What Can Macroeconometric Models Say About Asia-Type Crises?

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Abstract

This paper uses a multicountry econometric model to examine Asia-type crises. Experiments are run for Thailand, Malaysia, the Philippines, and Korea, each corresponding to a depreciation of the country's currency. The results suggest that both the expansionary and inflationary effects of a depreciation are in general fairly large.

1 Introduction

This paper uses a multicountry econometric model (called the ''MC model'') to examine Asia-type crises. Say there is a shock to Thailand that results in a depreciation of Thailand's currency. How will this affect the economies of Thailand and the rest of the world? A model like the MC model can provide quantitative estimates of these effects. Although, as will be discussed, not all aspects of Asia-type crises can be

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analyzed using the model, the model does allow a number of effects to be estimated that cannot be done with simpler approaches.

Section 2 discusses the MC model and the kinds of questions that it can and cannot analyze. Section 3 then presents results of various experiments. All the experiments in this paper can be duplicated on the website mentioned in the introductory footnote, and other experiments can also be run. The appendix outlines the steps that are needed on the website to run the experiments, and the reader is encouraged to try some. The advantage of running one's own experiments is that they can be tailored to the user's specific interests. Also, more output can be examined on the website than space limitations allow in this paper. The reader is thus encouraged to add to the results in this paper.

There is by now a huge literature on the Asia crisis. Most (if not all!) references can be found on Nouriel Roubini's (1999) website. For hardcopy fans, Goldstein (1998) provides a useful overview of the crisis.

2 The MC Model

Introduction

The multicountry econometric (MC) model in Fair (1994) is used for the results in this paper. An updated version of this model has been used for the present work, and this version is presented on the website. There are 38 countries in the MC model for which stochastic equations are estimated.[1] There are 31 stochastic equations for the

[1] The 38 countries are the United States, Canada, Japan, Austria, France, Germany, Italy, the Netherlands, Switzerland, the United Kingdom, Finland, Australia, South Africa, Korea, Belgium, Denmark, Norway, Sweden, Greece, Ireland, Portugal, Spain, New Zealand, Saudi Arabia,

United States and up to 15 each for the other countries. The total number of stochastic equations is 363, and the total number of estimated coefficients is 1650. In addition, there are 1050 estimated trade share equations. The total number of endogenous and exogenous variables, not counting the trade shares, is about 4500. Trade share data were collected for 59 countries, and so the trade share matrix is 59×59.[2]

The estimation periods begin in 1954 for the United States and as soon after 1960 as data permit for the other countries. They end between 1996 and 1998. The estimation technique is two stage least squares except when there are too few observations to make the technique practical, where ordinary least squares is used. The estimation accounts for possible serial correlation of the error terms. The variables used for the first stage regressors for a country are the main predetermined variables in the model for the country. A list of these variables is available from the website.[3]

There is a mixture of quarterly and annual data in the MC model. Quarterly equations are estimated for 14 countries (the first 14 in footnote 1), and annual equations are estimated for the remaining 24. However, all the trade share equations are quarterly. There are quarterly data on all the variables that feed into the trade share equations, namely the exchange rate, the export price level, and the total value of

Venezuela, Colombia, Jordan, Syria, India, Malaysia, Pakistan, the Philippines, Thailand, China, Argentina, Chile, Mexico, and Peru.

[2]The 21 other countries that fill out the trade share matrix are Brazil, Turkey, Poland, Russia, Ukraine, Egypt, Israel, Kenya, Bangladesh, Hong Kong, Singapore, Vietnam, Nigeria, Algeria, Indonesia, Iran, Iraq, Kuwait, Libya, the United Arab Emirates, and an all other category.

[3]The experiments in this paper are for a period ending prior to 1999. No adjustments thus needed to be made for the beginning of the EMU in 1999. On the website some of the equations in the model are changed beginning in 1999 to incorporate the EMU. Beginning in 1999, the exchange rate equations of the individual EMU countries are replaced with one exchange rate equation, and the individual interest rate rules are replaced with one rule.

imports per country. When the model is solved, the predicted annual values of these variables for the annual countries are converted to predicted quarterly values using a simple distribution assumption. The quarterly predicted values from the trade share equations are converted to annual values by summation or averaging when this is needed.

A Brief Overview

The following is an attempt to give a brief overview of the MC model without getting bogged down in details and notation. Table 1 is used as a framework for discussion. The table outlines for a given country how thirteen variables are determined. The first seven (consumption, investment, imports, domestic price level, short term interest rate, exchange rate, and export price level) are determined by estimated equations; the next two (import price level and exports) are determined when all the countries are linked together; and the last four (output, current account, net assets, and world price level) are determined by identities.

Unless otherwise stated, the price levels are prices in local currency. Consumption, investment, imports, exports, and output are in real (local currency) terms. The exchange rate is local currency per U.S. dollar, so an increase in the exchange rate is a depreciation of the currency relative to the dollar. The current account variable in the model is the nominal current account divided by a measure of nominal potential output. Nominal potential output is real potential output (a constructed variable in the model) times the GDP price level.

The following discussion ignores dynamic issues. In most estimated equations

Table 1

Determination of Some Variables per Country

Explanatory Variables:	Output or Income	Interest Rates (Short & Long)	Net Assets (Wealth)	Domestic Price Level	Import Price Level	Current Account	World Price Level
Estimated Equations							
1. Consumption	+	−	+				
2. Investment	+	−					
3. Imports	+	−	+	+	−		
4. Domestic Price Level	+				+		
5. Interest Rate (Short)	+			+[a]		−	
6. Exchange Rate[b]		−		+		−	
7. Export Price Level				+			+
	Export Price Level	Exchange Rate[b]	Export Prices Other Countries				
When Countries Linked Together							
8. Import Price Level		+	+				
9. Exports	−	+	+				

Identities

10. Output = Consumption + Investment + Government Spending + Exports − Imports
11. Current Account = Export Price Level × Exports − Import Price Level ×Imports
12. Net Assets = Net Assets previous period + Current Account
13. World Price Level= Weighted average of all countries' Export Prices

[a]Rate of Inflation
[b]Exchange rate is local currency per dollar, so an increase is a depreciation.

there is a lagged dependent variable among the explanatory variables to pick up partial adjustment and/or expectational effects, but these variables are not listed in the table. Inventory investment is not discussed, although there is an estimated inventory investment equation per country. The labor sector is not discussed, although there are estimated employment and labor force equations and an identity determining the unemployment rate per country. The interaction between prices and wages is not discussed, although there is an estimated wage equation as well as an estimated price equation per country, and the two variables interact. There are two interest rates per country, a short term rate and a long term rate. The relationship between these two rates is not discussed, although there is per country an estimated equation in which the long rate depends on current and past values of the short rate. Finally, in terms of what is not discussed, it should be kept in mind that not every effect exists for every country. If an explanatory variable had a coefficient estimate of the wrong sign, it was omitted from the final estimated equation.

The seven variables determined by estimated equations in Table 1 are:

1. **Consumption** depends on income, an interest rate, and wealth. Wealth is the net assets of the country vis-à-vis the rest of the world. The interest rate is either the short rate or the long rate. Monetary policy thus has a direct effect on consumption through the interest rate variables.

2. **Investment** depends on output and an interest rate. As with consumption, monetary policy has a direct effect on investment through the interest rate variables.

3. The level of **imports** depends on the same things that consumption depends on plus the domestic price level and the import price level. The price variables are important in this equation. If, for example, the import price level rises relative to the domestic price level, this has a negative effect on import demand. A depreciation of the country's currency thus lowers the demand for imports because it increases the import price level. Note also that monetary policy has a direct effect on the demand for imports through the interest rate variables (just as with consumption and investment). The net effect of monetary policy on aggregate demand (i.e., the demand for domestically produced goods) is

thus ambiguous. A fall in interest rates increases consumption and investment, which is a plus for aggregate demand, but it also increases imports, which is a minus. The net effect, however, is almost always positive in the model.

4. The **domestic price level** depends on output and the import price level. Output represents some measure of demand pressure. The import price level is a key variable in this equation. It is highly significant for almost all countries. When the import price level rises, this has a positive effect on the prices of domestically produced goods. This is the main channel through which a depreciation of the country's currency affects the domestic price level.

5. The **short term interest rate** depends on output, the rate of inflation, and the current account. The estimated equation for the interest rate is interpreted as an interest rate rule of the monetary authority. The estimated interest rate rules for the various countries are ''leaning against the wind'' equations. Other things being equal, an increase in output, an increase in the rate of inflation, or a decrease in the current account leads to an increase in the interest rate.

6. The **exchange rate** depends on the short term interest rate, the domestic price level, and the current account. All the explanatory variables are relative to the respective U.S. variables if the exchange rate is relative to the dollar and are relative to the respective German variables if the exchange rate is relative to the Dmark. The estimated equation for the exchange rate is interpreted as picking up market forces on the exchange rate. A depreciation of a country's currency occurs if there is a relative decrease in the country's interest rate, a relative

increase in the country's price level, or a relative decrease in the country's current account.

7. The **export price level** in local currency is determined as a weighted average of the domestic price level and a world price level converted to local currency, where the weight is estimated. This is a key equation in terms of the quantitative results in this paper. If the weight on the world price level converted to local currency is one (and thus the weight on the domestic price level zero), the country is a complete price taker on world markets. In this case, if the world price level in dollars is little affected by the individual country, then a depreciation of a country's currency of a given percent increases the export price level in local currency by roughly the same percent (since the world price level converted to local currency increases by roughly the same percent), leaving the export price level in dollars roughly unchanged. Otherwise, the export price level in dollars falls with a depreciation, where the size of the fall depends on the estimated weight in the equation.

The next two variables in Table 1 are determined when the countries are linked together.

8 The **import price level** in local currency for a given country i depends on its dollar exchange rate and other countries' export prices in dollars. The import price level is a weighted average of all other countries' export prices converted to local currency, with a weight for a particular country j being the amount imported by i from j as a fraction of i's total imports. If there is a depreciation

of i's currency and no change in the other countries' export prices in their own local currency, then the import price level in local currency will rise by the full percent of the depreciation.

9 The total level of **exports** for a given country i is the sum of its exports to all the other countries. The amount that country i exports to country j is determined by the trade share equations. The share of j's total imports imported from i depends on i's export price level in dollars relative to a weighted average of all the other countries' export price levels in dollars. The higher is i's relative export price level, the lower is i's share of j's total imports. As noted above, there are 1050 estimated trade share equations. Many estimated equations are thus involved in determining the response of a country's total exports to a change in its export price level.

The four identities in Table 1 are straightforward. They determine, respectively, **output**, the **current account**, **net assets**, and the **world price level**.

Effects of a Depreciation

The experiments in the next section change an exchange rate for a given country and examine the consequences. Before doing this, it will be useful to outline, using Table 1, the expected effects. A country's currency is depreciated in the model by dropping the country's estimated exchange rate equation if there is one and taking the exchange rate to be exogenous. Then the exchange rate is changed. When this is done, the estimated interest rate rule of the country is also dropped if there is one and the short term interest rate is taken to be exogenous and unchanged from the base values. The experiment is thus a depreciation of the currency with no change in the interest rate. The interest rate was kept unchanged not because this is necessarily realistic, but to keep the experiment as simple as possible. This allows the effects of exchange rate changes to be estimated without having to consider the effects of interest rate changes at the same time.

The depreciation raises the import price level in local currency. The increase in the import price level has two main effects, other things being equal. The first is that the demand for imports falls (equation 3 in Table 1), and the second is that the domestic price level rises (equation 4). The depreciation also reduces the price of exports in dollars unless the country is a complete price taker (equation 7). The decrease in the price of exports in dollars leads to an increase in the demand for the country's exports (equation 9). The depreciation is thus expansionary and inflationary: the level of imports falls, the level of exports rises, and the domestic price level increases. The effect on the current account is ambiguous, but the initial effect is usually negative because of the usual ''J-curve'' reasons.

Advantages and Limitations of the MC Model

As noted above, all the equations in the MC model are estimated by two stage least squares or ordinary least squares using historical data. No ''calibration'' has been done. The estimated effects are thus data determined, subject to the specification of the model. Also, the model has estimated equations for most of the main countries in the world, and so little is taken to be exogenous. The trade share equations incorporate even more countries. The results thus provide a level of detail that is not usually available, and they are based on actual historical experience.

There are, on the other hand, a number of limitations of the MC model for analyzing Asia-type crises. First, it is difficult, if not impossible, to get good estimated effects of interest rates on consumption, investment, and imports in emerging-market countries. Interest rate variables do not generally appear in these equations for these countries in the MC model because significant effects could not be found. It is thus not possible to estimate, say, the effects on Thailand's economy of an increase in Thailand's interest rates.

Second, the economic effects of wealth changes caused by exchange rate changes and stock price changes have not been accounted for in the model. If, for example, a depreciation results in a fall in stock prices, which then affects consumption, investment, and imports, the model does not account for this. The model will thus overestimate the positive effects of a depreciation if this stock-price channel exists. If the country is a net debtor in dollar denominated securities, then a depreciation will result in a capital loss in local currency on the debt. This may also have a negative effect on aggregate demand. There is a net asset variable in the model, which is constructed by summing past values of the current account. These variables are, however, denominated in local currency, and so the model does not account for any capital gains or losses on net assets from exchange rate changes.

Third, the model has nothing to say about when speculators may begin to attack a currency. For the developed countries there are estimated exchange rate equations, as discussed above, but for the rest of the countries exchange rates are exogenous. The best that can be done using the model is to begin with a depreciation and examine the effects. The depreciation itself cannot be explained.

Finally, the model does not try to endogenize IMF behavior regarding its requirements for a country. The experiments below take the interest rate of the depreciating country and its level of government spending as exogenous. More will be said about this in Section 4.

3 Exchange Rate Experiments

This section discusses a number of experiments using the MC model. The period considered is 1989:1–1994:4, 24 quarters. Although this period is before the Asia crisis, the results are not very sensitive to the choice of period. The data are available for all the countries for this period, which is why it was chosen. Before any changes were made, the estimated (historical) errors were first added to the model and taken to be exogenous. Doing this and then solving the model using the actual values of all the exogenous variables results in a perfect tracking solution. The base path for each experiment is thus just the historical path.

For the first experiment Thailand's currency was depreciated relative to the dollar by 30 percent each period from its base (actual) value and the model was solved. The difference between the predicted value for each variable and each period from this solution and its actual value is the estimated effect of the monetary-policy change on the variable.

Selected results from this experiment are presented in Table 2. Except for the current account variable, each number in the table is the percentage difference between the predicted value and the base value in percentage points. The current account

Table 2
Estimated Effects of a 30 Percent Depreciation
Percentage Changes from Base Values

Year	PM	PY	PX	PX$	EX	IM	Y	C	I	SPCT
				Thailand Experiment						
1	29.91	9.41	15.49	-11.17	1.67	-3.14	4.10	1.82	2.89	-5.17
2	29.86	12.60	17.77	-9.41	3.04	-2.14	6.44	3.69	5.89	-4.15
3	29.84	13.93	18.71	-8.69	3.59	-1.55	8.69	5.55	8.89	-4.02
4	29.82	14.79	19.31	-8.22	3.65	-1.16	11.21	7.51	12.09	-4.32
5	29.84	15.46	19.80	-7.85	3.99	-1.27	13.47	9.41	15.21	-3.85
				Malaysia Experiment						
1	29.86	8.86	8.86	-16.26	3.54	-1.92	6.54	2.22	3.17	-13.32
2	29.84	14.30	14.30	-12.08	6.10	-2.33	11.35	2.68	7.58	-6.66
3	29.83	17.29	17.29	-9.78	6.41	-1.65	13.57	2.78	11.59	-5.39
4	29.82	18.91	18.91	-8.53	6.36	-0.93	14.79	2.65	14.85	-5.26
5	29.83	19.74	19.74	-7.90	6.34	-1.08	15.33	2.14	17.26	-3.93
				Philippines Experiment						
1	29.98	4.47	21.12	-6.83	0.66	-7.40	3.78	0.59	–	-0.35
2	29.97	7.88	22.38	-5.86	1.22	-8.88	6.02	1.53	–	0.56
3	29.96	10.46	23.30	-5.15	1.50	-7.96	6.88	2.65	–	0.68
4	29.95	12.39	23.99	-4.62	1.51	-5.92	7.11	3.82	–	0.39
5	29.95	13.83	24.51	-4.23	1.37	-3.79	7.06	4.94	–	-0.61
Qtr.				Korea Experiment						
1	29.83	3.58	14.60	-11.85	1.02	0.14	0.26	0.03	0.06	-5.16
2	29.82	6.63	16.44	-10.43	1.70	-1.25	0.97	0.06	0.28	-3.21
3	29.82	9.21	17.99	-9.24	2.19	-1.55	1.39	0.09	0.55	-2.18
4	29.81	11.47	19.32	-8.22	2.55	-1.59	1.68	0.13	0.84	-1.94
8	29.80	18.18	23.22	-5.21	3.07	-0.23	1.87	0.20	1.69	-0.97
12	29.80	22.23	25.54	-3.43	2.74	0.59	1.71	0.16	2.02	-0.90
16	29.83	24.42	26.80	-2.47	2.16	0.79	1.37	0.00	1.96	-0.93
20	29.88	25.33	27.33	-2.06	1.75	0.65	1.06	-0.24	1.70	-0.98

Notation
PM = Import Price Level
PY = Domestic Price Level
PX = Export Price Level
PX$ = Export Price Level in Dollars
EX = Exports
IM = Imports
Y = GDP
C = Consumption
I = Investment
SPCT = Current Account as a percent of Nominal Potential Output

variable is the current account as a percent of nominal output, and each number in the table for this variable is simply the difference between the predicted value and the base value in percentage points.

The expected signs of the differences have been discussed above. The size of the differences depends on the size of the estimated coefficients, which vary from country to country. The following discusses size issues using Thailand as the example. The equation numbers refer to the equations in Table 1. The percent values are from Table 2.

- **Equation 8**. The **import price level** for Thailand increases almost the full 30 percent. The other countries' export price levels in their own local currency are not affected very much in this experiment, and so they rise by almost 30 percent in terms of Thailand's local currency. Thailand's import price level is thus about 30 percent higher. It is 29.91 percent higher in the first year and 29.84 percent higher in the fifth year.

- **Equation 4**. The size of the increase in the **domestic price level** depends on the size of the coefficient of the import price level, the size of the coefficient of the output (demand pressure) variable, and the amounts by which the import price level and output change. For Thailand the increase in the domestic price level is 9.41 percent in the first year (relative to the base value) and 15.46 percent in the fifth year.

- **Equation 7**. The size of the increase in the **export price level** in local currency depends on how much the country is a price taker in world markets. If the country were a complete price taker, the increase would be the full 30 percent. The actual size of the increase depends on the size of the estimated weight discussed in Section 2 and on the size of the increase in the domestic price level. For Thailand the increase in the export price level is 15.49 percent in the first year and 19.80 percent in the fifth year.

- **Export price level in dollars**. The export price level in dollars is equal to the export price level in local currency divided by the exchange rate. (Remember that the exchange rate is in units of local currency per dollar, and so an increase in the exchange rate is a depreciation of the currency.) The size of the decrease in the export price level in dollars depends on the size of the increase in the export price level in local currency and the size of the increase in the exchange rate. For Thailand the decrease in the export price level is 11.17 percent in the first year and 7.85 percent in the fifth year.

- **Equation 9**. The size of the increase in **exports** depends on the size of the decrease in the export price level in dollars and the coefficient estimates in the trade share equations. For Thailand the increase in overall exports is 1.67 percent in the first year and 3.99 percent in the fifth year.

- **Equation 3**. The level of **imports** depends, among other things, on the import price level relative to the domestic price level and on output. The size of the change in imports depends on the sizes of the coefficients of these two variables and on the amounts by which these variable change. An increase in the import price level relative to the domestic price level has a negative effect on imports, and an increase in output has a positive effect. The net effect for Thailand is negative. The decrease in imports is 3.14 percent in the first year and 1.27 percent in the fifth year.

- **Equations 1, 2, 10**. The increase in exports and the decrease in imports has a positive effect on **output**. In addition, both **consumption** and **investment** depend on output (income), and so there is a multiplier effect. For Thailand the increase in output is 4.10 percent in the first year and 13.47 percent in the fifth year. One note of caution here. Even though the consumption and investment equations are estimated by two stage least squares, it may be for countries with a relatively small number of observations (like Thailand) that the coefficient estimates on income in the consumption and investment equations are too large, thus making the multiplier effects too large. The increase in consumption is 1.82 percent in the first year and 9.41 percent in the fifth year. The increase in investment is 2.89 percent in the first year and 15.21 percent in the fifth year.

- **Equation 11**. Positive effects on the **current account** are 1) the increase in the price of exports in local currency, 2) the increase in exports, and 3) the decrease in imports. The negative effect is the increase in the price of imports in local currency. For Thailand the net effect is negative. The current account as a percent of nominal potential output falls by 5.17 percent in the first year and by 3.85 percent in the fifth year.

Not shown in Table 2 for the Thailand experiment are the effects on the other countries. As expected, the effects vary across countries and no one country stands out as being most affected. A country's exports are affected in two main ways in this experiment. First, Thailand is increasing its share of exports to other countries because of the decrease in its export price level in dollars. The export shares of countries that compete with Thailand are thus falling, other things being equal. Second, Thailand is importing less, which has a negative effect on other countries' exports. The trade share equations are important in determining the size of the first effect for a given country. Detailed results for any country can be obtained by running the Thailand experiment on the website and then examining the results for the country of interest.

The results of three other experiments are reported in Table 2. In each case the currency was depreciated by 30 percent with the short term interest rate remaining unchanged from its base values. The experiments were for Malaysia, the Philippines, and Korea. The discussion of these three experiments can be brief. The reasons for the size of the effects have already been discussed, and one would expect the quantitative results to differ somewhat across the countries because the coefficient estimates differ.

Of the four countries, Korea's domestic price level is the most sensitive to the import price level. By the 20th quarter the increase in the domestic price level is 25.33 percent. This led by the end for Korea to the smallest decrease in the export price level in dollars. The Philippines also had a relatively small decrease in its export price level in dollars. For both the Philippines and Korea the increase in exports was less than it was for Thailand and Malaysia (because of the smaller decrease in the export price level in dollars). The increase in output for Korea is noticeably smaller than it is for the other three countries in Table 2. Again, the effects on other countries from a given experiment can be examined on the website by running the experiment.

4 Conclusion

The results in Section 3 provide quantitative estimates of the effects of a currency depreciation. Qualitatively one would expect a depreciation to be expansionary and inflationary, and the results provide quantitative estimates of these effects.

As noted in Section 1, the expansionary effects on output are overestimated in the model if a depreciation leads to capital losses in local currency that in turn have negative effects on consumption and investment. The expansionary effects in Table 2 are thus too high if there are these capital-loss effects, although it is hard to know how much too high.

The results in Table 2 are based on the assumption of no change in interest rates and government spending (from the base values). This was done deliberately. The results estimate what would happen in the absence of monetary and fiscal policy changes. It would be easy to run other experiments in which interest rates and/or government spending were changed at the same time. The appendix discusses how this can be done on the website. Remember, however, that it is difficult to get good estimates of the effect of interest rate changes on aggregate demand (consumption, investment, and imports) for emerging-market countries, and so the MC model does not provide good estimates of monetary policy effects for these countries. The estimates of fiscal policy effects are probably more reliable.

Probably the main message to take away from this paper is that both the expansionary and inflationary effects of a depreciation appear to be fairly large unless the capital-loss effects mentioned above are large. The one exception to this in Table 2 is Korea, where the expansionary effect is modest.

Appendix: Using the MC Model on the Website

The following are the steps necessary to duplicate the experiment for Thailand in Table 2, which is an increase in THE, the exchange rate for Thailand, of 30 percent.

1. Click ''MC2 Model'' in the left menu and copy MC2BASE to a dataset you have named.
2. Click ''Set prediction period'' and set the period to be 1992 through 1996.
3. Click ''Drop or add equations'' and for Japan add the I and RS equations and for Australia add the L2 equation. (These three equations are dropped for the forecast, which is the default case, and so they need to be added back in.)
4. Click ''Use historical errors'' and set the option to use the historical errors.
5. Click ''Change exogenous variables'' and ask to change E for Thailand. Then say to multiply each existing value by 1.30. 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 set the experiment up correctly, your comparisons (between your dataset and MC2BASE) will match the comparisons in Table 2, subject to slight rounding error. You can, of course, examine many more variables and periods than are presented in the paper.

The notation on the website for the variables presented in Table 2 is: consumption (C), exports (EX), investment (I), imports (IM), import price level (PM), export price level in local currency (PX), export price level in dollars (PX$), domestic price level (PY), current account as a percent of nominal potential output (SPCT), and output (Y).

The other three experiment in Table 2 can be run by starting over (with a new dataset) and following the above steps, where E is changed for the country of interest. Other exogenous variables can also be easily changed.

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