Exchange Rate Movements and External Imbalance

EXCHANGE RATE MOVEMENTS AND EXTERNAL IMBALANCE

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Introduction

During the present U.S. expansion, the persistent and rising trade and current account deficits have been of particular interest and, for some, concern. Specifically, the external imbalances worldwide are seen as jeopardizing the sustainability of the expansion. Indeed, the Plaza Agreement of the G-5 nations in September 1985 stated explicitly that external imbalances among the major industrial countries were potentially destabilizing.

A commonly held view is that the U.S. external deficit has been generated primarily by the unprecedented appreciation of the U.S. dollar from mid-1980 to early 1985. Furthermore, it is alleged that the strength of the dollar has been the product of a large and persistent U.S. Federal government budget deficit. Consequently, reduction of this fiscal deficit has been seen as a necessary condition for resolving the U.S. external deficit.

The focus of this paper is a three-step investigation of the relationship between the U.S. Federal government deficit and the U.S. trade deficit. The first step is the presentation of a simple conceptual model linking the Federal deficit, the real exchange rate, and the current account balance. Second, the relative sensitivity of real trade flows to changes in real exchange rates and real income is examined. Finally, the policy implications are developed. Special attention is devoted to analyzing the impact of the G-5 Plaza Agreement in particular and the efficacy of exchange rate management in general.

Internal and External Imbalances

The unprecedented current account deficits experienced over the past several years have also meant that foreign capital has flowed into the U.S. economy at an unprecedented rate. In fact, as a result of the accumulation of these large inflows of foreign capital, the U.S. has recently become a net debtor in the world capital market for the first time since World War I.

These current account deficits indicate that we are spending more abroad than we are earning from sales abroad. Its counterpart, the capital account surplus, indicates that foreigners' claims on U.S. residents have risen relative to U.S. claims on foreigners. Traditionally, capital account surpluses or deficits have been viewed as passively adjusting to finance current account deficits or surpluses. Consequently, the relative demands for and supplies of goods and services across countries have been considered the major determinants of current account balances. As capital markets have become more integrated internationally, capital flows should not be thought of as passively financing an independently determined current account balance. Instead, the desired capital account balance, determined by investors' efforts to earn the highest available risk-adjusted return, exerts an independent influence on the payments balance with the current account adjusting to reflect the consequent net capital flow. This adjustment occurs primarily through changes in exchange rates but also through changes in relative prices and income levels at home and abroad.

An imbalance in the current or capital account (i.e., an external imbalance) must be mirrored by an imbalance between domestic saving and

investment (i.e., an internal imbalance). The framework of national income accounting is a useful device for identifying the relationship between internal and external imbalances. The national income identity is commonly expressed as:

$$(1)\quad Y = C + I + G + (X-M) = C + S + T$$

where Y = GNP

C = household consumption,

I = gross private domestic investment,

G = government (federal, state and local) spending,

X-M = net exports (approximately the current account balance),

S = gross private domestic saving,

T = tax revenue.

This can be rearranged conveniently to yield the following:

$$(2)\quad (S + T - G) - I = X - M.$$

A necessary implication drawn from equation (2) is that when total domestic investment (I) exceeds <u>total</u> domestic saving (S + T - G, or private saving plus government saving), the current account (X-M) is in deficit and capital flows into the United States and conversely. Furthermore, an increase in the government budget deficit, with constant private saving and constant domestic investment, necessarily implies a worsening of the current account balance.

The existence of a government budget deficit, however, is neither necessary nor sufficient for a current account deficit. A current account deficit could coexist with a fiscal surplus if domestic

investment exceeded the sum of private saving and the budget surplus. For example, Denmark and Norway are currently experiencing a general government (federal, state and local) budget surplus, yet each country's current account is in deficit. Conversely, a whole host of countries (e.g., Japan, Germany, U.K.) are currently experiencing current account surpluses with general government budget deficits.

Cyclical factors are also important in understanding the relationship between the government budget and the current account balance.[1/] Table 1 provides a time series for the U.S. of the components of equation (2) which illuminates the cyclical influences. When domestic investment was at a cyclical low in 1975, total domestic saving exceeded domestic investment. Thus, the current account was in surplus despite a general government deficit that, as a share of GNP, was larger than those deficits experienced since 1982. As the economy expanded after 1975, domestic investment and the general government budget followed their typical cyclical patterns. Specifically, domestic investment rose and the general government budget deficit fell as a share of GNP. By 1978 the general government budget was essentially balanced, but the current account balance had deteriorated by almost 2 percentage points as a share of GNP. As domestic investment expanded and outpaced domestic saving, foreign capital flowed into the U.S. to fill this gap and consequently, the current account balance worsened.

The situation in 1982 was similar to that in 1975: the economy was reaching the trough of the business cycle. Both the Federal and the general government budget deficits (expanded by cyclical events) were approximately the same share of GNP as they were in 1975. Moreover,

since domestic investment was at a cyclical low in 1982 and the excess of private domestic saving over domestic investment was nearly sufficient to finance the government budget deficit, the current account was essentially in balance. The cyclical rebound of domestic investment from 1982 to 1985 was similar to that from 1975 to 1978. Contrary to the 1975-78 experience, however, the government budget deficit did not recede appreciably. The rise in domestic investment accompanied by a relatively constant government deficit as a share of GNP led to a situation where private domestic saving was insufficient to satisfy all domestic demand for credit. Consequently, a current account deficit emerged as foreign capital flowed in to finance the excess of domestic investment over total domestic saving. The exchange rate has played an integral role in this adjustment process. In particular, the real appreciation of the dollar from mid-1980 to early 1985 lowered the price of imported goods relative to domestically-produced goods, thus generating the deterioration of the current account balance necessary to enable a sufficient net capital inflow to supply the excess of U.S. domestic investment over domestic saving.

The identity represented by equation (2) takes on more than just an accounting meaning when one recognizes that the decisions to save, invest (at home or abroad), export, import, etc. are dependent on prices, interest rates, income, wealth, governmental policies, etc.[2/] Consequently, supported with some behavioral assumptions concerning the determination of the variables in equation (2), it becomes an equilibrium condition. For sake of simplicity, let's ignore the impact of cyclical

factors on the variables in equation (2) (i.e., assume some type of full-employment, neoclassical world) and furthermore, assume a time frame sufficiently long so that money is neutral. With these assumptions and expressing the variables in equation (2) in real terms, we can write the following simple two-country model of saving and investment:

$$(3)\quad S = S_0 + S_1 r$$

$$(4)\quad S^* = S_0^* + S_1^* r^*$$

$$(5)\quad I = I_0 - I_1 r$$

$$(6)\quad I^* = I_0^* - I_1^* r^*$$

where r is the real interest, S_0 and I_0 summarize the effects of exogenous variables on saving and investment, respectively, and an asterisk denotes foreign country variables. The parameters S_1, S_1^*, I_1, I_1^* are assumed to be positive. The current account balance (CAB) is assumed to be a function of exogenous factors (summarized by C_0) and the real exchange rate (foreign currency per dollar) as follows:

$$(7)\quad CAB = X-M = C_0 - C_1 e$$

where e is the real exchange rate and C_1 is positive. Rewriting equation (2) as the domestic equilibrium condition for each country yields:

$$(8)\quad S - I - D = CAB$$

$$(9)\quad S^* - I^* - D^* = -CAB$$

where D is the general government budget deficit (i.e., G-T). Assuming that dollar-denominated and foreign-currency-denominated assets are imperfect substitutes, the international capital market will be in

equilibrium when

$$(10)\quad r = r^* - \hat{e} + P$$

where $\hat{e}$ is the expected rate of change of the real exchange rate and P is a preference parameter. A positive value for P implies that when r equals $(r^* - \hat{e})$, asset holders prefer dollar-denominated assets over foreign-currency-denominated assets. Ignoring exchange rate expectations and assuming asset preferences are exogenous, solving equations (3) through (10) yields the "equilibrium" values (denoted by bars) for the four endogenous variables in the system (r, r*, e, CAB) as follows:

$$(11)\quad \bar{r} = \frac{(D + I_0 - S_0) + (D^* + I_0^* - S_0^*) - P(S_1^* + I_1^*)}{\Delta}$$

$$(12)\quad \bar{r}^* = \frac{(D + I_0 - S_0) + (D^* + I_0^* - S_0^*) + P(S_1 + I_1)}{\Delta}$$

$$(13)\quad \bar{e} = -\frac{1}{C_1}\left[\frac{S_1 + I_1}{\Delta}(D^* + I_0^* - S_0^*) - \frac{S_1^* + I_1^*}{\Delta}(D + I_0 - S_0) - \frac{P(S_1 + I_1)(S_1^* + I_1^*)}{\Delta} - C_0\right]$$

$$(14)\quad \overline{CAB} = \frac{S_1 + I_1}{\Delta}(D^* + I_0^* - S_0^*) - \frac{S_1^* + I_1^*}{\Delta}(D + I_0 + S_0) - \frac{P(S_1 + I_1)(S_1^* + I_1^*)}{\Delta}$$

where $\Delta = S_1 + I_1 + S_1^* + I_1^*$.

Interpretation of these solutions is quite straightforward and supports some of the observations already made from the accounting identity. For example, an exogenous increase in domestic investment or in the government deficit (or an exogenous decrease in saving) in the home country (U.S.) raises the equilibrium real interest rate in each country, generates an appreciation of the home country's exchange rate, resulting in a deterioration of the current account balance (or, alternatively, an increase in capital inflows). Furthermore, an increased preference for dollar-denominated assets (i.e., an increase in P) lowers the equilibrium real interest rate in the U.S. while raising it abroad. Even though the real interest differential widens in favor of the foreign country, the dollar appreciates and the current account balance deteriorates as capital inflows into the U.S. increase.

The operation of this simple model for the U.S. can be summarized graphically (Figure 1). This summarization is obviously an oversimplification, but nonetheless, it provides an uncomplicated vehicle for investigating the relationships between the real interest rate, the real exchange rate, and the current account deficit in the U.S. Line IE in Figure 1 is the locus of combinations of the real interest rate and the real exchange rate that, for a given fiscal deficit and given values of the exogenous variables, equibrates the domestic saving/investment (i.e., internal) imbalance with the current account (i.e., external) imbalance. On, alternatively, line IE contains the values of r and e which satisfy

$$(15)\quad (G-T)_0 = (S-I) - (X-M).$$

As already noted, the primary factor influencing (S-I) is r. As r increases, S increases and I decreases; thus, (S-I) increases. The current account (X-M) is governed by the real exchange rate; as e increases, the current account balance decreases (or deficit increases). Thus, IE is negatively sloped; a fall in r raises (S-I) and must be offset by a rise in e to increase (X-M) if their difference is to be a constant $(G-T)_0$.

The KT line in Figure 1 notes explicitly that the net capital inflow is simply the mirror image of the current account balance. In particular, KT is the locus of r-e combinations that satisfy:

$$(16) \quad -(X-M) = NKF$$

where NKF is net capital inflow. When the current account is in surplus, capital (on net) is flowing from the U.S. abroad and thus NKF is negative. Conversely, when the current account is in deficit, capital (on net) is flowing into the U.S., and thus NKF is positive. Assuming that the net capital inflow is a function primarily of the real interest rate differential, line KT is negatively sloped. An increase in r, ceteris paribus, generates an increase in NKF; thus, e must also increase to worsen the current account deficit (i.e., to make (X-M) a larger negative number) to restore the equality in equation (16).

The point of intersection (A in Figure 1) of IE and KT is where both equations (15) and (16) are satisfied. That is, this point is the only combination of r and e where the flow of national income and the flow of international payments are simultaneously in balance. With this simple structure, we can now examine the impact of changes in policies

and variables arising from outside the system. Of particular interest is the contention that U.S. government budget deficit has forced up the U.S. real interest rate, causing the dollar to appreciate and the current account balance to deteriorate. As shown in Figure 2, an increase in the U.S. fiscal deficit, ceteris paribus, would have this effect. Specifically, the increased deficit shifts the IE line away from the origin (to IE') and consequently, a higher real interest rate and real exchange rate are required to restore equilibrium (from A to B in Figure 1). Since we have observed both higher real interest rates and a higher real exchange rate in the 1980s than in the second half of the 1970s, it would appear that the analysis in Figure 2 is supported. However, more rigorous attempts to link changes in the U.S. government budget with changes in real interest rates have not been very successful.[3/] Furthermore, measurements of ex ante real interest rates by both the OECD and the Council of Economic Advisers indicate that long-term ex ante real interest rates peaked during 1981 and have been declining since.[4/]

This model also provides a rationale for these observations. In 1981, major U.S. tax law changes were enacted that, when accompanied by the dramatic disinflation of the 1980s, significantly increased incentives to invest in the U.S. Furthermore, in 1982 the less-developed countries in general began experiencing increased difficulty in servicing their external debt on a timely basis. These events combined to increase the preference worldwide for dollar-denominated assets. In other words, at every real interest rate, foreign investors were willing to hold

larger portfolios of dollar-denominated assets. This phenomenon is represented by an outward (to the right) shift of the KT line in Figure 2 to KT'. Thus, the movement from point B to C indicates that the increased willingness of foreigners to invest in the U.S. may have damped the impact of the persistent government budget deficit on the U.S. real interest rate while exacerbating its impact on the real exchange rate and current account deficit.

The persistence of the trade and current account deficits has generated increasingly intensified protectionist pressures in the U.S. Congress. In fact, just this spring the House of Representatives passed an Omnibus Trade Bill which President Reagan described as blatantly protectionist legislation that would mean "less trade," not "fair trade." Still, many legislators believe that measures such as those contained in this recent bill will successfully address the U.S. trade deficit.

The impact of increased protection can be examined within the framework of this simple model and is also represented in Figure 2. Increased protection can be thought of as a set of policies (tariff or non-tariff in nature) that, for any given value of the real exchange rate, will increase (X-M) to (X-M)'. This action will affect both curves in Figure 2. For IE, at every original combination of r and e,

$$(17)\quad (G-T)_0 < (S-I) - (X-M)'.$$

To restore domestic balance, r must increase (to raise (S-I)) or e must increase (to lower (X-M)). In other words, IE must shift away from the origin (IE to IE' in Figure 2). Similarly, for KT, at every original

combination of r and e,

$$(18)\quad -(X-M)' < NKF.$$

To restore external balance, r must decrease (to lower NKF) or e must increase (to lower (X-M) or raise -(X-M)). That is, KT will also shift outward from the origin (KT to KT' in Figure 2). Since both curves shift outward and to the right, the impact of increased protection on the real exchange rate is clear: e must increase in the new equilibrium (moving from A to C in Figure 2). The affect on the real interest rate, however, is ambiguous as the two shifts have opposite impacts on the equilibrium r. (In Figure 2, r at point C is higher than that at point A. This results from IE shifting out further than KT. If, however, KT shifts as far (further) than IE, the new equilibrium r is the same as (lower than) the original equilibrium r.)

The change in the equilibrium value of the real interest rate is critical for determining the overall impact of increased protection on the current account balance. If r is unchanged at the new equilibrium, then (S-I) must also be unchanged. Since the government budget deficit is assumed to be unchanged, the current account balance must be the same as well (from equation (15)). That is, the real exchange rate has increased just enough to decrease (X-M) to its original level. This has been accomplished by increased imports of unprotected products and by decreased exports.

If r is lower at the new equilibrium, then (S-I) must be lower than at the original equilibrium. With a fixed government budget deficit, the real exchange rate, in appreciating sufficiently to achieve domestic

balance, would generate a worsening of the current account balance. Alternatively, if r is higher at the new equilibrium, then (S-I) must also be higher and thus, the real exchange rate will not appreciate enough to reverse completely the impact of increased protection on the current account balance. That is, in this case, increased protection will improve the current account balance, but the domestic economy will experience a higher real interest rate and less domestic investment as a result.

As this analysis clearly demonstrates, commercial policy is not an appropriate tool for addressing a current account imbalance in a world with floating exchange rates and relatively mobile capital internationally. An attempt to use commercial policy for such a purpose at best, redistributes the burden of adjustment and at worst, exacerbates the external imbalance. Resolution of the current account deficit can occur only when the internal imbalance between domestic investment and domestic saving is also resolved.

Sensitivity of Trade Flows to Changes in Exchange Rates and Income

The dollar has been depreciating since February 1985. One of the major puzzles that has accompanied the dollar's decline is why the trade and current account balances have not responded more than they have to the exchange rate change already experienced. When analyzed in nominal terms, the standard J-curve phenomenon is typically given as explanation for the slow adjustment of the current account balance to a change in the foreign currency value of the dollar. But, even when analyzed in real terms, one would expect that lagged adjustment still exists and that real growth differentials are still playing important roles.

To investigate the sensitivity of real trade flows to changes in real incomes and the real exchange rate, a simple demand/supply model is constructed for (1) U.S. real exports and (2) U.S. real non-petroleum imports.[5/] Before presenting the models, several caveats must be enumerated. First, this is a highly simplified and aggregated model and is not meant to capture all the specifics and nuances of trade flows. Its sole purpose is to provide a general, quantitative indication of the income and exchange rate elasticities of trade flows. Second, because it is highly aggregated, it ignores the special problems of LDCs and their efforts to generate increased trade surpluses to service better their external debt. Third, the real exchange rate employed in the analysis is the Board of Governors CPI-adjusted trade-weighted index. Since this index summarizes the bilateral exchange rates of only the U.S.'s ten major industrial trading partners, it overlooks the fact that about 40 percent of U.S. trade is currently being conducted with NICs whose currencies have not appreciated vis-a-vis the dollar during the past 18 months. Consequently, trade flows may be more sensitive to exchange rate changes than this analysis indicates.

The model of U.S. real exports focuses on the forces that affect the world demand for and the U.S. supply of U.S. exports. The world demand for exports is assumed to depend on just two factors: the level of foreign real economic activity (income) and the price of U.S. goods relative to those of other countries. The higher the level of foreign real income, ceteris paribus, the larger would be foreign demand for U.S. exports. The higher the price of U.S. goods relative to those abroad, ceteris paribus, the lower would be the demand for U.S. exports.

The supply of U.S. exports is expressed as a function of (1) the price of U.S. exports relative to the prices of other goods and services produced in the U.S. and (2) the utilization of productive capacity in the U.S. The higher the price of U.S. exports relative to the prices of other goods or the lower the level of capacity utilization, ceteris paribus, the larger the production of U.S. goods for export.

To generate an estimating equation, a market equilibrium is assumed and a reduced form is obtained. Moreover, since adjustment to price changes may not occur immediately, each relative price variable is specified as a distributed lag to capture the dynamics of this adjustment process.[6/] The real exchange rate is included to measure U.S. prices relative to those in the rest of the world (expressed in dollars), net of price-level differences across countries. Finally, a log-linear specification is employed. The equation estimated over the period I/1975 to IV/1985 is as follows:

$$(18)\quad EX_t = \underset{(2.23)}{4.76} + \underset{(12.19)}{1.46}\, FGNP_t + \underset{(1.79)}{0.75} \sum_{i=1}^{4} a_i\, (USXP/GNPDEF)_{t-i} - \underset{(3.79)}{0.38} \sum_{i=1}^{8} b_i\, (RTWER)_{t-i} - \underset{(0.68)}{0.26}\, CAPUT_t$$

$\bar{R}^2 = 0.93$ SE = 0.032 DW = 1.12

where EX = U.S. real exports,

FGNP = index of foreign real GNP,

USXP = U.S. export unit value index,

GNPDEF = U.S. GNP deflator,

RTWER = real trade-weighted exchange rate (foreign currency/$), and

CAPUT = rate of U.S. capacity utilization.

All variables are expressed as natural logarithms and the absolute value of the t-statistic is in parentheses below each estimated parameter.

A similar model is constructed for U.S. real non-petroleum imports. U.S. demand for foreign-produced goods is assumed to be a function of (1) U.S. real income and (2) the relative price of U.S. goods to foreign-produced goods. The foreign supply of imports is assumed to be a function of (1) the price of imports relative to the foreign general price level and (2) the utilization of productive capacity abroad. The real exchange rate is again used as the measure of U.S. prices relative to those abroad. In the import model, however, changes in the real exchange rate should have a positive impact. That is, a rise in the real exchange rate indicates that U.S. prices are rising relative to those abroad; hence, U.S. consumers should substitute relatively more foreign-produced for U.S.-produced goods.

Generating the estimating equation in the same manner as for the export model and estimating over the same period yields the following:

$$(19)\quad NPIM_t = \underset{(7.78)}{-31.20} + \underset{(21.60)}{2.55}\, GNP_t + \underset{(1.97)}{0.69} \sum_{i=1}^{4} a_i\, (USMP/FCPI)_{t-i} + \underset{(4.07)}{0.60} \sum_{i=1}^{8} b_i\, (RTWER)_{t-i}$$

$$+ \underset{(4.16)}{3.86}\ FCAPUT_t$$

$\bar{R}^2 = 0.99$ SE = 0.029 DW = 1.68

where NPIM = U.S. real non-petroleum imports,

GNP = U.S. real GNP,

USMP = U.S. non-petroleum import unit value index,

FCPI = index of foreign CPI, and

FCAPUT = rate of foreign capacity utilization.

Again, all variables are expressed as natural logarithms and the absolute value of the t-statistic is in parentheses below the estimated parameter.

The most interesting result here is that both U.S. real exports and imports are considerably more sensitive to changes in real income than they are to changes in the real exchange rate. Moreover, the response to changes in real income occurs much more rapidly than does the response to changes in the real exchange rate. Even though real GNP growth has decelerated in the U.S., it has just about equalled that in the rest of the world since I/1985. To quantify the degree to which the income effect (due to the relatively higher import income elasticity) and the lagged effect past appreciated of the real exchange rate have offset the substitution effect (generated by the recent real depreciation of the dollar), the export and import equations were estimated through IV/1984. Real exports and imports were then forecasted for 1985. During this period the excess of real non-petroleum imports over real exports actually rose by almost $25 billion (in 1982 $). Our model predicted an increase of just over $26 billion (in 1982 $). That is, the worsening of the real trade balance should not have been unexpected. Real income effects (given

the difference in export and import income elasticities) and the lagged adjustment to past real appreciation of the dollar have more than offset the impact of the recent dollar depreciation on real trade flows. Thus, continued real dollar depreciation and faster real growth abroad are required for any significant improvement in the real trade balance.

Policy Implications

It would seem from the preceding analysis that the appropriate response to the current account deficit is to follow policies designed to lower the exchange rate. This has been interpreted by some as a call for increased central bank intervention in foreign exchange markets to engineer a dollar depreciation. The Finance Ministers and Central Bank Governors of the G-5 countries in their Plaza Agreement in September 1985 even stated that "exchange rates should better reflect fundamental economic conditions than has been the case" and that "they stand ready to cooperate more closely to encourage...some further orderly appreciation of the main non-dollar currencies against the dollar."

The above statement has been interpreted by many analysts (especially the secular press) as indicating that the G-5 countries intended to intervene actively in foreign exchange markets to drive the dollar down. While there may be some validity to that interpretation, the statement of the Plaza Agreement contained much more than simply an intent to intervene. Obviously, some realignment of exchange rates is necessary to resolve the current account imbalances among the major industrial countries. But the Ministers and Governors realized that exchange rate change is only a transmission mechanism; artificially realigned exchange

rates cannot be sustained unless policies are pursued worldwide (not just in the U.S.) to generate more balanced economic growth.

Within this context, foreign exchange market intervention to force down the value of the dollar is not an appropriate strategy to resolve external imbalances.[7/] Sterilized intervention (i.e., that does not affect domestic money supplies) has no long-run effect on either the nominal or the real exchange rate. Unsterilized intervention (i.e., that does affect domestic money supplies) is tantamount to conducting domestic monetary policy in the foreign exchange market. Such intervention most assuredly affects the long-run behavior of the nominal exchange rate, but has only a short-run impact on the real exchange rate. Moreover, commitment of monetary policy to the control of exchange rates interferes with its use for other important policy objectives--most importantly maintenance of price stability and avoidance of money-induced fluctuations in real economic activity. Thus, the limitations of foreign exchange market intervention indicate clearly that the appropriate way to resolve external payments imbalances is to correct the domestic saving and investment imbalances (including government budget imbalances) that currently exist among the industrial countries.

FOOTNOTES

1/ This discussion follows that in the Economic Report of the President (1986), pp. 50-52.

2/ The model presented here contains features from models developed by Branson (1985), Dixit (1984), and Ueda (1985).

3/ For a survey of these empirical studies, see Belongia and Stone (1985).

4/ See OECD Economic Outlook (December 1985), p. 68 and the Economic Report of the President (1985), p. 34.

5/ These models are fashioned after those of Batten and Belongia (1986), Clark (1974), Goldstein and Khan (1978), and Spitäller (1980).

6/ Lag lengths were selected using techniques presented in Batten and Thornton (1984). Tests were conducted to determine if real income changes had lagged effects on trade flows, but none were found.

7/ For a more detailed analysis of intervention, see Batten and Ott (1984).

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Table 1

ar	Gross Private Saving [1]	Government Saving [1] General	Federal	Gross Private Domestic Investment [1]	Current Account Balance [1]
72	16.8%	-0.3%	-1.5%	16.7%	-0.2%
73	18.0	0.6	-0.4	17.6	0.7
74	17.3	-0.3	-0.8	16.4	0.4
75	19.0	-4.1	-4.3	13.7	1.4
76	18.0	-2.2	-3.0	15.6	0.5
77	17.8	-1.0	-2.3	17.3	-0.4
78	18.2	-0.0	-1.3	18.5	-0.5
79	17.8	0.5	-0.6	18.1	0.1
80	17.5	-1.3	-2.2	16.0	0.5
81	18.0	-1.0	-2.1	16.9	0.4
82	17.6	-3.5	-4.6	14.1	-0.0
83	17.4	-3.8	-5.2	14.8	-1.0
84	17.9	-2.7	-4.5	17.6	-2.4
85	17.2	-3.4	-5.0	16.5	-2.9
86 [2]	17.2	-3.7	-5.3	16.7	-3.2

[1] As percent of GNP.
[2] First two quarters.

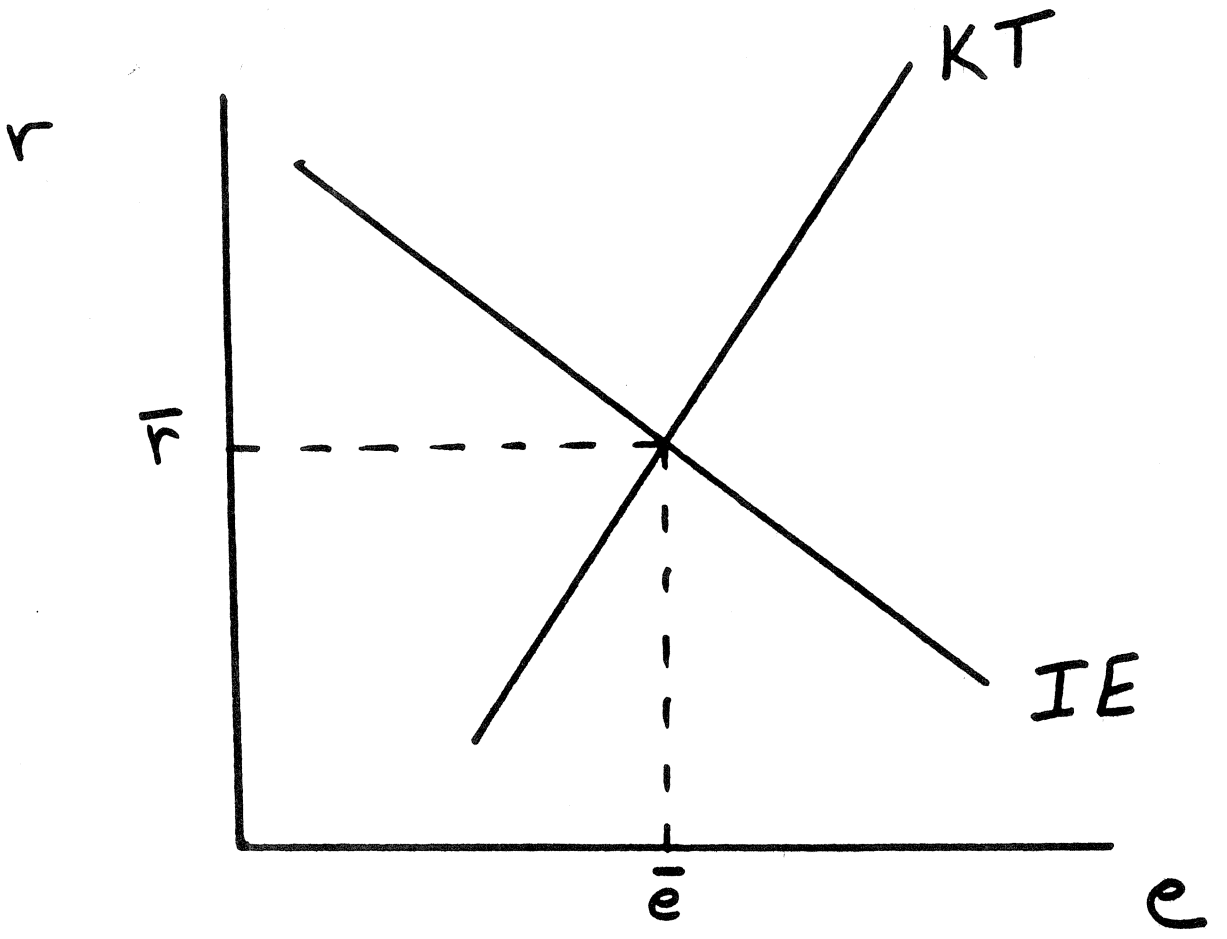

Figure 1

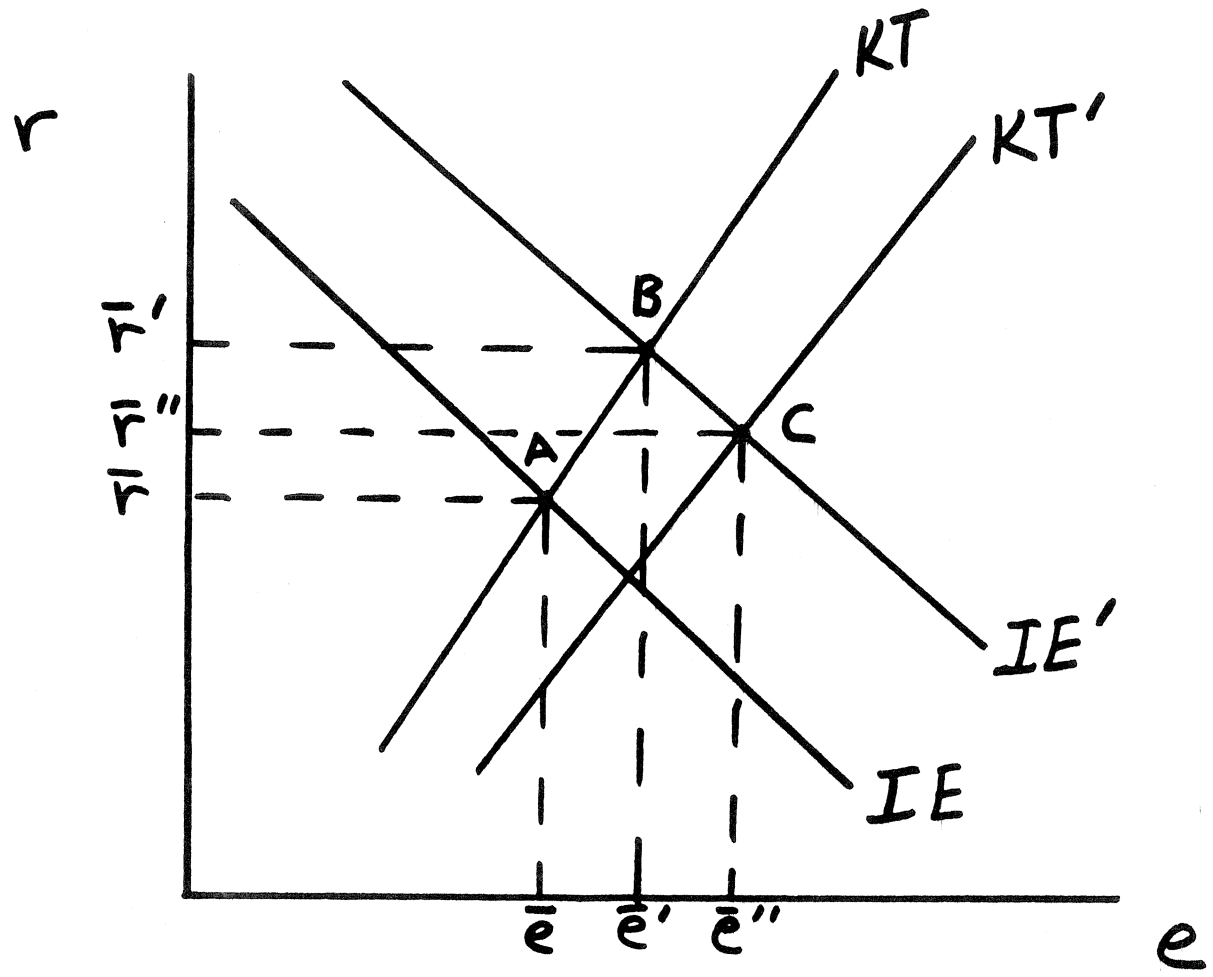

Figure 2