DEL(1 : LNPIMGE)+F3GE*DEL(1 : LNRPOIL)+
      F4GE*DEL(1 : LNYRRGE)-F1GE*DEL(1 : LNPRGE)

110:  LNQIMGE = I0GE+I1GE*ITOYGE+I6GE*LNQIMGE(-1)

111:  BTOYGE = J0GE+J2GE*DEL(1 : LNEGE)+J4GE*DEL(1 : LNPGE(-1))

112:  XTOYGE = H0GE+H1GE*LNEGE+H5GE*LNRPOIL+H8GE*XTOYGE(-1)+H10GE*LNPRGE
      +H12GE*LNYRRGE+H15GE*LNPGE(-1)

113:  CTOYGE = G0GE+0*T+0*LNRPOIL+0*RGE+0*GREGEX21+0*RUS+G6GE*(XTOYGE-
      ITOYGE)+0*LNYRTGE+G8GE*DEL(1 : LNYRGE)+G9GE*DEL(1 : LNYRRGE)+G10GE
      *DEL(1 : RGE)+0*DEL(1 : RGE(-1))+0*DEL(1 : RGE(-2))+G20GE*DEL(1 :
      RUS)+0*DEL(1 : RUS(-1))+0*DEL(1 : RUS(-2))+G30GE*DEL(1 : GREGEX21)
      +0*DEL(1 : GREGEX21(-1))+0*DEL(1 : GREGEX21(-2))

114:  LNYRITP = (1-ZPIT)*XPIT+ZPIT*LNYRIT+(1-ZPIT)*LNYRITP(-1)

115:  LNPIMIT == LNQIMIT+LNPIT

116:  LNMITU == LNMNIT-LNMNITEX

117:  LNMNITEX == LNMNIT(-1)+0.15625*(LNMNIT(-1)-LNMNIT(-2))+0.02829+
      0.35998*LNMITU(-2)+0.10908*LNMITU(-3)

118:  XTOYITU == XTOYIT-XTOYITEX

119:  XTOYITEX == XTOYIT(-1)-0.15095*(XTOYIT(-1)-XTOYIT(-2))+0.19592*(
      XTOYIT(-2)-XTOYIT(-3))-0.14307*XTOYITU(-8)+0.29814*XTOYITU(-11)+
      0.00221

120:  ITOYIT == XTOYIT-4*BTOYIT-CTOYIT

121:  LNYRTIT == LNYRIT-LNYRITP

122:  LNYRRIT == (DVUS*LNYRUS+DVUK*LNYRUK+DVCA*LNYRCA+DVFR*LNYRFR+DVGE*
      LNYRGE+DVJA*LNYRJA+DVNE*LNYRNE)*1/(1-DVIT)-6.93985

123:  LNPRIT == (DVUS*(LNPUS-LNEUS)+DVUK*(LNPUK-LNEUK)+DVCA*(LNPCA-LNECA
      )+DVFR*(LNPFR-LNEFR)+DVGE*(LNPGE-LNEGE)+DVJA*(LNPJA-LNEJA)+DVNE*(
      LNPNE-LNENE))*1/(1-DVIT)+0.920318

124:  Z1IT1 == 4*DEL(1 : LNPIT)-SGRPX1I1(-1)

125:  SGRPX1I1 == 4*(K0IT+K2IT*DEL(1 : LNMNIT(-1))+K4IT*DEL(1 : LNYRIT(
      -1))+K9IT*DEL(1 : LNPIT(-1))+K11IT*LNMITU(-1)+K12IT*LNMITU(-2)+
      K13IT*LNMITU(-3))

126:  GRPX1IT1 == SGRPX1I1+K14IT*Z1IT1+K15IT*Z1IT1(-1)

127:  GREITX11 == 4*(1*(M0IT+M1IT*DEL(1 : LNPIMIT)+M2IT*DEL(1 : LNRPOIL)
      +M3IT*DEL(1 : LNYRRIT)+M4IT*DEL(1 : ITOYIT)+M5IT*DEL(1 : LNPRIT)+
      M6IT*DEL(1 : LNEIT)))

128:  LNPIT = B1IT+LNMNIT+B2IT*LNYRITP+0*LNYRTIT+B4IT*RIT+B5IT*(LNMNIT(
      -1)-LNPIT(-1))+B6IT*LNMITU+B7IT*LNMITU(-1)+B8IT*LNMITU(-2)+B9IT*
      LNMITU(-3)
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Table 7.4 (continued)

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129:    LNYRIT = A1IT+A2IT*LNYRITP(-1)+(1-A2IT)*LNYRIT(-1)+A5IT*LNMITU(-2)
        +A10IT*LNGITU(-3)+A11IT*XTOYITU+A13IT*XTOYITU(-2)

130:    DEL(1 : LNMNIT) = E1IT+E2IT*T+E4IT*(LNGITU(-1)+LNGITU(-2))+E5IT*(
        LNGITU(-3)+LNGITU(-4))+E6IT*(LNPIT(-1)-LNPIT(-3))+E13IT*LNYRTIT(-4
        )+E14IT*BTOYIT+E15IT*1*BTOYIT+E16IT*(BTOYIT(-1)+BTOYIT(-2))

131:    RIT = D0IT+D1IT*GRPX1IT1+D14IT*RIT(-1)+D4IT*LNMITU(-2)+K6IT*LNGITU
        +D7IT*LNGITU(-1)+D10IT*XTOYITU+D11IT*XTOYITU(-1)

132:    DEL(1 : LNEIT) = F0IT+F1IT*DEL(1 : LNPIMIT)-F1IT*DEL(1 : LNPRIT)

133:    LNQIMIT = I0IT+I1IT*ITOYIT+I4IT*LNYRTIT+I6IT*LNQIMIT(-1)

134:    BTOYIT = J0IT+J2IT*DEL(1 : LNEIT)+J3IT*DEL(1 : LNEIT(-1))

135:    XTOYIT = H0IT+H3IT*LNEIT(-1)+H5IT*LNRPOIL+H6IT*LNYRTIT+H7IT*T+H8IT
        *XTOYIT(-1)+H9IT*XTOYIT(-2)+H11IT*LNPRIT(-1)+H13IT*LNYRRIT(-1)+
        H15IT*LNPIT(-1)

136:    CTOYIT = G0IT+G3IT*RIT+G4IT*GREITX11+G5IT*RUS+G6IT*(XTOYIT-ITOYIT)

137:    LNYRJAP = (1-ZPJA)*XPJA+ZPJA*LNYRJA+(1-ZPJA)*LNYRJAP(-1)

138:    LNPIMJA == LNQIMJA+LNPJA

139:    LNMJAU == LNMNJA-LNMNJAEX

140:    LNMNJAEX == LNMNJA(-1)+0.45216*(LNMNJA(-1)-LNMNJA(-2))+0.18984*(
        LNMNJA(-2)-LNMNJA(-3))+0.01423-0.41074*LNMJAU(-4)

141:    XTOYJAU == XTOYJA-XTOYJAEX

142:    XTOYJAEX == 2*XTOYJA(-1)-XTOYJA(-2)-1.1134*(DEL(1 : XTOYJA(-1))-
        DEL(1 : XTOYJA(-2)))-0.38594*(DEL(1 : XTOYJA(-2))-DEL(1 : XTOYJA(
        -3)))-0.60316*XTOYJAU(-4)+0.36554*XTOYJAU(-9)+5.000000E-05

143:    ITOYJA == XTOYJA-4*BTOYJA-CTOYJA

144:    LNYRTJA == LNYRJA-LNYRJAP

145:    LNYRRJA == (DVUS*LNYRUS+DVUK*LNYRUK+DVCA*LNYRCA+DVFR*LNYRFR+DVGE*
        LNYRGE+DVIT*LNYRIT+DVNE*LNYRNE)*1/(1-DVJA)-6.64583

146:    LNPRJA == (DVUS*(LNPUS-LNEUS)+DVUK*(LNPUK-LNEUK)+DVCA*(LNPCA-LNECA
        )+DVFR*(LNPFR-LNEFR)+DVGE*(LNPGE-LNEGE)+DVIT*(LNPIT-LNEIT)+DVNE*(
        LNPNE-LNENE))*1/(1-DVJA)+0.617771

147:    Z1JA2 == 4*DEL(1 : LNPJA)-SGRPX1J2(-1)

148:    SGRPX1J2 == 4*(K0JA+K2JA*DEL(1 : LNMNJA(-1))+K5JA*RJA+K6JA*RJA(-1)
        +K7JA*(RUS+GREJAX21)+K9JA*DEL(1 : LNPJA(-1)))

149:    GRPX1JA2 == SGRPX1J2+K14JA*Z1JA2+K15JA*Z1JA2(-1)

150:    GREJAX21 == 4*(1*(M0JA+M1JA*DEL(1 : LNPIMJA)+M2JA*DEL(1 : LNRPOIL)
        +M3JA*DEL(1 : LNYRRJA)+M4JA*DEL(1 : ITOYJA)+M5JA*DEL(1 : LNPRJA)+
        M6JA*DEL(1 : LNEJA)))

151:    LNPJA = B1JA+LNMNJA+B2JA*LNYRJAP+B3JA*LNYRTJA+B4JA*RJA+B10JA*(RUS+
        GREJAX21)+B5JA*(LNMNJA(-1)-LNPJA(-1))+B6JA*LNMJAU+B7JA*LNMJAU(-1)+
        B8JA*LNMJAU(-2)+B9JA*LNMJAU(-3)

152:    LNYRJA = A1JA+A2JA*LNYRJAP(-1)+(1-A2JA)*LNYRJA(-1)+A5JA*LNMJAU(-2)
        +A10JA*LNGJAU(-3)+A11JA*XTOYJAU+A13JA*XTOYJAU(-2)+A14JA*XTOYJAU(-3
        )

153:    DEL(1 : LNMNJA) = E1JA+E6JA*(LNPJA(-1)-LNPJA(-3))+E7JA*(1*(LNPJA(
        -1)-LNPJA(-3)))+E8JA*(LNPJA(-3)-LNPJA(-5))+E12JA*LNYRTJA(-3)+E13JA
        *LNYRTJA(-4)+E14JA*BTOYJA+E16JA*(BTOYJA(-1)+BTOYJA(-2))+E17JA*(1*(
        BTOYJA(-1)+BTOYJA(-2)))+E18JA*(BTOYJA(-3)+BTOYJA(-4))+E19JA*(1*(
        BTOYJA(-3)+BTOYJA(-4)))

154:    RJA = D0JA+D1JA*GRPX1JA2+D14JA*RJA(-1)+D16JA*GRPX1JA2(-1)+D15JA*T+
        D2JA*LNMJAU+D3JA*LNMJAU(-1)+D4JA*LNMJAU(-2)+D5JA*LNMJAU(-3)+0*
        LNGJAU+D7JA*LNGJAU(-1)

155:    DEL(1 : LNEJA) = F0JA+F1JA*DEL(1 : LNPIMJA)+F4JA*DEL(1 : LNYRRJA)-
        F1JA*DEL(1 : LNPRJA)

156:    LNQIMJA = I0JA+I1JA*ITOYJA+I4JA*LNYRTJA+I6JA*LNQIMJA(-1)
```

Table 7.4 (continued)

157:	BTOYJA = J0JA+J1JA*BTOYJA(-1)
158:	XTOYJA = H0JA+H1JA*LNEJA+H5JA*LNRPOIL+H6JA*LNYRTJA+H7JA*T+H8JA*XTOYJA(-1)+H9JA*XTOYJA(-2)+H10JA*LNPRJA+H12JA*LNYRRJA+H13JA*LNYRRJA(-1)+H14JA*LNPJA
159:	CTOYJA = G0JA+G1JA*T+G3JA*RJA+G4JA*GREJAX21+G5JA*RUS+G8JA*DEL(1 : LNYRJA)
160:	LNYRNEP = (1-ZPNE)*XPNE+ZPNE*LNYRNE+(1-ZPNE)*LNYRNEP(-1)
161:	LNPIMNE == LNQIMNE+LNPNE
162:	LNMNEU == LNMNNE-LNMNNEEX
163:	LNMNNEEX == LNMNNE(-1)+0.34717*(LNMNNE(-1)-LNMNNE(-2))+0.37492*(LNMNNE(-2)-LNMNNE(-3))-0.43951*LNMNEU(-4)+0.00681
164:	XTOYNEU == XTOYNE-XTOYNEEX
165:	XTOYNEEX == XTOYNE(-1)-0.31379*XTOYNEU(-1)-0.33862*XTOYNEU(-9)+0.00094
166:	ITOYNE == XTOYNE-4*BTOYNE-CTOYNE
167:	LNYRTNE == LNYRNE-LNYRNEP
168:	LNYRRNE == (DVUS*LNYRUS+DVUK*LNYRUK+DVCA*LNYRCA+DVFR*LNYRFR+DVGE*LNYRGE+DVIT*LNYRIT+DVJA*LNYRJA)*1/(1-DVNE)-7.17908
169:	LNPRNE == (DVUS*(LNPUS-LNEUS)+DVUK*(LNPUK-LNEUK)+DVCA*(LNPCA-LNECA)+DVFR*(LNPFR-LNEFR)+DVGE*(LNPGE-LNEGE)+DVIT*(LNPIT-LNEIT)+DVJA*(LNPJA-LNEJA))*1/(1-DVNE)+1.1838
170:	Z1NE1L == 4*DEL(1 : LNPNE)-GRPX1NE1(-1)
171:	GRPX1NE1 == 4*(K0NE+K1NE*LNMNNEEX+K2NE*LNMNNE(-1)+K4NE*DEL(1 : LNYRNE(-1))+K6NE*RNE(-1)+K9NE*DEL(1 : LNPNE(-1))+K11NE*LNMNEU(-1))+K14NE*Z1NE1L+K15NE*Z1NE1L(-1)
172:	GRENEX11 == 4*(1*(M0NE+M1NE*DEL(1 : LNPIMNE)+M2NE*DEL(1 : LNRPOIL)+M3NE*DEL(1 : LNYRRNE)+M4NE*DEL(1 : ITOYNE)+M5NE*DEL(1 : LNPRNE)+M6NE*DEL(1 : LNENE)))
173:	LNPNE = B1NE+LNMNNE+B2NE*LNYRNEP+B3NE*LNYRTNE+B4NE*RNE+B10NE*(RUS+GRENEX11)+B5NE*(LNMNNE(-1)-LNPNE(-1))+B6NE*LNMNEU+B7NE*LNMNEU(-1)+B8NE*LNMNEU(-2)+B9NE*LNMNEU(-3)
174:	LNYRNE = A1NE+A2NE*LNYRNEP(-1)+(1-A2NE)*LNYRNE(-1)+A3NE*LNMNEU+A4NE*LNMNEU(-1)+A5NE*LNMNEU(-2)+A6NE*LNMNEU(-3)+A7NE*LNGNEU+A8NE*LNGNEU(-1)+A9NE*LNGNEU(-2)+A10NE*LNGNEU(-3)+A11NE*XTOYNEU+A12NE*XTOYNEU(-1)+A13NE*XTOYNEU(-2)+A14NE*XTOYNEU(-3)
175:	DEL(1 : LNMNNE) = E1NE+E2NE*T+E3NE*LNGNEU+E4NE*(LNGNEU(-1)+LNGNEU(-2))+E5NE*(LNGNEU(-3)+LNGNEU(-4))+E6NE*(LNPNE(-1)-LNPNE(-3))+E7NE*(1*(LNPNE(-1)-LNPNE(-3)))+E11NE*LNYRTNE(-2)+E12NE*LNYRTNE(-1)+E14NE*BTOYNE+E16NE*(BTOYNE(-1)+BTOYNE(-2))+E17NE*(1*(BTOYNE(-1)+BTOYNE(-2)))
176:	RNE = D0NE+D1NE*GRPX1NE1+D14NE*RNE(-1)+D15NE*T+D3NE*LNMNEU(-1)+D4NE*LNMNEU(-2)+D10NE*XTOYNEU+D11NE*XTOYNEU(-1)+D13NE*XTOYNEU(-3)
177:	DEL(1 : LNENE) = F0NE+F1NE*DEL(1 : LNPIMNE)-F1NE*DEL(1 : LNPRNE)
178:	LNQIMNE = I0NE+I1NE*ITOYNE+I5NE*LNYRTNE(-1)+I6NE*LNQIMNE(-1)
179:	BTOYNE = J0NE+J2NE*DEL(1 : LNENE)+J3NE*DEL(1 : LNENE(-1))
180:	XTOYNE = H0NE+H1NE*LNENE+H5NE*LNRPOIL+H6NE*LNYRTNE+H7NE*T+H8NE*XTOYNE(-1)+H10NE*LNPRNE+H12NE*LNYRRNE+H13NE*LNYRRNE(-1)+H14NE*LNPNE
181:	CTOYNE = G0NE+G1NE*T+G2NE*LNRPOIL+G3NE*RNE+G4NE*GRENEX11+G5NE*RUS+G6NE*(XTOYNE-ITOYNE)+G7NE*LNYRTNE

Table 7.4 (continued)

COEFFICIENT AND PARAMETER VALUES (CONST_MARK4FLT)

A1CA	0.010803	A1FR	0.012619	A1GE	0.010821
A1IT	0.011699	A1JA	0.020614	A1NE	0.009964
A1UK	0.005561	A1US	0.007884	A10CA	-0.01349
A10FR	0.016439	A10GE	0.013896	A10IT	0.025164
A10JA	-0.026697	A10NE	0.035157	A10UK	-0.023974
A10US	0.067441	A11CA	0.679057	A11FR	0.213191
A11GE	0.296236	A11IT	-0.383459	A11JA	-1.91914
A11NE	0.097619	A11UK	0.189683	A11US	0.717539
A12CA	0.164836	A12FR	-0.715374	A12GE	-0.23778
A12IT	-0.044277	A12JA	0.349852	A12NE	-0.064686
A12UK	0.42402	A12US	0.532314	A13CA	-0.028676
A13FR	0.015316	A13GE	-0.333226	A13IT	-0.227114
A13JA	-1.15516	A13NE	0.104741	A13UK	-0.21287
A13US	-0.0415	A14CA	0.544787	A14FR	0.121494
A14GE	-0.514582	A14IT	-0.465483	A14JA	-1.09256
A14NE	-0.113143	A14UK	0.006859	A14US	-0.925131
A2CA	0.134071	A2FR	0.102126	A2GE	0.04147
A2IT	0.02481	A2JA	-0.038396	A2NE	0.090174
A2UK	0.240655	A2US	0.088859	A3CA	0.244862
A3FR	-0.264118	A3GE	0.344867	A3IT	0.093876
A3JA	0.142673	A3NE	0.241184	A3UK	-0.18449
A3US	0.967393	A4CA	0.177733	A4FR	0.068796
A4GE	0.069415	A4IT	0.079064	A4JA	0.1083
A4NE	0.094424	A4UK	0.040359	A4US	0.548935
A5CA	0.075535	A5FR	0.10011	A5GE	-0.01725
A5IT	0.266542	A5JA	0.211515	A5NE	-0.03886
A5UK	-0.026207	A5US	-0.04704	A6CA	0.193415
A6FR	-0.055212	A6GE	0.04078	A6IT	-0.01757
A6JA	0.088371	A6NE	0.006819	A6UK	-0.126895
A6US	0.935403	A7CA	-0.004872	A7FR	0.072732
A7GE	-0.036326	A7IT	-0.001348	A7JA	0.044268
A7NE	0.037422	A7UK	0.174624	A7US	-0.034466
A8CA	-0.149956	A8FR	0.007462	A8GE	0.030281
A8IT	0.000596	A8JA	-0.019563	A8NE	-0.031181
A8UK	0.027366	A8US	0.138711	A9CA	-0.02829
A9FR	0.049895	A9GE	-0.00762	A9IT	-0.001628
A9JA	0.044973	A9NE	0.016572	A9UK	0.118697
A9US	0.05507	B1CA	0.119397	B1FR	0.05478
B1GE	0.073547	B1IT	0.206264	B1JA	0.448139
B1NE	-0.005675	B1UK	-0.151938	B1US	0.083905
B10CA	-0.056102	B10FR	0.029941	B10GE	-0.008847
B10IT	-0.037786	B10JA	0.080375	B10NE	0.000617
B10UK	0.078828	B10US	-0.001131	B2CA	-0.218794
B2FR	-0.018392	B2GE	-0.063613	B2IT	-0.069682
B2JA	-0.201664	B2NE	-0.081835	B2UK	-0.046894
B2US	-0.022227	B3CA	-0.152691	B3FR	-0.018886
B3GE	-0.006227	B3IT	-0.042952	B3JA	-0.065941
B3NE	0.107645	B3UK	-0.276035	B3US	-0.09072
B4CA	0.244962	B4FR	0.462903	B4GE	0.023618
B4IT	0.160445	B4JA	0.95586	B4NE	-0.013744
B4UK	0.504004	B4US	0.346502	B5CA	-0.628784
B5FR	-0.996486	B5GE	-0.935252	B5IT	-0.947684
B5JA	-0.827685	B5NE	-0.890964	B5UK	-0.872932
B5US	-0.9906	B6CA	-1.07886	B6FR	-0.724769
B6GE	-1.07676	B6IT	-1.24523	B6JA	-0.988582
B6NE	-0.977966	B6UK	-0.689923	B6US	-0.725851
B7CA	-0.267171	B7FR	-0.237026	B7GE	-0.141736
B7IT	-0.191914	B7JA	-0.356822	B7NE	-0.451249
B7UK	0.037385	B7US	-0.393195	B8CA	-0.271711
B8FR	0.024827	B8GE	-0.311723	B8IT	-0.378815
B8JA	-0.312743	B8NE	-0.621455	B8UK	-0.151933
B8US	0.169832	B9CA	-0.635726	B9FR	0.04942
B9GE	-0.308631	B9IT	-0.151063	B9JA	-0.289714
B9NE	-0.309134	B9UK	-0.167466	B9US	0.016405
C1FR	0.001842	C1UK	0.002293	C1US	0.004693
C20FR	-0.033332	C20UK	-0.087536	C20US	-0.198491
C21FR	-0.036075	C21UK	-0.032481	C21US	-0.187741
C22FR	-0.024205	C22UK	-0.064932	C22US	-0.050647
C23FR	-0.011601	C23UK	-0.054861	C23US	-0.063531
C24FR	-0.003691	C24UK	-0.041132	C24US	0.059092
C25FR	-0.010717	C25UK	-0.01505	C25US	0.017716
C26FR	0.000474	C26UK	-0.005727	C26US	-0.027592
C27FR	0.0072	C27UK	0.000353	C27US	-0.061705
DVCA	0.046296	DVFR	0.077221	DVGE	0.107001
DVIT	0.048061	DVJA	0.107898	DVNE	0.018771
DVUK	0.063287	DVUS	0.531464	D0CA	0.002086
D0FR	0.003366	D0GE	0.003628	D0IT	-0.002471
D0JA	-0.000932	D0NE	0.003585	D0UK	0.003081
D0US	0.010089	D1CA	0.049893	D1FR	0.073674
D1GE	0.231726	D1IT	0.027008	D1JA	0.027117

Table 7.4 (continued)

D1NE	-0.043995	D1UK	0.009035	D1US	0.434367
D10CA	-0.007863	D10FR	0.20013	D10GE	0.20221
D10IT	0.239529	D10JA	0.007364	D10NE	0.137002
D10UK	0.192508	D10US	0.508074	D11CA	0.037268
D11FR	0.12238	D11GE	-0.24158	D11IT	0.161757
D11JA	-0.025161	D11NE	0.06167	D11UK	0.018407
D11US	0.23597	D12CA	-0.013955	D12FR	0.194568
D12GE	0.0877	D12IT	0.054745	D12JA	0.025661
D12NE	0.03381	D12UK	-0.003938	D12US	0.544253
D13CA	-0.032712	D13FR	0.07675	D13GE	-0.24942
D13IT	-0.009773	D13JA	0.002267	D13NE	0.048054
D13UK	0.213998	D13US	-0.213716	D14CA	0.961863
D14FR	0.763452	D14GE	0.76264	D14IT	1.02768
D14JA	0.983108	D14NE	0.799926	D14UK	0.825858
D14US	0.539202	D15CA	-3.498167E-05	D15FR	0.000154
D15GE	3.845550E-05	D15IT	1.960370E-05	D15JA	-2.144426E-05
D15NE	0.000151	D15UK	0.000183	D15US	-6.091796E-06
D16CA	0.005978	D16FR	0.0124	D16GE	-0.06953
D16IT	-0.019956	D16JA	0.030428	D16NE	0.04514
D16UK	-0.022298	D16US	-0.154852	D2CA	-0.078202
D2FR	-0.49829	D2GE	0.1307	D2IT	-0.020386
D2JA	-0.006893	D2NE	0.07838	D2UK	-0.299766
D2US	-0.230722	D3CA	0.015319	D3FR	-0.154023
D3GE	0.07571	D3IT	0.004611	D3JA	-0.021473
D3NE	-0.162029	D3UK	0.025404	D3US	0.163077
D4CA	0.092836	D4FR	-0.09139	D4GE	0.10942
D4IT	0.037063	D4JA	-0.032911	D4NE	0.06593
D4UK	0.036448	D4US	0.091665	D5CA	0.116664
D5FR	0.03674	D5GE	0.05852	D5IT	0.02739
D5JA	-0.016782	D5NE	0.00622	D5UK	0.077159
D5US	0.103347	D6CA	-0.073145	D6FR	-0.034926
D6GE	-0.02391	D6IT	-0.005287	D6JA	0.000489
D6NE	0.00239	D6UK	-0.050417	D6US	-0.020453
D7CA	-0.001992	D7FR	0.01672	D7GE	0.00277
D7IT	-0.004384	D7JA	0.001793	D7NE	0.00041
D7UK	0.022854	D7US	0.01894	D8CA	0.032561
D8FR	-0.01609	D8GE	-0.0128	D8IT	-0.000764
D8JA	0.000889	D8NE	0.00664	D8UK	0.014188
D8US	0.02294	D9CA	0.017438	D9FR	-0.00794
D9GE	0.01666	D9IT	-0.003281	D9JA	0.000607
D9NE	0.01609	D9UK	0.001453	D9US	0.015392
E1CA	0.007281	E1FR	0.03332	E1GE	0.013288
E1IT	0.019544	E1JA	0.054274	E1NE	0.010131
E1UK	-0.00433	E1US	0.00329	E10CA	-0.034398
E10FR	1.58587	E10GE	-0.036416	E10IT	0.105504
E10JA	0.005894	E10NE	0.033838	E10UK	1.23133
E10US	-0.116645	E11CA	-0.054589	E11FR	-1.02545
E11GE	0.102443	E11IT	-0.126347	E11JA	-0.022105
E11NE	0.004899	E11UK	-0.550499	E11US	0.426361
E12CA	-0.077664	E12FR	4.39695	E12GE	-0.191149
E12IT	0.126007	E12JA	-0.158405	E12NE	0.019509
E12UK	5.57298	E12US	-0.468037	E13CA	-0.041273
E13FR	-3.24907	E13GE	0.084755	E13IT	-0.151066
E13JA	0.284267	E13NE	-0.028792	E13UK	-4.2394
E13US	-0.054576	E14CA	-0.396027	E14FR	0.10534
E14GE	1.628	E14IT	-3.88655	E14JA	1.95052
E14NE	0.403001	E14UK	-0.068485	E15CA	3.68752
E15FR	0.103117	E15GE	0.019635	E15IT	4.10458
E15JA	-0.574234	E15NE	0.700825	E15UK	0.596763
E16CA	0.670052	E16FR	0.108524	E16GE	0.09378
E16IT	1.57536	E16JA	1.83261	E16NE	0.292781
E16UK	0.282168	E17CA	-2.84711	E17FR	-0.132219
E17GE	0.332797	E17IT	-0.686828	E17JA	-2.53069
E17NE	-0.892653	E17UK	-0.521172	E18CA	0.286188
E18FR	0.761771	E18GE	0.625931	E18IT	-0.372264
E18JA	1.71901	E18NE	0.091526	E18UK	0.187571
E19CA	2.14929	E19FR	0.060458	E19GE	0.039871
E19IT	0.810022	E19JA	-1.78208	E19NE	-0.971241
E19UK	-0.204191	E2CA	0.000184	E2FR	-0.000192
E2GE	-8.064001E-05	E2IT	0.000454	E2JA	-1.888251E-05
E2NE	0.000421	E2UK	-6.443714E-07	E2US	0.000243
E20US	0.496825	E21US	-0.248602	E3CA	0.10149
E3FR	0.00301	E3GE	0.043045	E3IT	-0.014448
E3JA	-0.021866	E3NE	0.058633	E3UK	0.107434
E3US	0.004036	E4CA	0.138066	E4FR	0.011217
E4GE	-0.014921	E4IT	-0.03104	E4JA	0.031742
E4NE	-0.027174	E4UK	0.163098	E4US	0.001552
E5CA	-0.003532	E5FR	-0.017824	E5GE	-0.0225
E5IT	-0.023132	E5JA	0.026185	E5NE	-0.040335
E5UK	0.02989	E5US	0.033956	E6CA	-0.197234
E6FR	-0.057298	E6GE	0.097666	E6IT	-0.09435
E6JA	-0.564806	E6NE	-0.316001	E6UK	0.07705
E6US	-0.057597	E7CA	0.264871	E7FR	0.574765

Table 7.4 (continued)

E7GE	-0.763707	E7IT	0.037192	E7JA	0.415324
E7NE	0.206985	E7UK	0.024239	E8CA	-0.113296
E8FR	-0.0748	E8GE	-0.343714	E8IT	0.262491
E8JA	-0.226858	E8NE	0.05664	E8UK	0.156708
E8US	-0.286081	E9CA	-0.001604	E9FR	0.28364
E9GE	0.700672	E9IT	-0.129687	E9JA	0.014509
E9NE	0.062226	E9UK	-0.074746	F0CA	0.001373
F0FR	-0.009077	F0GE	-0.004262	F0IT	0.001751
F0JA	-0.008808	F0NE	-0.01574	F0UK	0.016768
F0US	0.000225	F1CA	0.179737	F1FR	0.573409
F1GE	0.822682	F1IT	0.409235	F1JA	0.319091
F1NE	0.28658	F1UK	0.024094	F10CA	-0.053768
F10FR	-0.099353	F10GE	0.242206	F10IT	0.072819
F10JA	0.124816	F10NE	0.223077	F10UK	-0.002007
F10US	0.616185	F2FR	0.418867	F20CA	-0.245403
F20FR	0.052207	F20GE	0.006946	F20IT	0.176537
F20JA	-0.07173	F20NE	0.09354	F20UK	-0.040341
F20US	0.067515	F3CA	-0.020791	F3FR	-0.001183
F3GE	-0.120761	F30CA	0.279496	F30FR	-0.026652
F30GE	0.290149	F30IT	-0.14876	F30JA	0.804933
F30NE	-0.255302	F30UK	0.740935	F30US	0.15222
F4GE	-0.731788	F4JA	-0.66905	F40CA	0.784069
F40FR	1.76086	F40GE	-0.377934	F40IT	-0.221008
F40JA	3.84313	F40NE	0.138543	F40UK	0.189983
F40US	2.25319	F50CA	0.270787	F50FR	1.25097
F50GE	1.20028	F50IT	1.31648	F50JA	1.30657
F50NE	0.968503	F50UK	1.28695	F50US	0.153811
F6CA	-0.095084	F6FR	-3.23475	F6GE	-1.95928
F6IT	-1.85255	F6JA	-2.01446	F6NE	-1.9384
F6UK	-2.2736	F60CA	0.02143	F60FR	0.612717
F60GE	0.468396	F60IT	-1.1264	F60JA	0.710113
F60NE	0.799582	F60UK	0.533112	G0CA	-0.003648
G0FR	-0.001236	G0GE	-0.012056	G0IT	-0.003179
G0JA	0.045769	G0NE	-0.008552	G0UK	0.013468
G0US	0.004428	G1CA	-0.000105	G1FR	-9.407155E-05
G1GE	-3.927120E-06	G1IT	0.000155	G1JA	-3.658464E-05
G1NE	2.173991E-05	G1UK	-0.000265	G1US	5.279754E-05
G10CA	-0.050435	G10FR	0.636369	G10GE	-0.002451
G10IT	1.38277	G10JA	-0.610265	G10NE	0.696158
G10UK	0.757122	G10US	-0.299741	G11CA	-0.298437
G11FR	0.258753	G11GE	-0.422543	G11IT	0.442983
G11JA	-1.14262	G11NE	-0.687287	G11UK	-0.828963
G11US	0.347438	G12CA	0.16578	G12FR	0.908516
G12GE	0.405291	G12IT	0.361741	G12JA	-0.346612
G12NE	0.363585	G12UK	-0.680074	G12US	-0.480483
G2CA	0.007542	G2FR	0.013437	G2GE	0.0044
G2IT	0.000184	G2JA	0.031405	G2NE	0.015183
G2UK	-0.046579	G2US	-0.001341	G20CA	0.259146
G20FR	-0.654758	G20GE	0.621408	G20IT	-0.172217
G20JA	-0.826017	G20NE	0.983567	G20UK	0.317069
G20US	0.007598	G21CA	0.213911	G21FR	-0.994672
G21GE	0.132577	G21IT	-0.352289	G21JA	-0.091766
G21NE	0.171835	G21UK	-0.576976	G21US	0.034483
G22CA	-0.194408	G22FR	0.386726	G22GE	0.546939
G22IT	-0.02103	G22JA	-0.232578	G22NE	0.979839
G22UK	0.525568	G22US	0.111434	G3CA	-0.209463
G3FR	-0.249651	G3GE	-0.3022	G3IT	-0.204769
G3JA	-0.583978	G3NE	-0.679193	G3UK	0.752483
G3US	-0.100705	G30CA	0.04415	G30FR	-0.002254
G30GE	0.052299	G30IT	-0.045144	G30JA	0.038284
G30NE	-0.086553	G30UK	-0.342353	G30US	-0.003303
G31CA	-0.048232	G31FR	0.000667	G31GE	0.046935
G31IT	0.037957	G31JA	0.033051	G31NE	-0.051527
G31UK	-0.076486	G31US	0.003961	G32CA	-0.06872
G32FR	-0.017283	G32GE	0.051619	G32IT	0.071145
G32JA	0.023627	G32NE	0.04683	G32UK	0.016799
G32US	-0.004193	G4CA	0.399296	G4FR	0.073793
G4GE	0.097097	G4IT	0.071244	G4JA	0.05497
G4NE	0.024806	G4UK	0.444298	G4US	-0.034747
G5CA	0.525327	G5FR	0.332204	G5GE	0.243101
G5IT	0.328725	G5JA	0.064557	G5NE	0.543858
G5UK	-0.927833	G5US	-0.209762	G6CA	0.854509
G6FR	0.184551	G6GE	0.679257	G6IT	0.4522
G6JA	-0.212536	G6NE	0.53443	G6UK	-1.08654
G6US	0.571938	G7CA	0.101733	G7FR	0.060923
G7GE	-0.065372	G7IT	-0.006446	G7JA	0.04405
G7NE	0.077908	G7UK	-0.696908	G7US	-0.053545
G8CA	-0.115046	G8FR	0.076835	G8GE	0.516343
G8IT	-0.125914	G8JA	-0.219103	G8NE	-0.045435
G8UK	0.51128	G8US	-0.106903	G9CA	0.037359
G9FR	-0.195855	G9GE	-0.940238	G9IT	-0.262394
G9JA	0.034766	G9NE	-0.454351	G9UK	0.080414
G9US	0.05499	H0CA	0.203896	H0FR	0.129624

Table 7.4 (continued)

H0GE	0.089664	H0IT	-0.878539	H0JA	-0.060943
H0NE	0.253769	H0UK	0.548739	H0US	0.077502
H1CA	-0.152912	H1FR	0.073406	H1GE	0.040487
H1IT	-0.018547	H1JA	0.016673	H1NE	0.12252
H1UK	0.051451	H1US	0.014957	H10CA	0.025102
H10FR	0.010249	H10GE	0.247567	H10IT	-0.071293
H10JA	0.018682	H10NE	0.586296	H10UK	0.091918
H10US	0.00826	H11CA	-0.049448	H11FR	0.239274
H11GE	0.044574	H11IT	0.081144	H11JA	-0.048667
H11NE	-0.41788	H11UK	0.306618	H11US	0.01138
H12CA	0.113463	H12FR	0.248513	H12GE	0.1238
H12IT	0.05552	H12JA	-0.119308	H12NE	0.500342
H12UK	-0.010101	H13CA	0.08955	H13FR	0.054154
H13GE	-0.021665	H13IT	0.201372	H13JA	0.149767
H13NE	-0.165191	H13UK	0.113126	H14CA	0.085483
H14FR	-0.021497	H14GE	-0.066495	H14IT	0.055937
H14JA	-0.010149	H14NE	-0.499385	H14UK	-0.103932
H15CA	0.035674	H15FR	-0.077889	H15GE	-0.326702
H15IT	-0.109401	H15JA	-0.03302	H15NE	0.186242
H15UK	-0.124118	H2CA	0.085196	H2FR	-0.000659
H2GE	-0.001326	H2IT	0.001095	H2JA	0.000277
H2NE	-0.003371	H2UK	-0.006863	H2US	0.01107
H3CA	-0.038753	H3FR	0.049731	H3GE	0.009901
H3IT	0.164379	H3JA	-0.012907	H3NE	-0.065659
H3UK	0.148371	H3US	-0.00087	H4CA	0.053718
H4FR	-0.003771	H4GE	0.003139	H4IT	-0.000501
H4JA	-0.000414	H4NE	0.000248	H4UK	0.003317
H4US	0.610356	H5CA	0.012595	H5FR	0.01573
H5GE	0.028759	H5IT	0.018264	H5JA	-0.000268
H5NE	0.032386	H5UK	0.014503	H5US	0.072265
H6CA	-0.068748	H6FR	0.011124	H6GE	0.043488
H6IT	-0.116616	H6JA	-0.030858	H6NE	0.154034
H6UK	-0.038433	H6US	0.010184	H7CA	-0.001767
H7FR	-0.00426	H7GE	-0.001028	H7IT	-0.001111
H7JA	-0.000251	H7NE	-0.002796	H7UK	-0.002765
H7US	-0.008498	H8CA	0.342569	H8FR	0.234953
H8GE	0.347365	H8IT	0.235021	H8JA	0.292216
H8NE	0.51165	H8UK	0.329246	H8US	0.067992
H9CA	0.272154	H9FR	0.250369	H9GE	0.113401
H9IT	0.229865	H9JA	0.123404	H9NE	0.081916
H9UK	0.102093	H9US	0.018369	I0CA	0.302888
I0FR	4.16517	I0GE	-0.265758	I0IT	-0.491863
I0JA	-0.358942	I0NE	-0.570559	I0UK	-0.621571
I0US	-0.104698	I1CA	1.00269	I1FR	4.01
I1GE	1.09201	I1IT	2.3297	I1JA	11.8281
I1NE	1.04947	I1UK	2.04017	I1US	0.661462
I2CA	0.127849	I2FR	0.010317	I2GE	0.032126
I2IT	0.036875	I2JA	0.002864	I2NE	0.364942
I2UK	0.13774	I2US	0.018057	I3CA	-0.123952
I3FR	-0.715105	I3GE	0.032967	I3IT	0.093963
I3JA	0.013094	I3NE	0.277274	I3UK	-0.08037
I3US	0.082842	I4CA	0.179301	I4FR	-0.494583
I4GE	0.014642	I4IT	0.295977	I4JA	-0.531693
I4NE	0.042767	I4UK	0.034769	I4US	-0.066497
I5CA	-0.332617	I5FR	0.037033	I5GE	-0.007693
I5IT	-0.040057	I5JA	0.010134	I5NE	-0.228264
I5UK	-0.53198	I5US	0.036839	I6CA	0.640689
I6FR	0.348802	I6GE	0.615658	I6IT	0.655782
I6JA	0.29103	I6NE	0.49757	I6UK	0.374063
I6US	0.052165	I7CA	-0.055634	I7FR	-0.041407
I7GE	0.053553	I7IT	-0.091501	I7JA	-8.886478E-05
I7NE	-0.074126	I7UK	-0.031961	I7US	-0.068607
I8CA	0.066109	I8FR	0.018122	I8GE	-0.028847
I8IT	0.016146	I8JA	-0.041865	I8NE	-0.04174
I8UK	0.014522	I8US	0.004386	J0CA	0.00023
J0FR	0.000654	J0GE	0.005948	J0IT	-0.002227
J0JA	0.000194	J0NE	0.001483	J0UK	-0.001317
J1CA	0.280069	J1JA	0.636045	J1UK	0.404612
J2CA	-0.069894	J2FR	-0.028109	J2GE	-0.101694
J2IT	-0.046984	J2NE	-0.028487	J3IT	-0.030714
J3NE	-0.027252	J3UK	-0.037745	J4GE	-0.092671
K0CA	-0.03672	K0FR	-0.007933	K0GE	-0.004188
K0IT	0.030647	K0JA	0.066137	K0NE	-0.019439
K0UK	-0.08629	K0US	-0.118647	K1CA	-1.00189
K1FR	0.09518	K1GE	0.084483	K1IT	-70.1123
K1JA	-0.28134	K1NE	0.074312	K1UK	-0.21725
K1US	-1.704	K10CA	-0.50794	K10FR	-0.10998
K10GE	-0.05558	K10IT	0.1779	K10JA	-0.05976
K10NE	0.11578	K10UK	-0.36774	K10US	-0.266557
K11CA	0.43356	K11FR	-0.205692	K11GE	8.54003
K11IT	0.510238	K11JA	0.10676	K11NE	-0.120811
K11UK	0.7103	K11US	-0.011724	K12CA	-0.16197

Table 7.4 (continued)

K12FR	-0.04162	K12GE	21.9658	K12IT	0.196408
K12JA	0.15317	K12NE	-7.00023	K12UK	-0.40683
K12US	0.222	K13CA	-0.19053	K13FR	-0.07258
K13GE	28.5363	K13IT	0.182301	K13JA	0.0343
K13NE	-5.78759	K13UK	0.28402	K13US	0.02
K14CA	-0.2753	K14FR	0.6105	K14GE	0.1874
K14IT	0.36478	K14JA	0.2194	K14NE	-0.2528
K14UK	-0.21338	K14US	0.2778	K15CA	-0.6962
K15FR	-0.1698	K15GE	0.5547	K15IT	0.42363
K15JA	0.4259	K15NE	0.5438	K15UK	0.5093
K15US	-0.1317	K2CA	-0.04238	K2FR	0.275907
K2GE	79.9045	K2IT	-0.372853	K2JA	0.14682
K2NE	-0.064781	K2UK	-0.29567	K2US	0.087633
K3CA	0.06676	K3FR	-0.34383	K3GE	-0.02164
K3IT	-10.1092	K3JA	-0.18028	K3NE	-5.04602
K3UK	0.56026	K3US	-0.065193	K4CA	0.06475
K4FR	0.0028	K4GE	0.138669	K4IT	-0.185426
K4JA	-0.02574	K4NE	0.243743	K4UK	0.13262
K4US	-0.055842	K5CA	0.34558	K5FR	0.05509
K5GE	-0.01241	K5IT	0.07162	K5JA	1.33237
K5NE	-0.04987	K5UK	0.02992	K5US	0.140337
K6CA	-0.51519	K6FR	0.216151	K6GE	0.089455
K6IT	-0.004496	K6JA	-2.03841	K6NE	0.108302
K6UK	0.14599	K6US	-0.038	K7CA	0.01197
K7FR	0.00344	K7GE	0.01888	K7IT	-0.03065
K7JA	0.056447	K7NE	-0.03923	K7UK	0.04161
K7US	0.008	K8CA	-0.0327	K8FR	0.01106
K8GE	0.01352	K8IT	-0.01914	K8JA	0.00436
K8NE	-0.02741	K8UK	-0.02842	K8US	-0.009
K9CA	0.49477	K9FR	0.11732	K9GE	0.579013
K9IT	-0.15663	K9JA	-0.212914	K9NE	-0.392292
K9UK	0.35337	K9US	0.246549	L0CA	-0.000111
L0FR	0.001753	L0GE	0.001334	L0IT	-0.000106
L0JA	-0.000313	L0NE	-0.001407	L0UK	0.001221
L1CA	-0.044797	L1FR	-0.736738	L1GE	-0.672213
L1IT	-0.2118	L1JA	-0.579833	L1NE	-0.1362
L1UK	-0.5398	L2CA	33.9022	L2FR	131.55
L2GE	-113.957	L2IT	17.655	L2JA	-405.337
L2NE	10.9493	L2UK	29.8764	L3CA	-0.0089
L3FR	0.6546	L3GE	-0.2109	L3IT	-0.032609
L3JA	0.076104	L3NE	-0.192914	L3UK	0.1369
L4CA	0.510603	L4FR	0.916987	L4GE	0.238757
L4IT	0.970475	L4JA	0.142382	L4NE	0.624358
L4UK	0.564549	L5CA	-1.	L5FR	-0.036492
L5GE	0.0106	L5IT	-1.	L5JA	-0.0779
L5NE	0.024793	L5UK	-0.023716	L6FR	-0.65
L6GE	-0.0086	L6JA	-0.3398	L7FR	-0.35
M0CA	-0.00314	M0FR	0.06315	M0GE	0.00064
M0IT	0.0232	M0JA	0.00323	M0NE	0.02739
M0UK	0.00597	M1CA	0.05183	M1FR	0.13361
M1GE	-0.95133	M1IT	-0.08897	M1JA	-0.03233
M1NE	0.11611	M1UK	0.80037	M2CA	-0.00683
M2FR	-0.06955	M2GE	0.05737	M2IT	-0.029
M2JA	-0.03956	M2NE	-0.07818	M2UK	-0.02808
M3CA	0.07509	M3FR	-1.13931	M3GE	-0.73465
M3IT	0.76727	M3JA	-0.87177	M3NE	-0.66181
M3UK	1.20971	M4CA	-0.30121	M4FR	1.42566
M4GE	2.98731	M4IT	0.1553	M4JA	3.92447
M4NE	-0.10364	M4UK	-2.03867	M5CA	0.18038
M5FR	-3.15593	M5GE	-0.13434	M5IT	-0.35833
M5JA	-0.02198	M5NE	-1.97462	M5UK	-0.98978
M6CA	0.31538	M6FR	-0.39385	M6GE	0.18685
M6IT	0.15115	M6JA	0.20401	M6NE	-0.35813
M6UK	-0.20116	P	4.	XPCA	0.012
XPFR	0.01379	XPGE	0.01143	XPIT	0.01218
XPJA	0.0228	XPNE	0.01161	XPUK	0.0067
XPUS	0.00866	ZPCA	0.025	ZPFR	0.025
ZPGE	0.025	ZPIT	0.025	ZPJA	0.025
ZPNE	0.025	ZPUK	0.025	ZPUS	0.025

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