Unbalanced Trade[1]

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February 2006

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Abstract

We incorporate trade imbalances into a quantitative model of bilateral trade in manufactures, dividing the world into forty "countries." We calculate the pattern of bilateral trade and relative factor costs in a counterfactual world with all current accounts balancing. Our results indicate that closing the current accounts requires only modest changes in relative factor costs across countries. The extent of nontradability implied by the parameter estimates means that the implied changes in real factor returns are negligible. The geographic barriers implied by the current pattern of trade are sufficiently asymmetric that large bilateral deficits remain even after current accounts balance. The U.S. manufacturing trade deficit with China falls to only $65 billion from its current level of $167 billion.

Theories of international trade typically assume trade balance. Yet any newspaper reader knows that trade is far from balanced, a source of great unease among the citizens of deficit countries. We incorporate imbalances into a quantitative model of trade flows to calculate what the pattern of bilateral trade and relative factor costs would look like in a counterfactual world with all current account balancing. Our exercise does not point to what policy would eliminate imbalances. It does, however, suggest the magnitude of the adjustment that would need to take place as a consequence of any such policy.[1]

We conduct our analysis using data for 2004 for the world, composed of forty "countries."[2] Table 1 lists the countries, their GDP's and several different external balance measures, all in billions of U.S. Dollars.[3] The table begins with the broadest measure, the

[1]Maurice Obstfeld and Kenneth Rogoff (2005) also employ a static trade model to examine the implications of eliminating current account imbalances. While their's is a stylized three-region model, ours incorporates the pattern of bilateral trade among 40 countries. On the other hand, they build in a structure of international asset returns which we simply take as exogenous. Our numerical results are closest to what they call a "very gradual" unwinding, which they interpret as a 10-12 year adjustment. Kim Ruhl (2005) develops an explicit dynamic model to reconcile the observed short-run and long-run responsiveness of trade flows to changes in policy.

[2]We based our countries on the fifty largest, as measured by GDP in 2000, with all others grouped together into a "country" labeled ROW. Due to poor data we moved Saudi Arabia, Poland, Iran, the United Arab Emirates, Puerto Rico, and the Czech Republic into ROW as well. To mitigate the effect of entrepôt trade, which our approach here is ill-equipped to handle, we have combined (1) Belgium, Luxembourg (which we pulled out of ROW), and the Netherlands, (2) Indonesia, Malaysia, Singapore, and Thailand, and (3) China and Hong Kong into single entities. The result is forty entities, which we henceforth refer to as countries, spanning the globe.

[3]Sources are as follows: GDP is from the World Bank (2006), the current account balance and balance on goods and services are from IMF (2006), trade in manufactures (unilateral and bilateral) is from United Nations Statistics Division (2006). The most recent bilateral trade data are for 2004, hence all of our

current account balance, followed by the balance on goods and services, ending with the balance on manufactures.[4] The United States has by far the greatest current account imbalance, running a deficit of $664 billion or nearly 6 percent of its GDP.[5] The countries with the largest current account balances, Japan, Germany, and China (in that order), collectively run a surplus of $362 billion. For the largest players, the trade balance in manufactures is the main piece of the overall current account. It's the focus of our analysis here.

While unilateral imbalances command considerable attention, the U.S. obsession with China's trade suggests that bilateral trade imbalances are also a major concern. The last two columns of Table 1 report each country's bilateral trade surplus in manufactures with the United States and with China. Note that the U.S. trade deficit with China is one third of its total deficit in manufactures while China's surplus with the United States is larger than its overall trade surplus in manufactures. Except for the United States, China is running a manufacturing trade deficit with the other countries of the world. Note in particular that China runs sizable deficits with many of its neighbors in the Asia Pacific region. The United States, on the other hand, runs deficits with most countries. Our analysis will show how these bilateral imbalances respond to an elimination of unilateral

analysis is based on that year.

[4]There is a well known statistical discrepancy so that the current account balance and the trade balance of the world is not zero. For analytical reasons, we want to remove this discrepancy. Rather than force it all into ROW, we instead attributed one fortieth of iit to each country. Since we measure bilateral trade in manufactures from the importer side, the trade balance of the world in manufactures is zero by construction.

[5]Among the deficit countries the U.S. current account deficit is large even relative to its GDP. Only Australia, Greece, and Portugal have larger deficit to GDP ratios. Several small countries run current account surpluses that are much larger fractions of their GDP's, however.

current account imbalances.

Table 2 reports gross manufacturing exports and imports as well as the manufacturing trade balance. It also indicates what the manufacturing trade surplus would have to be in order to set current account balances to zero, holding fixed other components of the current account. Note that by far the largest adjustment is required for the United States, an increase in net exports of manufactures of $664 billion. The next largest adjustments are decreases in net manufacturing exports: Japan by $173 billion, Germany by $103 billion, and China by $86 billion. In this paper we explore the implications of achieving this particular set of trade balances in manufactures.

We build on a recent literature that seeks to integrate the gravity relationships exhibited by bilateral trade flows into general equilibrium models of world competition.[6] This research provides a framework for tracking the implications of various counterfactuals and policy experiments for different countries of the world, recognizing the role of trade barriers in fragmenting world markets. We put such a model of bilateral trade to work to assess the counterfactual experiment of simultaneously removing current account imbalances from each country. We examine the resulting bilateral imbalances, factor costs ("wages"), real wages, welfare, and manufacturing's share in these forty economies.

While our theoretical framework is one that has been used before in modeling bilateral trade, we depart from a central feature of the gravity specification. The standard approach has used sundry geographical, historical, linguistic, and political variables as indicators of bilateral resistance to trade. Instead, we treat bilateral resistance for each country pair as a parameter which we identify, in combination with other parameters of the model, directly

[6] Examples include Eaton and Kortum (2002), Anderson and van Wincoop (2003), Redding and Venables (2004), and Chaney (2006).

from current bilateral trade data, letting the bilateral trade flows speak for themselves.[7]

A drawback of the standard approach for our analysis here is that the commonly used indicators for bilateral resistance are typically symmetric, often with the implication that, the error component aside, trade should balance bilaterally. By treating bilateral resistance as a parameter that we infer from data we impose no structure, not even symmetry, on the determinants of bilateral trade. China suggests a major deviation from symmetry with its large manufacturing trade surplus with the relatively distant United States in combination with its large deficits with its neighbors.

Our attempt to quantify the implications of eliminating current account deficits comes with two important disclaimers. First, our exercise is pure comparative statics. We offer no explanation for why the current account deficits exist or what market response or policy intervention would close them.[8] We simply use current data to parameterize a static model of bilateral trade flows and calculate the new equilibrium with zero deficits. We hope that at some point our framework can be integrated into a dynamic model that incorporates capital flows as well as flows of goods and services. Second, in focusing on trade in manufactures we do not model trade in nonmanufactures. At some point we hope that our approach can be integrated into a framework that models trade in nonmanufactures as well. But since

[7] Equation (15) in Eaton and Kortum (2002) provides a hint that one can go a long way without imposing structure on trade costs. There we show how the share of spending on domestic producers provides a simple statistic for a country's gains from trade. Furthermore in Bernard, Eaton, Jensen, and Kortum (2003) we showed that the bilateral trade matrix was a sufficient statistic for the matrix of trade costs in simulating a model of individual producers in international competition. Recent work by Waugh (2007) pursues a related approach, in a model with capital accumulation, for assessing the contribution of trade to development.

[8] Padamitriou et al. (2006) provide an excellent review of the debate about the causes and consequences of the U.S. deficit.

nonmanufactures include such diverse items as soy beans, crude oil, hip hop, and patent royalties (for the last two, bilateral trade data are lacking anyway) we defer modeling their determinants for future work. For now we simply treat each country's nonmanufacturing trade deficit as a parameter that we take from the data.

1 World Equilibrium

Consider a world of N countries (n denoting an importer and i an exporter), a continuum of differentiated goods, and a constant elasticity of substitution aggregator (with parameter σ). A number of theories of international trade lead to a gravity equation of the form:

$$(1) \quad \pi_{ni} = \frac{T_i(c_i d_{ni})^{-\theta}}{\sum_{k=1}^{N} T_k(c_k d_{nk})^{-\theta}}$$

where π_{ni} is country i's share in country n's spending. Eaton and Kortum (2002) derive such an expression (their equation (10)) from a Ricardian model in which T_i reflects the absolute advantage of country i, c_i the cost of inputs there, and $d_{ni} \geq 1$ the additional cost of delivering goods to n from i. The parameter θ, which in the Ricardian model reflects comparative advantage, governs the sensitivity of demand to cost.[9]

We apply this equation to bilateral trade in manufactures among the countries in the world. Multiplying it by total spending on manufacturing in each country n, denoted by

[9] As Eaton and Kortum (2002) point out, equivalent formulations emerge under Armington assumptions, as in Anderson and van Wincoop (2003), or monopolistic competition, as in Redding and Venables (2004). In the first case T_i is the share of country i's goods in preferences while in the second it is the number of goods that country i produces. In either case, the parameter θ is replaced by $\sigma - 1$. Yet another formulation follows from specifying a Pareto distribution, with parameter θ, in the model of Melitz (2003), as in Chaney (2006).

X_n^M, and summing across the destinations i sells to, gives us the goods market clearing conditions:

$$Y_i^M = \sum_{n=1}^{N} \pi_{ni} X_n^M,$$

where Y_i^M is country i's gross production of manufactures.

If trade balances, as is often assumed, then $X_i^M = Y_i^M$. Since our focus here is on the yawning deficits and surpluses in manufactures, we don't impose this condition. Instead we simply acknowledge the deficits that we observe, $D_i^M = X_i^M - Y_i^M$ in our general-equilibrium formulation.

To recognize (i) that manufactures are only one component of final expenditure and (ii) that much of the gross output of manufactures goes into making manufactures we need two additional parameters. We denote the share of final spending on manufactures as α and the share of value added in manufacturing gross production as β. We are following Alvarez and Lucas (2006) in treating final demand as an aggregate of manufactures and nonmanufactures produced in the same factor proportions, with manufactures having a share α.

Denoting the price index of manufactures in country i as p_i, we can rewrite (1) as:

$$(2) \quad \pi_{ni} = \frac{T_i (w_i^\beta p_i^{1-\beta} d_{ni})^{-\theta}}{\sum_{k=1}^{N} T_k (w_k^\beta p_k^{1-\beta} d_{nk})^{-\theta}},$$

where w_i reflects factor costs in country i.

Eaton and Kortum (2002) show (their equation (16)) that with a CES aggregator for manufactures the price index in country n is given by:

$$(3) \quad p_n = \gamma \left[\sum_{i=1}^{N} T_i (w_i^\beta p_i^{1-\beta} d_{ni})^{-\theta} \right]^{-1/\theta},$$

where γ is a constant that depends on only the parameters θ and σ. Thus we can rewrite the trade share (2) as:

$$(4) \quad \pi_{ni} = T_i \left(\frac{w_i^{\beta} p_i^{1-\beta} d_{ni}}{p_n/\gamma} \right)^{-\theta}.$$

We denote total factor supply in country i as L_i, which we treat as exogenous. Under perfect competition final output, or GDP, is $Y_i = w_i L_i$ while final spending is $X_i = Y_i + D_i$, where D_i is the overall trade deficit. To connect final spending with production and spending on manufactures, we write total demand for manufactures by country n as the sum of final and intermediate demand:

$$X_n^M = \alpha X_n + (1-\beta) Y_n^M.$$

also writing that manufacturing production equals final and intermediate demand less net imports of manufactures

$$(5) \quad Y_n^M = \alpha \left(Y_n + D_n \right) - D_n^M + (1-\beta) Y_n^M$$

to get:

$$Y_n^M = \frac{\alpha}{\beta} \left(w_n L_n + D_n \right) - \frac{1}{\beta} D_n^M.$$

Adding D_n^M to Y_n^M gives country n's total purchases of manufactures:

$$X_n^M = \frac{\alpha}{\beta} \left(w_n L_n + D_n \right) - \frac{1-\beta}{\beta} D_n^M.$$

Multiplying by β/α we can write our market clearing conditions as:

$$(6) \quad w_i L_i + D_i - \frac{1}{\alpha} D_i^M = \sum_{n=1}^{N} \pi_{ni} \left[w_n L_n + D_n - \frac{1-\beta}{\alpha} D_n^M \right].$$

Taking as given (i) the trade imbalances D_i and D_i^M, (ii) labor forces L_i, (iii) parameters of technology T_i, (iv) parameters of trade costs d_{ni}, and (v) parameters α, β, and θ, an equilibrium is a set of wages w_i and prices p_i that satisfy (6) and (3), with π_{ni} given by (4).

We can resolve for the equilibrium under counterfactual trade imbalances, denoted D_i' and $D_i^{M\prime}$. We denote the post adjustment value of any variable x as x' and the change in its value as $\widehat{x} = x'/x$. The counterfactual wages and prices must satisfy the market clearing condition:

$$w_i' L_i + D_i' - \frac{1}{\alpha} D_i^{M\prime} = \sum_{n=1}^{N} \frac{T_i (w_i')^{-\theta\beta} (p_i')^{-\theta(1-\beta)} d_{ni}^{-\theta}}{\sum_{k=1}^{N} T_k (w_k')^{-\theta\beta} (p_k')^{-\theta(1-\beta)} d_{ni}^{-\theta}} \left(w_n' L_n + D_n' - \frac{1-\beta}{\alpha} D_n^{M\prime} \right).$$

and the price equation

$$p_n' = \gamma \left\{ \sum_{i=1}^{N} T_i \left[(w_i')^{\beta} (p_i')^{1-\beta} d_{ni} \right]^{-\theta} \right\}^{-1/\theta}.$$

After some manipulation, these two sets of equations can be rewritten as:

$$(7) \quad \widehat{w}_i Y_i + D_i' - \frac{1}{\alpha} D_i^{M\prime} = \sum_{n=1}^{N} \frac{\pi_{ni} \widehat{w}_i^{-\theta\beta} \widehat{p}_i^{-\theta(1-\beta)}}{\sum_{k=1}^{N} \pi_{nk} \widehat{w}_k^{-\theta\beta} \widehat{p}_k^{-\theta(1-\beta)}} \left(\widehat{w}_n Y_n + D_n' - \frac{1-\beta}{\alpha} D_n^{M\prime} \right)$$

and

$$(8) \quad \widehat{p}_n = \left(\sum_{k=1}^{N} \pi_{nk} \widehat{w}_k^{-\theta\beta} \widehat{p}_k^{-\theta(1-\beta)} \right)^{-1/\theta}.$$

We use equations (7) and (8) to solve for the changes in wages $\widehat{w}$ and prices $\widehat{p}$ that maintain equilibrium under counterfactual assumptions about imbalances, using data on the original values of GDP for the Y's and trade shares for the π's. What's neat about this representation is that, aside from data, we only need values for the parameters α, β, and θ.

It is straightforward, using Theorems 1, 2, and 3 of Alvarez and Lucas (2006), to prove that there is a unique solution, vectors $\widehat{w}$ and $\widehat{p}$, to these equations, up to the normalization

that

$$\sum_{i=1}^{N} \widehat{w}_i Y_i = 1,$$

i.e. treating world GDP as the numeraire.

The particular exercise we conduct here is to ask what would happen if the manufacturing trade deficits had to adjust to set all current accounts to zero. That is, for each country i we set:

$$D_n^{M\prime} = D_n^M + CA_n$$

where CA_n is country n's original current account surplus and D_n^M its original manufacturing trade deficit in 2004 (column 4 of Table 2 presents $-D_n^{M\prime}$).[10] In our counterfactual, we are fixing the values of the current account net of the manufacturing trade balance as well as the trade balance on goods and service net of the manufacturing trade balance. What that means is that these magnitudes are fixed as a fraction of world GDP.

2 Calibration and Computation

Aside from data on 2004 GDP's (for the Y's) and on 2004 trade shares (for the π's) to stick in (7) and (8), we need values for the parameters θ, α, and β.

We set $\theta = 8.28$ as measured in Eaton and Kortum (2002) using price data. We also consider the lower value of $\theta = 3.60$ obtained in Bernard, Eaton, Jensen, and Kortum (2003).

[10] In doing so, we set each country's total counterfactual trade deficit to:

$$D_n' = D_n^{M\prime} + D_n - D_n^M.$$

To get at α, we can rewrite equation (5) as

$$\alpha = \frac{\beta Y_n^M + D_n^M}{Y_n + D_n} = \frac{V_n^M + D_n^M}{Y_n + D_n},$$

where V_n^M is manufacturing value added (available for most of our countries from World Development Indicators). We calculate the ratio of manufacturing value added plus the trade deficit in manufactures to GDP plus the overall trade deficit on goods and services. Averaging this ratio across countries in our sample (for which data on manufacturing value added was available) yields $\alpha = 0.188$.

Notice that $\beta = V_n^M / Y_n^M$. From United Nations Industrial Development Organization (2006) we have data for many of our countries on both manufacturing value added and manufacturing gross production. Averaging this ratio yields $\beta = 0.312$.

A simple iterative procedure provides the solution $\widehat{w}$ and $\widehat{p}$. With 40 countries, and running this procedure in GAUSS on a good quality laptop, the solution is obtained almost instantaneously.

For each country $i = 1, \ldots, 40$, we present the change in a set of outcomes, presented as the ratio of the counterfactual value to its original value. The wage change for country i is simply $\widehat{w}_i$ itself, which also equals that country's change in GDP. County i's counterfactual GDP is hence $Y_i' = \widehat{w}_i Y_i$. Since we also solve for $\widehat{p}_i$, we can express the change in the real wage as $(\widehat{w}_i / \widehat{p}_i)^\alpha$. Taking into account the static gain or loss from setting the current account to zero, we get the change in welfare in country i as

$$\widehat{W}_i = \left(\frac{\widehat{w}_i}{\widehat{p}_i} \right)^\alpha \frac{1 + D_i'/Y_i'}{1 + D_i/Y_i}.$$

Counterfactual bilateral trade share of country i in n can be constructed from the original shares using

$$\pi'_{ni} = \frac{\pi_{ni} \widehat{w}_i^{-\theta\beta} \widehat{p}_i^{-\theta(1-\beta)}}{\sum_{k=1}^N \pi_{nk} \widehat{w}_k^{-\theta\beta} \widehat{p}_k^{-\theta(1-\beta)}}.$$

Thus the counterfactual bilateral trade flow of n's imports from i is

$$X'_{ni} = \pi'_{ni} \left[\frac{\alpha}{\beta} \left(Y'_n + D'_n \right) - \frac{1-\beta}{\beta} D_n^{M\prime} \right].$$

Finally, the counterfactual share of manufacturing value added in GDP is

$$\frac{V_i^{M\prime}}{Y'_i} = \frac{\alpha \left(Y'_i + D'_i \right) - D_i^{M\prime}}{Y'_i}.$$

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3 Results

Table 3 reports the changes to the wage, real wage, and welfare that our exercise claims are required to achieve the target manufacturing trade deficits reported in Table 2. Note that these numbers imply less than a 5 percent increase for either China, Germany, or Japan, the big surplus countries, and a 7 percent decline for the United States. In other words, despite the large U.S. trade deficit, the numbers imply that achieving balance is associated with a fairly modest 12 percent decline in the value of the U.S. dollar relative to the currencies of the big surplus countries (assuming the adjustment takes the form of an exchange rate realignment, holding fixed wages expressed in the local currency).

The associated changes in the real wage, reported in column 2, are negligible for these large countries. There are two reasons why the real wage effects are so attenuated. For one thing, the trade share data imply a huge "home bias" in manufacturing (that is, countries spend a disproportionately large amount on domestically produced goods) so that domestic manufactures, produced with local labor, dominate the manufacturing price index. For another, with manufactures constituting less than twenty percent of final expenditure, the nontraded sector dominates the overall price index.

The third column reports the change in real expenditure taking into account the change in the deficit. Here the effects are more pronounced, and largely dominated by the change in the current account itself. Together the second and third columns indicate a small "secondary burden" of adjusting current account deficits. Countries that must reduce their deficits experience a lower real wage, so real expenditure falls by more than the drop in transfers from abroad, with the opposite for countries that expand their deficits.[11]

We've solved for wages in the new equilibrium of a 40 country trading system. How well could we have predicted each country's wage change just from its own existing current account? Figure 1 plots the wage change in Table 3 against the current account deficit in Table 3 relative to GDP. The relationship is generally downward sloping but not monotonic. While Algeria and Norway have smaller surpluses than Switzerland relative to their GDP, they require a much larger wage increase due to their relative isolation. At the other extreme Portugal runs a larger deficit than Australia but needs less of a wage decline to adjust. The direction of the wage change is in accordance with the direction of the required balance except for France, where the wage goes up slightly despite its current deficit.

How does the overall adjustment get reflected in bilateral deficits for manufactures? Table 4 reports the actual and counterfactual bilateral deficits for both the United States and China with each other country. Note that the U.S. deficit with Japan and South Korea virtually disappear while the U.S. deficit with Germany swings toward a significant surplus. A large deficit with China nevertheless remains. At the same time China continues to run large deficits with Korea and Japan. These varied responses reflect asymmetries in the bilateral resistance measures indicated by current trade patterns. Projecting these

[11] Austria and Pakistan are two exceptions. Each runs a slight deficit but experiences a very slight improvement in its real wage after adjusting.

asymmetries into post-adjustment world still means that there is enormous room for large bilateral imbalances even in a world with overall balance.

A trade deficit in manufactures crowds out domestic manufacturing. Since our counterfactual experiment involves adjustments in manufacturing trade deficits, it has consequences for manufacturing's share of production. We find that the share of manufacturing falls by three to four percentage points in China, Germany, and Japan. It rises by over 4 percentage points in the United States. This increase is substantial, raising the manufacturing share to over 20 percent from its original value of less than 16 percent.

How much do our results depend on our choice of the parameter θ? Using the smaller value of $\theta = 3.60$ from BEJK (2003) implies that more wage adjustment is necessary (since, in that case, trade shares are less responsive to factor costs). With this lower value, the U.S. wage falls by 23 percent relative to the China's and by about 25 percent relative to Japan's and Germany's. With the smaller value of θ the decline in the U.S. real wage exceeds 1 percent. The implications for bilateral trade flows are nearly invariant to the choice of θ.

4 Conclusion

We have asked what a static trade model has to say about the magnitudes of adjustments needed to close current account imbalances, as they stood in 2004. By assumption all of the adjustments takes place in the manufacturing sector, which means that we are likely providing an upper bound on the required adjustment there. Given our baseline parameters, U.S. GDP must fall about seven percent relative to world GDP, while GDP in the major surplus countries rises by two to four percent. With a smaller elasticity (meaning trade

shares are less responsive to costs), these adjustments are roughly doubled. In either case, the decline in real wages in the United States is muted, around one percent, since most goods can't be traded and even those that could be are often purchased from domestic producers in a large economy like the United States. According to our static analysis, the main welfare cost of eliminating the current account deficit is simply the loss of the free lunch, i.e. the loss of goods that we currently consume but do not pay for until later.[12] That cost is on the order of six percent of GDP.

[12]Because our analysis is static, we do not factor in that eliminating a current account deficit now precludes the need to eliminate it at some future date. Nor do we acknowledge any delay in economy's response to the counterfactual experiment that we conduct. We have not introduced any frictions in getting from here to there. Kim Ruhl (2005) is a good recent example of an explicit dynamic model designed to reconcile the observed short-run and long-run responsiveness of trade flows to changes in policy.

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Table 1: GDP and Trade Imbalances

	GDP	current account surplus	trade surplus	trade surplus manufacturir	bilateral surplus with US	bilateral surplus with China
Algeria	85.0	12.4	3.1	-13.2	-0.6	-0.9
Argentina	153.0	4.7	7.2	-10.3	-1.8	-0.9
Australia	637.3	-38.8	-23.2	-60.3	-10.4	-10.1
Austria	292.3	2.0	1.3	-1.1	1.8	-0.8
BelLuxNeth	963.2	73.0	60.7	-63.7	-17.4	-19.4
Brazil	604.0	13.0	24.5	5.8	5.7	-1.8
Canada	978.0	22.4	35.9	-26.9	29.2	-13.9
Chile	95.0	2.8	4.0	-1.9	-1.2	0.3
ChinaHK	2097.6	85.6	59.5	121.8	166.6	0.0
Colombia	96.8	0.3	-4.8	-8.4	-2.4	-1.1
Denmark	241.4	7.2	7.9	-9.5	1.2	-1.8
Egypt, Arab Rep.	78.8	5.2	-4.9	-1.2	0.4	-0.5
Finland	185.9	11.0	6.0	14.4	1.6	0.5
France	2046.7	-5.6	-2.1	-5.3	1.2	-11.3
Germany	2740.6	103.0	131.4	209.5	27.2	-7.0
Greece	205.2	-12.2	-17.1	-29.5	-1.7	-1.7
India	694.7	8.1	-15.7	5.4	9.1	-0.8
IndonMalySingThai	641.8	54.6	55.0	19.6	24.0	18.8
Ireland	181.6	0.2	21.8	66.2	18.1	-2.0
Israel	116.9	4.4	-4.1	-0.7	8.8	-0.5
Italy	1677.8	-14.5	7.7	21.2	15.0	-5.0
Japan	4622.8	173.3	89.7	277.0	84.4	40.8
Korea, Rep.	679.7	29.4	25.0	82.1	22.8	43.4
Mexico	683.5	-5.4	-19.0	-22.0	27.9	-12.3
New Zealand	98.9	-5.2	-5.1	-11.0	-1.3	-1.8
Norway	250.1	36.0	31.6	-16.4	-0.2	-1.8
Pakistan	96.1	0.4	-10.5	-0.4	1.8	-0.3
Peru	68.7	1.2	-2.6	-2.7	0.4	-0.7
Philippines	90.1	2.9	-12.0	13.5	0.7	8.9
Portugal	167.7	-11.7	-18.0	-10.7	0.9	-0.3
Russian Federation	590.4	59.8	67.9	7.7	4.7	0.8
South Africa	214.7	-6.2	-6.1	-2.9	1.7	-1.8
Spain	1039.9	-53.6	-44.3	-62.8	-1.1	-8.7
Sweden	346.4	28.7	24.6	23.2	8.0	0.5
Switzerland	357.5	57.8	30.0	9.5	5.3	3.8
Turkey	302.8	-14.3	-15.6	-18.7	1.5	-3.8
United Kingdom	2124.4	-33.9	-68.5	-109.2	3.8	-21.0
United States	11711.8	-664.0	-615.8	-484.6	0.0	-166.6
Venezuela, RB	110.1	15.1	13.3	-6.2	-1.8	-0.3
ROW	2996.7	50.7	181.2	102.6	50.9	59.5

Table 2: Trade in Manufactures

	manufacturing exports	imports	original trade balance	counterfactual trade balance
Algeria	0.5	13.7	-13.2	-25.5
Argentina	10.4	20.6	-10.3	-14.9
Australia	25.0	85.2	-60.3	-21.4
Austria	82.4	83.5	-1.1	-3.1
BelLuxNeth	307.8	371.6	-63.7	-136.8
Brazil	53.2	47.4	5.8	-7.2
Canada	198.2	225.0	-26.9	-49.3
Chile	13.5	15.4	-1.9	-4.7
ChinaHK	816.8	695.0	121.8	36.2
Colombia	6.0	14.4	-8.4	-8.7
Denmark	42.6	52.2	-9.5	-16.7
Egypt, Arab Rep.	5.5	6.7	-1.2	-6.4
Finland	50.5	36.2	14.4	3.4
France	333.0	338.2	-5.3	-0.3
Germany	750.9	541.4	209.5	106.5
Greece	9.3	38.9	-29.5	-17.3
India	58.5	53.1	5.4	-2.7
IndonMalySingThai	279.1	259.5	19.6	-35.1
Ireland	115.2	49.1	66.2	66.0
Israel	32.3	32.9	-0.7	-5.1
Italy	278.3	257.1	21.2	35.6
Japan	545.2	268.2	277.0	103.7
Korea, Rep.	228.4	146.3	82.1	52.6
Mexico	148.1	170.1	-22.0	-16.6
New Zealand	6.6	17.6	-11.0	-5.8
Norway	22.8	39.2	-16.4	-52.4
Pakistan	10.0	10.5	-0.4	-0.9
Peru	4.0	6.7	-2.7	-3.9
Philippines	48.8	35.3	13.5	10.6
Portugal	29.9	40.6	-10.7	-1.0
Russian Federation	59.1	51.4	7.7	-52.2
South Africa	30.0	32.9	-2.9	3.3
Spain	132.0	194.7	-62.8	-9.1
Sweden	100.3	77.1	23.2	-5.5
Switzerland	106.6	97.1	9.5	-48.4
Turkey	51.0	69.6	-18.7	-4.3
United Kingdom	254.5	363.7	-109.2	-75.3
United States	673.7	1158.3	-484.6	179.4
Venezuela, RB	5.7	11.9	-6.2	-21.3
ROW	746.5	643.9	102.6	51.9

Table 3: Changes that Elimanate CA Imbalances

	wage	real wage	welfare
Algeria	1.56	1.08	1.20
Argentina	1.05	1.01	1.04
Australia	0.90	0.99	0.93
Austria	1.01	1.00	1.01
BelLuxNeth	1.15	1.02	1.11
Brazil	1.02	1.00	1.02
Canada	1.01	1.00	1.03
Chile	1.03	1.00	1.04
ChinaHK	1.02	1.00	1.04
Colombia	1.01	1.00	1.00
Denmark	1.05	1.00	1.03
Egypt, Arab Rep.	1.10	1.01	1.06
Finland	1.05	1.00	1.06
France	1.00	1.00	1.00
Germany	1.03	1.00	1.04
Greece	0.89	0.98	0.93
India	1.02	1.00	1.01
IndonMalySingThai	1.08	1.01	1.11
Ireland	1.00	1.00	1.00
Israel	1.02	1.00	1.04
Italy	1.00	1.00	0.99
Japan	1.04	1.00	1.04
Korea, Rep.	1.02	1.00	1.05
Mexico	0.97	1.00	0.99
New Zealand	0.91	0.99	0.94
Norway	1.35	1.04	1.21
Pakistan	1.01	1.00	1.00
Peru	1.02	1.00	1.02
Philippines	1.01	1.00	1.03
Portugal	0.94	0.99	0.93
Russian Federation	1.15	1.01	1.13
South Africa	0.98	1.00	0.97
Spain	0.95	0.99	0.94
Sweden	1.07	1.01	1.09
Switzerland	1.20	1.03	1.19
Turkey	0.96	0.99	0.95
United Kingdom	0.99	1.00	0.98
United States	0.93	0.99	0.94
Venezuela, RB	1.31	1.04	1.19
ROW	1.02	1.00	1.02

Table 4: Actual and Counterfactual Bilateral Deficits

	US Deficits		China's Deficits	
	current	counter-factual	current	counter-factual
Algeria	-0.65	-2.05	-0.88	-1.52
Argentina	-1.82	-4.83	-0.94	-0.99
Australia	-10.35	-11.34	-10.12	-2.66
Austria	1.75	-2.29	-0.80	-0.79
BelLuxNeth	-17.43	-44.78	-19.36	-17.98
Brazil	5.68	-7.09	-1.83	-1.74
Canada	29.21	-23.69	-13.90	-7.08
Chile	-1.15	-3.52	0.30	0.28
ChinaHK	166.59	64.91		
Colombia	-2.41	-4.99	-1.12	-0.95
Denmark	1.17	-1.90	-1.79	-2.07
Egypt, Arab Rep.	0.45	-0.88	-0.52	-0.77
Finland	1.56	-1.57	0.51	-0.27
France	1.18	-22.53	-11.33	-9.35
Germany	27.20	-30.77	-7.00	-8.64
Greece	-1.67	-2.48	-1.72	-1.29
India	9.08	0.44	-0.84	-0.89
IndonMalySingThai	23.97	-24.00	18.76	13.56
Ireland	18.14	7.86	-1.98	-1.22
Israel	8.77	1.32	-0.52	-0.32
Italy	15.00	1.91	-4.97	-3.62
Japan	84.39	-3.53	40.76	18.26
Korea, Rep.	22.82	-6.53	43.37	40.46
Mexico	27.86	2.91	-12.26	-7.16
New Zealand	-1.25	-1.56	-1.81	-0.84
Norway	-0.20	-5.25	-1.82	-3.69
Pakistan	1.82	0.28	-0.33	-0.17
Peru	0.35	-1.12	-0.66	-0.61
Philippines	0.73	-5.90	8.94	9.32
Portugal	0.88	0.38	-0.29	-0.10
Russian Federation	4.73	-3.97	0.76	-3.95
South Africa	1.66	-0.94	-1.75	-0.75
Spain	-1.08	-5.26	-8.70	-6.69
Sweden	8.02	-0.14	0.48	-0.67
Switzerland	5.30	-5.63	3.79	0.62
Turkey	1.46	-1.14	-3.85	-3.36
United Kingdom	3.76	-22.47	-21.02	-17.00
United States			-166.59	-64.91
Venezuela, RB	-1.78	-9.85	-0.26	-0.59
ROW	50.87	2.57	59.46	53.96

Figure 1: Wage Changes and the Current Account