The MCC Model Workbook

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Chapter 1

Model Updates

1.1 Different Versions of the MC Model

The MCA model on the website is the exact model in *Estimating How the Macroeconomy Works*. It is presented in Chapter 2 and Appendices A and B of this book. If you want to duplicate the results in the book, you should work with the MCA model. It has its own workbook: *The MCA Model Workbook*. The MCB model on the website is the model used for the results in "Policy Effects in the Post Boom U.S. Economy." It has its own Appendices A and B and its own workbook. If you want to duplicate the results in this paper, you should work with the MCB model. Finally, the MCC model, which is described in this workbook, also has its own Appendices A and B. It is used for the results in "Evaluating Inflation Targeting Using a Macroeconometric Model" and in "A Comparison of Five Federal Reserve Chairmen: Was Greenspan the Best?" If you want to duplicate the results in these two papers, you should work with the MCC model.

1.2 MCC Model

The MCC model on the website is the latest update of the MC model. It includes the April 28, 2006, update of the US model. The updating consists of collecting the latest data and then reestimating the equations through the end of the data. With a few exceptions (discussed below), the specifications of the equations have not been changed from those in the MCB model, and so the MCC and MCB models are quite similar. Similarily, there were few specification changes in updating the MCA model to the MCB model, and so all three models are quite similar. This can be seen by running the same experiment for each model.

You should read Chapter 2 in *Estimating How the Macroeconomy Works* before reading this workbook and before working with the MCC model. In the discussion below, all the specification changes for the MCC model are from the specification of the MCA model, the model that is in the 2004 book.

A number of the specification changes are concerned with simplifying the model slightly. First, the labor force variable, $L1$, is now the labor force of both men and women, and $POP1$ is the labor-force-age population of both men and women. The variables $L2$ and $POP2$ have been dropped. In addition, the armed forces variable, AF, has been dropped. These changes were dictated in part by data availability. Equation 14 now explains $L1$, and equation 15 has been dropped. The unemployment rate, UR, is now by definition $(L1-J)/L1$, where J is employment.

Second, the potential output variable, YS, is now taken to be trend output, where the values for trend output are taken to be the predicted values from a regression of $\log Y$ on a constant and time trend for each country. The demand pressure variable, ZZ, is then taken to be $\log Y - \log YS$, and it is used to replace DP in the price equation 5 and DW in the wage equation 12. In addition, UR is used to replace the labor constraint variable, Z, in the labor force equation 14. These changes mean that the variables JJ, JJP, JJS, and Z can be dropped.

The MCC model has 34 fewer stochastic equations than the MCA model (328 versus 362). The equations that have been dropped are equation 1 for AR; equation 2 for AR; equation 3 for NO, SA, VE, CO, JO, SY, MA, PH, TH, ME, and PE; equation 6 for FR; equation 8 for PA; equation 11 for NO, GR, PO, SY, AR, and PE; and equation 14 for UK and DE. After reestimation and further tests, these equations did not seem reliable, and so they were dropped. In addition, as noted above, equation 15 was dropped. There were 12 countries that had an equation 15. One new equation was added: equation 1 for ST.

Small specification changes were made to 37 other equations. The changes are as follows.

1. Equation 1, AU: $\log(PY/PM)$ dropped.
2. Equation 1, SO: $\log(PY/PM)$ and ρ dropped.
3. Equation 1, BR: lagged dependent variable dropped.
4. Equation 2, AU: constant term added.
5. Equation 2, DE: RB and $[A/(PY \cdot YS)]_{-1}$ dropped.
6. Equation 2, SY: lagged dependent variable dropped.
7. Equation 3, KO: constant term added.
8. Equation 5, CA: ρ dropped.

9. Equation 5, SO: ZZ lagged once added.
10. Equation 5, SP: ZZ dropped.
11. Equation 5, PA: $\log PM$ added and ZZ dropped.
12. Equation 5, CH: $\log PM$ added.
13. Equation 6, ST: ρ dropped.
14. Equation 7, EU: $PCPY$ lagged once rather than unlagged.
15. Equation 7, CA: $PCPY$ dropped.
16. Equation 7, JA: ZZ lagged once rather than unlagged.
17. Equation 7, AU: $PCPY$ dropped and ZZ added.
18. Equation 7, FR: ZZ added.
19. Equation 7, GE: $PCPY$ lagged once rather than unlagged.
20. Equation 7, ST: $PCPY$ added.
21. Equation 7, UK: $PCPY$ dropped.
22. Equation 7, FI: $PCPY$ added, ZZ added, RS_{US} dropped, and ρ dropped.
23. Equation 7, AS: $PCPY$ dropped.
24. Equation 7, SO: ZZ dropped.
25. Equation 7, BE: ZZ added.
26. Equation 7, DE: $PCPY$ added and ZZ added.
27. Equation 7, NO: ZZ added and RS_{US} dropped.
28. Equation 7, SW: $PCPY$ added.
29. Equation 7, ID: ZZ added.
30. Equation 7, PA: ZZ added.
31. Equation 9, CA: λ estimated rather than constrained to be 0.050.
32. Equation 9, DE: λ constrained to be 0.050 rather than estimated.

33. Equation 12, FR: ZZ lagged once added.

34. Equation 13, FI: ρ dropped.

35. Equation 14, JA: UR added.

36. Equation 14, GE: UR added.

37. Equation 14, IT: UR added.

None of these changes are important regarding the properties of the overall model.

In the MCC model the base year is 2000 rather than 1995, and all variables that had “95” in their name now have “00” instead.

Chapter 2

The MCC Model on the Website

This chapter discusses practical things you should know when working with the MCC model. It relies on Chapter 2 in *Estimating How the Macroeconomy Works* and on the MCC model Appendices A and B on the website. If you are planning to work with the MCC model, it may be helpful to have hardcopies of these items available for ease of reference. In what follows all references to chapters and tables are to those in the book or in the MCC model Appendices A and B on the website.

2.1 Notation

The notation for the variables in the ROW model is presented in Tables B.1 and B.2 in Appendix B. Two letters denote the country (CA for Canada, JA for Japan, etc.), and the abbreviations are given in Table B.1. Up to five letters denote the variable (C for consumption, I for investment, etc.), and the names are given in Table B.2 in alphabetical order. The complete name of a variable for a country consists of the country abbreviation plus the variable name, such as CAC for Canadian consumption, JAI for Japanese investment, etc. The two letters EU denote the European countries in the model that are part of the EMU. These are: AU, FR, GE, IT, NE, FI, BE, GR, IR, PO, SP. (Luxembourg, which is also part of the EMU, is not in the model.) (GR joined January 1, 2001.)

2.2 Solution Options

There are five choices you can make regarding the solution of the MCC model.

1. The prediction period, where the default is 2007-2009.

2. Whether you want the entire MCC model solved or just the individual country models by themselves. If you choose the latter, none of the variables in one country affect the variables in any other country. Each individual country model stands alone, and all foreign-sector variables in an individual country model are taken to be exogenous. The default is to solve the entire MCC model.

3. Whether or not you want the trade share equations used. If you do not want the trade share equations used, the trade shares are taken to be exogenous and equal to the actual values prior to 2005:1 and to the predicted values in the base dataset (MCCBASE) from 2005:1 on. This trade share option is not relevant if you choose to have the individual country models solved by themselves since in this case the output from the trade share calculations does not affect any individual country model. The default is to use the trade share equations.

4. The number of within country iterations (denoted LIMITA) and the number of across country iterations (denoted LIMITB). The defaults are 10 for LIMITA and 10 for LIMITB. As discussed below, these options are useful for checking if the model has successfully solved.

5. Whether or not you want to use the historical errors. The default is to set all the error terms equal to zero. If you use the historical errors and make no changes to any of the exogenous variables and coefficients, then the solution values of the endogenous variables will be the actual values—a perfect tracking solution—aside from rounding error. This option can be useful for multiplier experiments, as discussed below.

The size of the MCC model is discussed in Section 2.1 in Chapter 2, and the way in which the model is solved is discussed in Section B.6 in Appendix B. Because the MCC model (unlike the US model) is not iterated until convergence (because LIMITA and LIMITB above are fixed), it may be the case that after the program finishes the model did not really solve. If you are concerned about this, there is one check that you can perform, which is to increase LIMITA and LIMITB. If the model has correctly solved, it should be the case the increasing LIMITA and LIMITB has a very small effect on the solution values. You can thus increase LIMITA and LIMITB and see if the output values change much. If they do not, then you can have considerable confidence that the model has been solved correctly. The maximum values of LIMITA and LIMITB that you are allowed are 15 and 15, respectively. Another check is that if the predicted values are either extremely large or extremely small, then the model is unlikely to have solved. If this is true, you have probably made extreme changes to one or more exogenous variables or coefficients.

2.3 Changing Stochastic Equations

There are four changes you can make to any of the 328 stochastic equations:

1. Drop (or add back in) an equation. When an equation is dropped, the variable determined by the equation is taken to be exogenous, and it can be changed if desired. The default values for the variable are the historical values when they exist and forecast values from the base dataset otherwise.

2. Take an equation to begin after the beginning of the basic prediction period. When an equation begins later than the basic prediction period, the variable determined by the equation is taken to be exogenous for the earlier period, and it can be changed if desired. The default values for the variable are the historical values when they exist and forecast values from the base dataset otherwise. For quarterly countries the period that you want the equation to begin is a quarter, not a year. You can, for example, have an equation begin in 2007:2 when the basic prediction period is 2007-2009.

3. Add factor an equation, where the add factors can differ for different periods. For quarterly countries the add factors are for individual quarters, not years.

4. Change any of the 1502 coefficients in the equations. Unlike for the US model alone, however, you cannot add variables to the equations.

2.4 Creating Base Datasets

If you ask the program to solve the MCC model for any period beginning 2007 or later *and* you make no changes to the coefficients and exogenous variables, the solution values for the endogenous variables will simply be the values that are already in MCCBASE. If, on the other hand, you ask the program to solve the model for a period beginning earlier than 2007, where at least some actual data exist, the solution values will not be the same as the values in MCCBASE because the model does not predict perfectly (the solution values of the endogenous variables are not in general equal to the actual values). It is thus very important to realize that the only time the solution values will be the same as the values in MCCBASE when you make no changes to the exogenous variables and coefficients is when you are solving beginning 2007 or later.

If you want to work with the MCC model for a period for which actual data exist, you will probably want to use the historical errors (i.e., set the errors equal to their estimated values and take them to be exogenous). If for any period you use the historical errors and solve the model with no changes in the exogenous variables and coefficients, you will get a perfect tracking solution. This is usually a good base to perform various experiments.

2.5 Treatment of the EMU Regime

As noted above, there are 10 countries in the model that are part of the EMU beginning January 1, 1999: AU, FR, GE, IT, NE, FI, BE, IR, PO, and SP. GR joined January 1, 2001. EU denotes these countries. Prior to 1999 each of these countries has an estimated interest rate reaction function (equation 7), and each country except FI, SP, and GR has an estimated long term interest rate equation (equation 8). In addition, GE has an estimated exchange rate equation where the exchange rate explained is the DM/$ rate, and each of the other countries has an estimated exchange rate equation where the exchange rate explained is the local currency/DM rate (equation 9).

For the EMU regime, which begins in 1999:1 for 10 countries and 2001:1 for GR, equations 7, 8, and 9 for the individual EMU countries are dropped from the model. EU equations 7, 8, and 9 are added beginning in 1999:1.

The software allows you to change the EU interest rate and exchange rate equations. The "country" that you will click is EU. Remember that these equations are only relevant from 1999:1 on. Also remember that the equations that have been dropped for the individual EMU countries from 1999:1 on are not part of the model from 1999:1 on. They only matter prior to 1999:1. For GR the switch date is 2001:1.

There is one special features of the online software regarding the EMU regime, which pertains to equations 7 and 8 explaining RS and RB. As mentioned above, for the EMU countries these equations end in 1998:4 (2000:4 for GR). If you are working with a period prior to 1999:1 and you drop equation 7, you can then change the RS values using the "Change exogenous variables" option. The variable you change, however, is not RS but RSA. For Germany (GE), for example, you change GERSA, not GERS, after you have dropped equation 7 for GE. Similarly, if you drop equation 8, you change RBA, not RB. These changes pertain only to the EMU countries; for all other countries RS and RB are changed. When you click "Change exogenous variables," for a non EMU country, ignore RSA and RBA and use RS and RB.

Chapter 3

Experiments in *Estimating How the Macroeconomy Works*

This chapter is similar to Chapters 2–5 in *The MCA Model Workbook* and to Chapter 3 in *The MCB Model Workbook*. The same experiments are described as were described for the MCA model. Note that if you do the experiments using the MCC model, you will not exactly duplicate the results in *Estimating How the Macroeconomy Works* because the MCC model rather than the MCA model is being used. However, if you compare the results to those in the book, you will see that the properties of the two models are quite similar.

3.1 Testing for a New Economy in the 1990s (Chapter 6)

The chapter explains how to perform the "no stock market boom" experiment in Chapter 6 in *Estimating How the Macroeconomy Works*. It assumes that Chapter 6 has been read. The following are the steps for this experiment.

1. Click "Solve" under "MCC Model" in the left menu and copy MCCBASE to a dataset you have named.
2. Click "Set prediction period" and set the period to be 1995 through 2002.
3. Click "Use historical errors" and set the option to use the historical errors.
4. Click "Drop or add equations" and for the United States drop the CG equation (equation 25).

5. Click “Change exogenous variables” and ask to change CG for the United States. Ask to replace each existing value with 131.2. Hit the enter key and then be sure to save the changes once you are done.

6. Click “Solve the model and examine the results”.

Once the model is solved you can examine the results. You can, for example, compare the results to those in Chapter 6, which use the MCA model.

Note that the use of the historical errors is important. This allows the perfect tracking solution to be the base path, from which changes can then be made. If you did not use the historical errors, you would have to first create a base path of predicted values, which the new predicted path (after the interest rate changes) would be compared. See Section 2.6 of *The US Model Workbook* for more discussion of this.

3.2 Evaluating a ‘Modern’ View of Macroeconomics (Chapter 7)

The chapter explains how to perform the inflation shock experiment in Chapter 7 in *Estimating How the Macroeconomy Works*. It assumes that Chapter 7 has been read. The following are the steps for this experiment.

1. Click “Solve” under “MCC Model” in the left menu and copy MCCBASE to a dataset you have named.

2. Click “Set prediction period” and set the period to be 1994 through 1998.

3. Click “Use historical errors” and set the option to use the historical errors.

4. Click “Drop or add equations” and drop the RS equation for the United States (equation 30).

5. Click “Modify equation coefficients” and ask to modify equation 10 for the United States. Then add .005 to the third coefficient in the equation (the constant term). Be sure to save the changes once you are done.

6. Click “Solve the model and examine the results”.

Once the model is solved you can examine the results. You can, for example, compare the results to those in Table 7.1 in Chapter 7, which use the MCA model.

Note that the use of the historical errors is important. This allows the perfect tracking solution to be the base path, from which changes can then be made. If you did not use the historical errors, you would have to first create a base path of predicted values, which the new predicted path (after the interest rate changes) would be compared. See Section 2.6 of *The US Model Workbook* for more discussion of this.

3.3 Estimated European Inflation Costs from Expansionary Policies (Chapter 8)

The chapter explains how to perform the German monetary policy experiment in Chapter 8 in *Estimating How the Macroeconomy Works*. It assumes that Chapter 8 has been read. The following are the steps for this experiment.

1. Click "Solve" under "MCC Model" in the left menu and copy MCCBASE to a dataset you have named.

2. Click "Set prediction period" and set the period to be 1982 through 1990.

3. Click "Use historical errors" and set the option to use the historical errors.

4. Click "Drop or add equations" and for the Germany drop the RS equation (equation 7).

5. Click "Change exogenous variables" and ask to change GERSA for Germany. (NOTE: This is GERSA, not GERS. See the discussion in Chapter 1, Section 1.5, of this workbook.) Then add -1.0 for 19821-19834, add -.75 for 19841-19854, add -.5 for 19861-19874, and add -.25 for 19881-19904. Be sure to save the changes once you are done.

6. Click "Solve the model and examine the results".

Once the model is solved you can examine the results. You can, for example, compare the results to those in Table 8.1 in Chapter 8, which use the MCA model.

This is a nice example for learning some of the features of the MCC model and for learning how to work with it. Once you have mastered this experiment, you may want to perform others to examine what else macro policies might have done in the 1980s to reduce European unemployment and at what price level and inflation costs.

Note that the use of the historical errors is important. This allows the perfect tracking solution to be the base path, from which changes can then be made. If you did not use the historical errors, you would have to first create a base path of predicted values, which the new predicted path (after the interest rate changes) would be compared. See Section 2.6 of *The US Model Workbook* for more discussion of this.

3.4 Evaluating Policy Rules (Chapter 11)

The chapter explains how to perform the interest rate experiment in Table 11.1 in Chapter 11 in *Estimating How the Macroeconomy Works*. It assumes that Chapter 11 has been read. The following are the steps for this experiment.

1. Click “Solve” under “MCC Model” in the left menu and copy MCCBASE to a dataset you have named.
2. Click “Set prediction period” and set the period to be 1994 through 1998.
3. Click “Use historical errors” and set the option to use the historical errors.
4. Click “Drop or add equations” and drop the RS equation for the United States (equation 30).
5. Click “Change exogenous variables” and ask to change RS for the United States. Then add -1.0 to all the values. Be sure to save the changes once you are done.
6. Click “Solve the model and examine the results”.

Once the model is solved you can examine the results. You can, for example, compare the results to those in Table 11.1 in Chapter 11, which use the MCA model.

Note that the use of the historical errors is important. This allows the perfect tracking solution to be the base path, from which changes can then be made. If you did not use the historical errors, you would have to first create a base path of predicted values, which the new predicted path (after the interest rate changes) would be compared. See Section 2.6 of *The US Model Workbook* for more discussion of this.

Chapter 4

Experiments in "Policy Effects in the Post Boom U.S. Economy"

This chapter is similar to Chapter 4 in *The MCB Model Workbook*. It presents the seven experiments in "Policy Effects in the Post Boom U.S. Economy." The same experiments are described as were described for the MCB model. If you do the experiments using the MCC model, you will not exactly duplicate the results in "Policy Effects in the Post Boom U.S. Economy" because the MCC model rather than the MCB model is being used. However, if you compare the results to those in the paper, you will see that the properties of the two models are quite similar.

4.1 Experiment 1: No Tax Cuts

1. Click "Solve" under "MCC Model" in the left menu and copy MCCBASE to a dataset you have named.
2. Click "Set prediction period" and set the period to be 2000 through 2004.
3. Click "Use historical errors" and set the option to use the historical errors.
4. Click "Drop or add equations" and for the United States drop the CG equation (equation 25) and the RS equation (equation 30).
5. Click "Change exogenous variables" and ask to change D1G for the United States. Change the first quarter of the prediction period to be 20004 (not 20001). Then ask to replace each existing value with 0.084327889. Hit the enter key and then be sure to save the changes once you are done.
6. Click "Solve the model and examine the results".

The model will be solved for the entire 2000:1–2004:4 period, but the period of interest is only 2000:4–2004:3. You can ignore the first three quarters of 2000 (there are no changes here anyway) and the last quarter of 2004. Once the model is solved you can examine the results for any variable in the model.

4.2 Experiment 2: No G Increase

1. Click "Solve" under "MCC Model" in the left menu and copy MCCBASE to a dataset you have named.

2. Click "Set prediction period" and set the period to be 2000 through 2004.

3. Click "Use historical errors" and set the option to use the historical errors.

4. Click "Drop or add equations" and for the United States drop the CG equation (equation 25) and the RS equation (equation 30).

5. Click "Change exogenous variables" and ask to change COG for the United States. Then type in the following values (the first four digits are enough): (Make sure to save the changes once you are done.)

	COG
2000.4	66.59650
2001.1	67.11057
2001.2	67.59765
2001.3	67.92294
2001.4	68.53933
2002.1	69.18315
2002.2	69.61120
2002.3	70.10492
2002.4	70.74483
2003.1	71.40677
2003.2	72.04984
2003.3	72.73568
2003.4	73.38595
2004.1	73.88766
2004.2	74.61890
2004.3	75.24613
2004.4	75.81103

6. Click "Solve the model and examine the results".

The model will be solved for the entire 2000:1–2004:4 period, but the period of interest is only 2000:4–2004:3. You can ignore the first three quarters of 2000 (there are no changes here anyway) and the last quarter of 2004. Once the model is solved you can examine the results for any variable in the model.

4.3 Experiment 3: No RS Decrease

1. Click “Solve” under “MCC Model” in the left menu and copy MCCBASE to a dataset you have named.
2. Click “Set prediction period” and set the period to be 2000 through 2004.
3. Click “Use historical errors” and set the option to use the historical errors.
4. Click “Drop or add equations” and for the United States drop the CG equation (equation 25) and the RS equation (equation 30).
5. Click “Change exogenous variables” and ask to change RS for the United States. Change the first quarter of the prediction period to be 20004 (not 20001). Then ask to replace each existing value with 6.017. Hit the enter key and then be sure to save the changes once you are done.
6. Click “Solve the model and examine the results”.

The model will be solved for the entire 2000:1–2004:4 period, but the period of interest is only 2000:4–2004:3. You can ignore the first three quarters of 2000 (there are no changes here anyway) and the last quarter of 2004. Once the model is solved you can examine the results for any variable in the model.

4.4 Experiment 4: No Stimulus—Experiments 1, 2, and 3

Simply combine experiments 1, 2, and 3, i.e., change D1G, COG, and RS.

4.5 Experiment 5: No Stimulus and No Stock Market Decline

Do the set up for experiment 4 and then do the following:

1. Click “Change exogenous variables” and ask to change CG for the United States. Then type in the following values (the first three digits are enough): (Make sure to save the changes once you are done.)

	CG
2000.4	239.6968
2001.1	242.8530
2001.2	246.6969
2001.3	250.6456
2001.4	252.6329
2002.1	255.7220
2002.2	258.5323
2002.3	260.8754
2002.4	263.5824
2003.1	267.3247
2003.2	271.3791
2003.3	274.3896
2003.4	277.8864
2004.1	281.4873
2004.2	285.1876
2004.3	290.4179
2004.4	293.7721

2. Click “Solve the model and examine the results”.

Chapter 5

Experiments in “Evaluating Inflation Targeting Using a Macroeconometric Model”

This chapter presents five experiments in “Evaluating Inflation Targeting Using a Macroeconometric Model.” If you do these experiments you will duplicate exactly the results in this paper.

5.1 Experiment 1: Effects of a Decrease in RS

1. Click “Solve” under “MCC Model” in the left menu and copy MCCBASE to a dataset you have named.

2. Click “Set prediction period” and set the period to be 1994 through 1998.

3. Click “Use historical errors” and set the option to use the historical errors.

4. Click “Drop or add equations” and for the United States drop the RS equation (equation 30).

5. Click “Change exogenous variables” and ask to change RS for the United States. Then add -1.0 to all the values. Be sure to save the changes once you are done.

6. Click “Solve the model and examine the results”.

Once the model is solved you can examine the results. If you have done the experiment correctly you will duplicate the results in Table 4 in the paper.

Note that the use of the historical errors is important. This allows the perfect tracking solution to be the base path, from which changes can then be made. If you did not use the historical errors, you would have to first create a base path of predicted values, which the new predicted path (after the interest rate changes) would be compared. See Section 2.6 of *The US Model Workbook* for more discussion of this.

5.2 Experiment 2: Effects of a Positive Price Shock: RS Exogenous

This is Case 1 in Table 5 in the paper.

1. Click "Solve" under "MCC Model" in the left menu and copy MCCBASE to a dataset you have named.
2. Click "Set prediction period" and set the period to be 1994 through 1998.
3. Click "Use historical errors" and set the option to use the historical errors.
4. Click "Drop or add equations" and for the United States drop the RS equation (equation 30).
5. Click "Modify equation coefficients," then the United States, and then equation 10, the PF equation. Change the constant term in this equation to be -0.031373. Be sure to save the changes once you are done.
6. Click "Solve the model and examine the results".

Once the model is solved you can examine the results. If you have done the experiment correctly you will duplicate the results in Case 1 in Table 5 in the paper.

5.3 Experiment 3: Effects of a Positive Price Shock: RS Endogenous

This is Case 2 in Table 5 in the paper.

1. Click "Solve" under "MCC Model" in the left menu and copy MCCBASE to a dataset you have named.
2. Click "Set prediction period" and set the period to be 1994 through 1998.

3. Click “Use historical errors” and set the option to use the historical errors.

4. Click “Modify equation coefficients,” then the United States, and then equation 10, the PF equation. Change the constant term in this equation to be -0.031373. Be sure to save the changes once you are done.

5. Click “Solve the model and examine the results”.

Once the model is solved you can examine the results. If you have done the experiment correctly you will duplicate the results in Case 2 in Table 5 in the paper.

5.4 Experiment 4: Effects of a Positive Demand Shock: RS Exogenous

This is Case 1 in Table 6 in the paper.

1. Click “Solve” under “MCC Model” in the left menu and copy MCCBASE to a dataset you have named.

2. Click “Set prediction period” and set the period to be 1994 through 1998.

3. Click “Use historical errors” and set the option to use the historical errors.

4. Click “Drop or add equations” and for the United States drop the RS equation (equation 30).

5. Click “Modify equation coefficients,” then the United States, and then equation 1, the CS equation. Change the constant term in this equation to be 0.36071. Be sure to save the changes once you are done. Then click the United States and then equation 2, the CN equation. Change the constant term in this equation to be -0.057718. Be sure to save the changes once you are done.

6. Click “Solve the model and examine the results”.

Once the model is solved you can examine the results. If you have done the experiment correctly you will duplicate the results in Case 1 in Table 6 in the paper.

5.5 Experiment 4: Effects of a Positive Demand Shock: RS Endogenous

This is Case 2 in Table 6 in the paper.

1. Click “Solve” under “MCC Model” in the left menu and copy MCCBASE to a dataset you have named.

2. Click “Set prediction period” and set the period to be 1994 through 1998.

3. Click “Use historical errors” and set the option to use the historical errors.

4. Click “Modify equation coefficients,” then the United States, and then equation 1, the CS equation. Change the constant term in this equation to be 0.36071. Be sure to save the changes once you are done. Then click the United States and then equation 2, the CN equation. Change the constant term in this equation to be -0.057718. Be sure to save the changes once you are done.

5. Click “Solve the model and examine the results”.

Once the model is solved you can examine the results. If you have done the experiment correctly you will duplicate the results in Case 2 in Table 6 in the paper.