# Tsiang Model: Examining the Effects a Minimum Wage in Different Exchange Rate Regimes

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## I. Introduction

For this analysis, we incorporated the simplification of Tsiang's model to investigate the economic implications of adopting different fiscal and exchange rate policies. Tsiang's model analyzes the effects of devaluation in a fixed exchange rate regime. To close the model, Tsiang allows the money stock in both countries to endogenously adjust to maintain full employment. We will begin with this model and modify it to first look at the effect of a change in the balance of trade under the same closure. In these two cases, money wages are exogenous - the key characteristic of an economy with a minimum wage. We want to compare these cases with two others in which money wages are endogenous (flexible). Money wages will endogenously adjust to maintain full employment in the latter models.

## II. Model

### A. General Assumptions

- Two countries, American and Britain
- America produces autos and Britain produces beer
- Labor is exogenous in both countries
- Capital stock is endogenous in both countries

### B. Variables/Parameters/Equations

The variables and parameters used in the model are listed in Table 1 and Table 2. Each model has 27 endogenous and 7 exogenous variables. As a result, there are 27 equations in the model. Table 3 summarizes the differential form of each equation used in the models. Due to their size, Tables 1-3 have been placed in Appendix A.

## III. Results

In the base case (model one), the exchange rate is fixed, money wages are downward inflexible, and monetary policy is adjusted to keep the economy at full employment. Three others cases (models two through four) will examine the effects of flexible and downward inflexible money wages under fixed and flexible exchange rate regimes. The four cases we will be examining are summarized below:

*Table 4. Summary of four cases*

| Model | Exchange Rate | Money Wage | Key Exogenous Variables | Key Endogenous Variables |
|---|---|---|---|---|
| 1 | Fixed | Downward inflexible | E, L, W | H, T |
| 2 | Flexible | Downward inflexible | T, L, W | H, E |
| 3 | Fixed | Flexible | E, L, H | W, T |
| 4 | Flexible | Flexible | T, L, H | W, E |

When a variable is listed as endogenous or exogenous, this refers to both the domestic and foreign values for each variable. The policy matrix for each of the four models can be found in Appendix A.

As previously mentioned, the balance of trade adjusts to keep the exchange rate fixed in models one and three. In models two and four, the exchange rate adjusts to keep the balance of trade fixed. Therefore, the effect of a change in the exchange rate on each endogenous variable in the first model should be proportionally similar to a change in the balance of trade on each endogenous variable in model two. The same should be true for models three and four. To test this, we divide the value in column "E" from model one (or three) by the "T" column in model two (or four). The resulting ratio should be consistent across all endogenous variables. This computation was performed to check the validity of the models and the results are found in Appendix B. We can see from the consistent results that the models are behaving as expected.

We begin a deeper analysis by looking at the effects of an increase in the exchange rate under a fixed exchange rate regime with inflexible and flexible money wages (cases one and

three). When dollars become more expensive, prices will fall. Since these models do not hold domestic or foreign prices constant, it is hard to predict which set of prices will be affected. If prices change, then we expect the consumer price index to change as well. As prices fall, purchasing power increases and individuals will therefore be holding more money than they want. When individuals posses a currency surplus, but demand for money is low, the interest rate should be pushed down. A lower interest rate encourages a higher level of investment. Since this is a full employment model and output is fixed, an increase in investment must be matched by an increase in absorption to keep output constant. Therefore, when the exchange rate increases we expect to see a decrease in the balance of trade and no change in output.

We can see from the policy matrix for the base case that our intuition was correct. A one percent increase in the exchange rate leads to no change in output, a .84% increase in the money stock H, a .84% decrease in the interest rate r, and a 75% reduction in the balance of trade T. Some of these predictions also hold in model three when we examined flexible money wages under a fixed exchange rate regime. A one percent increase in the exchange rate encouraged no change in the output of automobiles or beer, the domestic interest rate declined by .31%, and the balance of trade was also reduced 27.98%. Unlike the first model where the domestic and foreign money supplies endogenously change to maintain full employment, the aforementioned theoretical predictions concerning the money stock cannot be confirmed when H and Hs are exogenous variables. When both America and Britain impose a minimum wage, an increase in the exchange rate makes America better off and Britain worse off than when wages are flexible. A summary of effects from a one percent increase in the exchange rate in the fixed exchange rate regime can be found in Table 5.

*Table 5. Effect of a one percent increase in the exchange rate in cases 1 and 3*

| Variable | Case 1: Downward Inflexible Money Wage | Case 3: Flexible Money Wage |
|---|---|---|
| A | 0.00 | 0.00 |
| B | 0.00 | 0.00 |
| H | 0.84 | -- |
| W | -- | -0.31 |
| r | -0.84 | -0.31 |
| T | -75.00 | -27.99 |
| realab | 1.05 | 0.39 |
| realabs | -1.05 | -0.39 |

After examining the full policy matrices for cases one and three (Appendix A), we can see numerous consequences of a government choosing to implement a minimum wage under a fixed exchange rate regime. The effects of a one percent increase in the exchange rate are much more volatile if the domestic and foreign governments opt for downward inflexible money wages. This is evident by looking at the absolute value of terms in column "E" from models one and three. For each endogenous variable, the absolute value of results produced in case one are larger than those produced in case three. The only instance where these findings do not hold is for the domestic and foreign CPI's, price of automobiles, and price of beer. This is a direct result of money wages shifting from an exogenous to endogenous variable in cases one and three respectively. In case three, we can see that an increase in the exchange rate does not correspond to an equal increase/decrease in the price level of a single good: the effect is divided (not equally) between both goods. Therefore, a more drastic change in the CPI appears in both countries.

Naturally, we see a different set of results when the exchange rate becomes flexible in cases two and four. The balance of trade is exogenous for both of these models and the exchange rate adjusts to ensure the quantity of foreign currency demanded equals the quantity of foreign currency supplied. As American imports begin to exceed exports (increase in the balance of

trade), there is an excess supply of dollars the currency depreciates. This lowers the real money stock, raises interest rates in the U.S., thereby reducing investment. In addition, imports will decrease and the trade will readjust to be balanced. In other words, we expect to see the opposite effects when the balance of trade is increased compared to the cases when the exchange rate increased.

According the policy matrix for model two, these theoretical predicts are confirmed empirically. A one percent increase in the balance of trade leads to no change in output, a 0.01% decrease in the money stock H, a 0.01% increase in the interest rate r, and a 0.01% decrease in the exchange rate E. The policy matrix for model four provides similar results. When there is no minimum wage under a flexible exchange rate, a one percent increase in the trade balance still encourages no change in the output of either good. Model four also shows that an increase in the domestic interest rate by .01%, imports of beer will decrease .02%, and the exchange rate will decrease .03%. A portion of the results of a one percent increase in the balance of trade for cases two and four are summarized in Table 6. Unlike what was seen under a fixed exchange rate,

*Table 6. Effect of a one percent increase in the balance of trade in cases 2 and 4*

| Variable | Case 2: Downward Inflexible Money Wage | Case 4: Flexible Money Wage |
|---|---|---|
| A | 0.00 | 0.00 |
| B | 0.00 | 0.00 |
| H | -0.01 | -- |
| W | -- | 0.01 |
| r | 0.01 | 0.01 |
| E | -0.01 | -0.04 |
| realab | -0.01 | -0.014 |
| realabs | 0.01 | 0.014 |

the effects of an increase in the trade balance presents more volatile results for economies implementing a flexible money wage. For each endogenous variable, the absolute value of entries in the “E” column for case four are larger than those produced in case two. The only

instance where these findings do not hold is for the domestic and foreign CPI's, price of automobiles, and price of beer. In case four, we still see that an increase in the exchange rate does not correspond to an equal increase/decrease in the price level of a single good. The effect is divided between the price of automobiles and beer, and a more drastic change in the CPI appears in both countries follows as expected.

## V. Application

It is also interesting to note that the Tsiang's model can be easily applied to current international trade. The level of trade activity between the U.S. and China can be summarized with the flexible exchange rate and downward inflexible money wage model seen in case two. China has an extremely large trade surplus, exporting nearly $320 billion more than the country imports from the United States. If China is initially at full employment and wants to reduce this trade surplus, the second model reveals what combination of alterations to the money stock and exchange rate are necessary to achieve this change. As we can see from the policy matrix, a 1% reduction in T corresponds to a 0.01% reduction in both H and E. Therefore, if China wants to reduce its trade surplus it needs to shrink its money supply and lower the exchange rate between yuan and dollars.

## VI. Conclusion

There are obvious advantages and disadvantages for each situation described above. The ability to use monetary policy as an economic stabilizer usually drives a government's decision to implement a specific exchange rate regime. Once this choice is made, elected officials still have the ability to improve the quality of life for the individuals they represent. The decision to

authorize a minimum wage should depend on a government's preference to improve the price level for consumers or balance of trade for the entire economy. Under fixed exchange rates, a lower domestic CPI can be achieved with flexible money wages and the trade balance is easier to improve when a minimum wage is enforced. The opposite results are possible under a flexible exchange rate regime. Obviously, these models might not be completely accurate in predicting the effects of real world economies. One key assumption is that all of the parameter values are equivalent in the domestic and foreign economies. Once these values are changed to accurately describe specific countries, the results could prove helpful to any government trying to foster economic change.

**Appendix A: Variables/Parameters/Equations**

*Table 1. List of Variables*

| | |
|---|---|
| A | output of autos |
| B | output of beer |
| cpi | consumer price index in America |
| PA | price of autos in America |
| PB | price of beer in America |
| CPIs | consumer price index in Britain |
| PAs | price of autos in Britain |
| PBs | price of beer in Britain |
| D | America's absorption of autos |
| Ds | Britain's absorption of beers |
| X | America's exports of autos |
| Xs | Britain's exports of beer |
| absorb | money absorption in America |
| absorbs | money absorption in Britain |
| realab | money absorption in America divided by cpi |
| realabs | money absorption in Britain divided by CPIs |
| R | money rent in America |
| Rs | money rent in Britain |
| H | money supply in America |
| Hs | money supply in Britain |
| r | interest rate in America |
| rs | interest rate in Britain |
| INC | income in America |
| INCs | income in Britain |
| REALINC | real income in America |
| REALINCs | real income in Britain |
| L | labor in America |
| Ls | labor in Britain |
| K | capital in America |
| Ks | capital in Britain |
| W | money wage in America |
| Ws | money wage in Britain |
| T | balance of trade in America |
| E | exchange rate |

*Table 2. List of Parameters*

| Parameter | Description | Value |
|---|---|---|
| phiA | share of absorption spent on home good in America (autos) | 0.7 |
| phiBs | share of absorption spent on home good in Britain (beer) | 0.7 |
| thetaL | labor factor share in America | 0.7 |
| thetaLs | labor factor share in Britain | 0.7 |
| thetaK | capital factor share in America | 0.3 |
| thetaKs | capital factor share in Britain | 0.3 |
| m | sensitivity of demand for money to interest rate in America | 1 |
| ms | sensitivity of demand for money to interest rate in Britain | 1 |
| save | sensitivity of real absorption to interest rate in America | 1 |
| saves | sensitivity of real absorption to interest rate in Britain | 1 |
| sigmaU | elasticity of substitution in absorption in America | 1 |
| sigmaUs | elasticity of substitution in absorption in Britain | 1 |
| sigma | elasticity of substitution in production in America | 1 |
| sigmas | elasticity of substitution in production in Britain | 1 |
| mpc | marginal propensity to absorb out of real income in America | 0.7 |
| mpcs | marginal propensity to absorb out of real income in Britain | 0.7 |

*Table 3. List of model equations*

| **Description of Equation** | **Equation** |
|---|---|
| America's production function | A^=thetaK*K^+thetaL*L^ |
| Britain's production function | B^=thetaKs*Ks^+thetaLs*PBs^ |
| American CPI | CPI^=phiA*PA^+phiB*PB^ |
| Britain CPI | CPIs^=phiAs*Pas^+phiBs*PBs^ |
| American consumption proportions | D^-Xs^=sigmaU*(PB^-PA^) |
| British consumption proportions | Ds^-X^=sigmaUs*(PAs^-PBs^) |
| Law of one price for autos | Pas^=PA^+E^ |
| Law of one price for beer | PBs^=PB^+E^ |
| Material balance for autos | (D/A)*D^+(X/A)X^=A^ |
| Material balance for beer | (Ds/B)*Ds^+(Xs/B)*Xs^=B^ |
| Definition of American real absorption | realab^=absorb^-CPI^ |
| Definition of British real absorption | realabs^=absorbs^-CPIs^ |
| Factor use ratio in America | K^-L^=sigma(W^-R^) |
| Factor use ratio in Britain | Ks^-Ls^=sigmas*(Ws^-Rs^) |
| Money market in America | H^=A^+PA^-m*r^ |
| Money market in Britain | Hs^=B^+PBs^-ms*rs^ |
| Real absorption function in America | realab^=mpc*realincome-save*r^ |
| Real absorption function in Britain | realab^=mpcs*realincome^-saves*rs^ |
| Real income depends on money income and cpi | realincome^=income^-CPI^ |
| British real income depends on British money and British cpi | realincomes^=incomes^-CPIs^ |
| American income is equal to the price of A times A's production | income^=A^+PA^ |
| British income is equal to British price of B times B's production | incomes^=B^+PB^ |
| Absorption is the value of items consumed in America | absorp^=phiA(PA^+D^)+(phiB*(PB^+X^) |
| British absorption is the value of items consumed in Britain | absorbs^=phiBs*(PBs^+Ds^)+phiAs*(PAs^+XAs^) |
| Zero profit condition in America | PA^=thetaL*W^+thetaK*R^ |
| Zero profit condition in Britain | PBs^=thetaLs*Ws^+gthetaKs*Rs^ |
| The trade balance ($): dollar value of imports from exports | dT=(PA*X)*(PA^+X^)-(PB*Xs)*(PB^+Xs^) |

## Appendix B: Policy Matrices

*Case 1 Policy Matrix: Fixed Exchange Rate, Downward Inflexible Money Wage*

| | | K | L | KS | LS | E | W | Ws |
|---|---|---|---|---|---|---|---|---|
| A | 1 | 0.30 | 0.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| B | 2 | 0.00 | 0.00 | 0.30 | 0.70 | 0.00 | 0.00 | 0.00 |
| cpi | 3 | -0.21 | 0.21 | -0.09 | 0.09 | -0.30 | 0.70 | 0.30 |
| PA | 4 | -0.30 | 0.30 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 |
| PB | 5 | 0.00 | 0.00 | -0.30 | 0.30 | -1.00 | 0.00 | 1.00 |
| CPIs | 6 | -0.09 | 0.09 | -0.21 | 0.21 | 0.30 | 0.30 | 0.70 |
| PAs | 7 | -0.30 | 0.30 | 0.00 | 0.00 | 1.00 | 1.00 | 0.00 |
| PBs | 8 | 0.00 | 0.00 | -0.30 | 0.30 | 0.00 | 0.00 | 1.00 |
| D | 9 | 0.30 | 1.45 | 0.00 | -0.75 | 0.75 | 0.75 | -0.75 |
| Xs | 10 | 0.00 | 1.75 | 0.30 | -1.05 | 1.75 | 1.75 | -1.75 |
| Ds | 11 | 0.00 | -0.75 | 0.30 | 1.45 | -0.75 | -0.75 | 0.75 |
| X | 12 | 0.30 | -1.05 | 0.00 | 1.75 | -1.75 | -1.75 | 1.75 |
| realab | 13 | 0.21 | 1.54 | 0.09 | -0.84 | 1.05 | 1.05 | -1.05 |
| absorb | 14 | 0.00 | 1.75 | 0.00 | -0.75 | 0.75 | 1.75 | -0.75 |
| realabs | 15 | 0.09 | -0.84 | 0.21 | 1.54 | -1.05 | -1.05 | 1.05 |
| absorbs | 16 | 0.00 | -0.75 | 0.00 | 1.75 | -0.75 | -0.75 | 1.75 |
| R | 17 | -1.00 | 1.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 |
| Rs | 18 | 0.00 | 0.00 | -1.00 | 1.00 | 0.00 | 0.00 | 1.00 |
| H | 19 | 0.06 | 1.99 | 0.03 | -0.78 | 0.84 | 1.84 | -0.84 |
| r | 20 | -0.06 | -0.99 | -0.03 | 0.78 | -0.84 | -0.84 | 0.84 |
| Hs | 21 | 0.03 | -0.78 | 0.06 | 1.99 | -0.84 | -0.84 | 1.84 |
| rs | 22 | -0.03 | 0.78 | -0.06 | -0.99 | 0.84 | 0.84 | -0.84 |
| REALINC | 23 | 0.21 | 0.79 | 0.09 | -0.09 | 0.30 | 0.30 | -0.30 |
| INC | 24 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 |
| REALINCs | 25 | 0.09 | -0.09 | 0.21 | 0.79 | -0.30 | -0.30 | 0.30 |
| INCs | 26 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00 |
| T | 27 | 0.00 | -75.00 | 0.00 | 75.00 | -75.00 | -75.00 | 75.00 |

*Case 2 Policy Matrix: Flexible Exchange Rate, Downward Inflexible Money Wage*

| | | K | L | KS | LS | T | W | Ws |
|---|---|---|---|---|---|---|---|---|
| A | 1 | 0.30 | 0.70 | 0.00 | 0.00 | 0.00 | 0.00 | 0.00 |
| B | 2 | 0.00 | 0.00 | 0.30 | 0.70 | 0.00 | 0.00 | 0.00 |
| cpi | 3 | -0.21 | 0.51 | -0.09 | -0.21 | 0.00 | 1.00 | 0.00 |
| PA | 4 | -0.30 | 0.30 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 |
| PB | 5 | 0.00 | 1.00 | -0.30 | -0.70 | 0.01 | 1.00 | 0.00 |
| CPIs | 6 | -0.09 | -0.21 | -0.21 | 0.51 | 0.00 | 0.00 | 1.00 |
| PAs | 7 | -0.30 | -0.70 | 0.00 | 1.00 | -0.01 | 0.00 | 1.00 |
| PBs | 8 | 0.00 | 0.00 | -0.30 | 0.30 | 0.00 | 0.00 | 1.00 |
| D | 9 | 0.30 | 0.70 | 0.00 | 0.00 | -0.01 | 0.00 | 0.00 |
| Xs | 10 | 0.00 | 0.00 | 0.30 | 0.70 | -0.02 | 0.00 | 0.00 |
| Ds | 11 | 0.00 | 0.00 | 0.30 | 0.70 | 0.01 | 0.00 | 0.00 |
| X | 12 | 0.30 | 0.70 | 0.00 | 0.00 | 0.02 | 0.00 | 0.00 |
| realab | 13 | 0.21 | 0.49 | 0.09 | 0.21 | -0.01 | 0.00 | 0.00 |
| absorb | 14 | 0.00 | 1.00 | 0.00 | 0.00 | -0.01 | 1.00 | 0.00 |
| realabs | 15 | 0.09 | 0.21 | 0.21 | 0.49 | 0.01 | 0.00 | 0.00 |
| absorbs | 16 | 0.00 | 0.00 | 0.00 | 1.00 | 0.01 | 0.00 | 1.00 |
| R | 17 | -1.00 | 1.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 |
| Rs | 18 | 0.00 | 0.00 | -1.00 | 1.00 | 0.00 | 0.00 | 1.00 |
| H | 19 | 0.06 | 1.15 | 0.03 | 0.06 | -0.01 | 1.00 | 0.00 |
| r | 20 | -0.06 | -0.15 | -0.03 | -0.06 | 0.01 | 0.00 | 0.00 |
| Hs | 21 | 0.03 | 0.06 | 0.06 | 1.15 | 0.01 | 0.00 | 1.00 |
| rs | 22 | -0.03 | -0.06 | -0.06 | -0.15 | -0.01 | 0.00 | 0.00 |
| REALINC | 23 | 0.21 | 0.49 | 0.09 | 0.21 | 0.00 | 0.00 | 0.00 |
| INC | 24 | 0.00 | 1.00 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 |
| REALINCs | 25 | 0.09 | 0.21 | 0.21 | 0.49 | 0.00 | 0.00 | 0.00 |
| INCs | 26 | 0.00 | 0.00 | 0.00 | 1.00 | 0.00 | 0.00 | 1.00 |
| E | 27 | 0.00 | -1.00 | 0.00 | 1.00 | -0.01 | -1.00 | 1.00 |

*Case 3 Policy Matrix: Fixed Exchange Rate, Flexible Money Wage*

| | | K | KS | L | LS | H | Hs | E |
|---|---|---|---|---|---|---|---|---|
| A | 1 | 0.3 | 0 | 0.7 | 0 | 0 | 0 | 0 |
| B | 2 | 0 | 0.3 | 0 | 0.7 | 0 | 0 | 0 |
| cpi | 3 | -0.257687 | -0.132313 | -0.601269 | -0.308731 | -0.574627 | -0.425373 | -0.425373 |
| PA | 4 | -0.351716 | -0.038284 | -0.820672 | -0.089328 | -0.686567 | -0.313433 | -0.313433 |
| PB | 5 | -0.038284 | -0.351716 | -0.089328 | -0.820672 | -0.313433 | -0.686567 | -0.686567 |
| CPIs | 6 | -0.132313 | -0.257687 | -0.308731 | -0.601269 | -0.425373 | -0.574627 | 0.4253731 |
| PAs | 7 | -0.351716 | -0.038284 | -0.820672 | -0.089328 | -0.686567 | -0.313433 | 0.6865672 |
| PBs | 8 | -0.038284 | -0.351716 | -0.089328 | -0.820672 | -0.313433 | -0.686567 | 0.3134328 |
| D | 9 | 0.2899254 | 0.0100746 | 0.6764925 | 0.0235075 | -0.279851 | 0.2798507 | 0.2798507 |
| Xs | 10 | -0.023507 | 0.3235075 | -0.054851 | 0.7548507 | -0.652985 | 0.6529851 | 0.6529851 |
| Ds | 11 | 0.0100746 | 0.2899254 | 0.0235075 | 0.6764925 | 0.2798507 | -0.279851 | -0.279851 |
| X | 12 | 0.3235075 | -0.023507 | 0.7548507 | -0.054851 | 0.6529851 | -0.652985 | -0.652985 |
| realab | 13 | 0.1958955 | 0.1041045 | 0.4570896 | 0.2429104 | -0.391791 | 0.391791 | 0.391791 |
| absorb | 14 | -0.061791 | -0.028209 | -0.144179 | -0.065821 | -0.966418 | -0.033582 | -0.033582 |
| realabs | 15 | 0.1041045 | 0.1958955 | 0.2429104 | 0.4570896 | 0.391791 | -0.391791 | -0.391791 |
| absorbs | 16 | -0.028209 | -0.061791 | -0.065821 | -0.144179 | -0.033582 | -0.966418 | 0.0335821 |
| W | 17 | -0.051716 | -0.038284 | -1.120672 | -0.089328 | -0.686567 | -0.313433 | -0.313433 |
| Ws | 18 | -0.038284 | -0.051716 | -0.089328 | -1.120672 | -0.313433 | -0.686567 | 0.3134328 |
| R | 19 | -1.051716 | -0.038284 | -0.120672 | -0.089328 | -0.686567 | -0.313433 | -0.313433 |
| Rs | 20 | -0.038284 | -1.051716 | -0.089328 | -0.120672 | -0.313433 | -0.686567 | 0.3134328 |
| r | 21 | -0.051716 | -0.038284 | -0.120672 | -0.089328 | 0.3134328 | -0.313433 | -0.313433 |
| rs | 22 | -0.038284 | -0.051716 | -0.089328 | -0.120672 | -0.313433 | 0.3134328 | 0.3134328 |
| REALINC | 23 | 0.2059701 | 0.0940299 | 0.480597 | 0.219403 | -0.11194 | 0.1119403 | 0.1119403 |
| INC | 24 | -0.051716 | -0.038284 | -0.120672 | -0.089328 | -0.686567 | -0.313433 | -0.313433 |
| REALINCs | 25 | 0.0940299 | 0.2059701 | 0.219403 | 0.480597 | 0.1119403 | -0.11194 | -0.11194 |
| INCs | 26 | -0.038284 | -0.051716 | -0.089328 | -0.120672 | -0.313433 | -0.686567 | 0.3134328 |
| T | 27 | 1.0074627 | -1.007463 | 2.3507463 | -2.350746 | 27.985075 | -27.98507 | -27.98507 |

*Case 4 Policy Matrix: Flexible Exchange Rate, Flexible Money Wage*

| | | K | KS | H | Hs | T | L | LS |
|---|---|---|---|---|---|---|---|---|
| A | 1 | 0.3 | 0 | 0 | 0 | 0 | 0.7 | 0 |
| B | 2 | 0 | 0.3 | 0 | 0 | 0 | 0 | 0.7 |
| cpi | 3 | -0.273 | -0.117 | 1 | 0 | 0.0152 | -0.637 | -0.273 |
| PA | 4 | -0.363 | -0.027 | 1 | 0 | 0.0112 | -0.847 | -0.063 |
| PB | 5 | -0.063 | -0.327 | 1 | 0 | 0.0245333 | -0.147 | -0.763 |
| CPIs | 6 | -0.117 | -0.273 | 0 | 1 | -0.0152 | -0.273 | -0.637 |
| PAs | 7 | -0.327 | -0.063 | 0 | 1 | -0.024533 | -0.763 | -0.147 |
| PBs | 8 | -0.027 | -0.363 | 0 | 1 | -0.0112 | -0.063 | -0.847 |
| D | 9 | 0.3 | 0 | 0 | 0 | -0.01 | 0.7 | 0 |
| Xs | 10 | 0 | 0.3 | 0 | 0 | -0.023333 | 0 | 0.7 |
| Ds | 11 | 0 | 0.3 | 0 | 0 | 0.01 | 0 | 0.7 |
| X | 12 | 0.3 | 0 | 0 | 0 | 0.0233333 | 0.7 | 0 |
| realab | 13 | 0.21 | 0.09 | 0 | 0 | -0.014 | 0.49 | 0.21 |
| absorb | 14 | -0.063 | -0.027 | 1 | 0 | 0.0012 | -0.147 | -0.063 |
| realabs | 15 | 0.09 | 0.21 | 0 | 0 | 0.014 | 0.21 | 0.49 |
| absorbs | 16 | -0.027 | -0.063 | 0 | 1 | -0.0012 | -0.063 | -0.147 |
| W | 17 | -0.063 | -0.027 | 1 | 0 | 0.0112 | -1.147 | -0.063 |
| Ws | 18 | -0.027 | -0.063 | 0 | 1 | -0.0112 | -0.063 | -1.147 |
| r | 19 | -0.063 | -0.027 | 0 | 0 | 0.0112 | -0.147 | -0.063 |
| rs | 20 | -0.027 | -0.063 | 0 | 0 | -0.0112 | -0.063 | -0.147 |
| R | 21 | -1.063 | -0.027 | 1 | 0 | 0.0112 | -0.147 | -0.063 |
| Rs | 22 | -0.027 | -1.063 | 0 | 1 | -0.0112 | -0.063 | -0.147 |
| REALINC | 23 | 0.21 | 0.09 | 0 | 0 | -0.004 | 0.49 | 0.21 |
| INC | 24 | -0.063 | -0.027 | 1 | 0 | 0.0112 | -0.147 | -0.063 |
| REALINCs | 25 | 0.09 | 0.21 | 0 | 0 | 0.004 | 0.21 | 0.49 |
| INCs | 26 | -0.027 | -0.063 | 0 | 1 | -0.0112 | -0.063 | -0.147 |
| E | 27 | 0.036 | -0.036 | -1 | 1 | -0.035733 | 0.084 | -0.084 |

**Appendix C:**

| Endo. Var. | Case 1: E | Case 2: T | Ratio | Endo. Var. | Case 3: E | Case 4: T | Ratio |
|---|---|---|---|---|---|---|---|
| A | 0.00 | 0.00 | -- | A | 0.00 | 0.00 | -- |
| B | 0.00 | 0.00 | -- | B | 0.00 | 0.00 | -- |
| CPI | -0.30 | 0.00 | 75 | CPI | -0.42 | 0.01 | -28 |
| PA | 0.00 | 0.00 | -- | PA | -0.31 | 0.01 | -28 |
| PB | -1.00 | -0.01 | 75 | PB | -0.68 | 0.02 | -28 |
| CPIs | 0.30 | 0.00 | 75 | CPIs | 0.42 | -0.01 | -28 |
| PAs | 1.00 | 0.01 | 75 | PAs | 0.68 | -0.02 | -28 |
| PBs | 0.00 | 0.00 | -- | PBs | 0.31 | -0.01 | -28 |
| D | 0.75 | 0.01 | 75 | D | 0.27 | -0.01 | -28 |
| Xs | 1.75 | 0.02 | 75 | Xs | 0.65 | -0.02 | -28 |
| Ds | -0.75 | -0.01 | 75 | Ds | -0.27 | 0.01 | -28 |
| X | -1.75 | -0.02 | 75 | X | -0.65 | 0.02 | -28 |
| realab | 1.05 | 0.01 | 75 | realab | 0.39 | -0.01 | -28 |
| absorb | 0.75 | 0.01 | 75 | absorb | -0.03 | 0.00 | -- |
| realabs | -1.05 | -0.01 | 75 | realabs | -0.39 | 0.01 | -28 |
| absorbs | -0.75 | -0.01 | 75 | absorbs | 0.03 | 0.00 | -- |
| R | 0.00 | 0.00 | -- | W | -0.31 | 0.01 | -28 |
| Rs | 0.00 | 0.00 | -- | Ws | 0.31 | -0.01 | -28 |
| H | 0.84 | 0.01 | 75 | r | -0.31 | 0.01 | -28 |
| r | -0.84 | -0.01 | 75 | rs | 0.31 | -0.01 | -28 |
| Hs | -0.84 | -0.01 | 75 | R | -0.31 | 0.01 | -28 |
| rs | 0.84 | 0.01 | 75 | Rs | 0.31 | -0.01 | -28 |
| REALINC | 0.30 | 0.00 | 75 | REALINC | 0.11 | 0.00 | -- |
| INC | 0.00 | 0.00 | -- | INC | -0.31 | 0.01 | -28 |
| REALINCs | -0.30 | 0.00 | 75 | REALINCS | -0.11 | -0.01 | -28 |
| INCs | 0.00 | 0.00 | -- | INCs | 0.31 | -0.03 | -28 |