"International Crowding Out": Concept and Policy Implications

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"Crowding out" in an autarkic context is a familiar concept. The international equivalent was developed by Martin Feldstein in three papers and derived from his tenure as Chairman of President Reagan's Council of Economic Advisers (1983a, 1983b and 1983c).[1] The purpose of this paper is to "flesh out" the concept of "International Crowding Out" (ICO) in Section I and to examine its consequences for the economy in Section II. The thrust of Section II is that Feldstein underestimates the costs of ICO to the U.S. economy and for tradable-goods industries and that the need for a substantial reduction in the federal deficit is greater than even Feldstein argues.

I. THE MECHANISM

Analyses of international flows of short-term capital in response to international differences in interest rates usually accept the original, causal difference in interest rates as a given. Contrarily, ICO is concerned with the causes of interest-rate differences and with the effect of the induced flows of interest-sensitive capital on exchange rates and the balance on current account (goods and services).

"Domestic Crowding Out" (DCO) takes place in an autarkic economy when the interest-insensitive demand for funds by government displaces interest-sensitive demand for loanable funds on the part of the private sector. In autarky, when both the corporate and the government sectors are net borrowers, the only source of loanable funds is the household sector in the absence of central bank action. The net amount available to the corporate sector is the flow of saving by households, less the government deficit. Even if the flow of saving by households is considered to be interest-inelastic, there is still some imprecision because the government's deficit is not independent of the level of interest rates when there is substantial debt outstanding.

When the economy is open to international trade, the mechanism is different and it is the output of the tradable-goods industries which is crowded out by a government deficit. This mechanism is illustrated in Figure 1. The government deficit is measured leftward from the origin (0) and is determined politically. The deficit is shown as $0G. The flow of saving by the household sector is measured rightward from G so that $0N$ measures the flow of household saving in excess of the government deficit. Both the deficit and the net saving ($0N$) are shown as interest inelastic GG' and NN' are vertical. The net demand for funds by the private sector is shown by DD' and the equilibrium rate of interest in autarky is a percent. If the deficit is eliminated by an increase in taxation and/or by a reduction in expenditure, the flow of saving by the private sector is also reduced below GN but net saving increases to $0B$. Given the same corporate demand for funds (DD'), the rate of interest compatible with a balanced government

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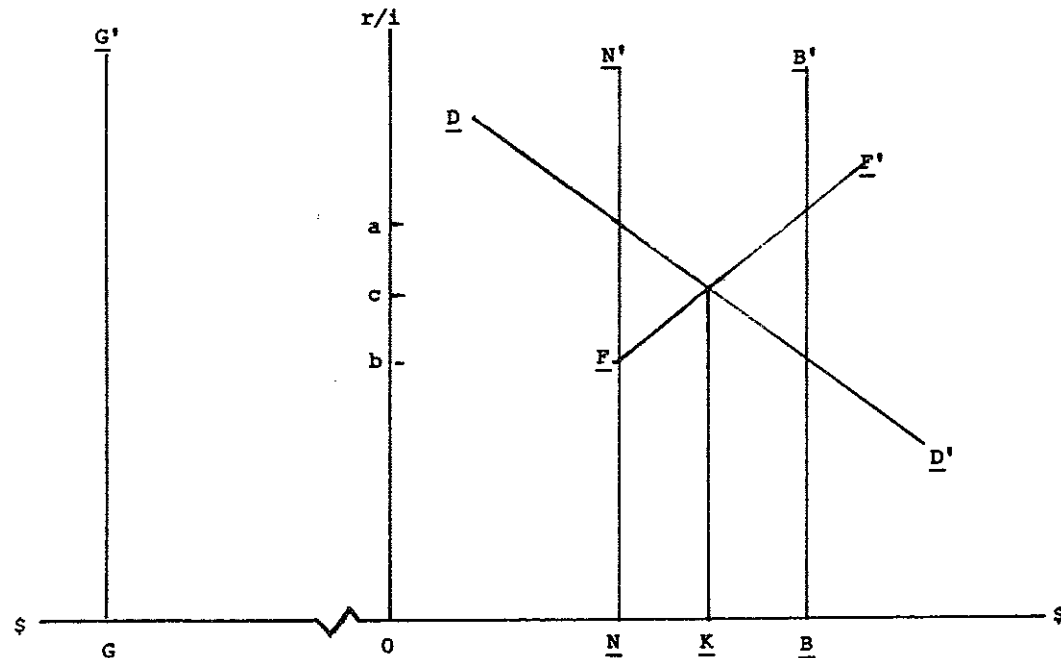*Rutgers University. Economics and Finance, New Brunswick, N.J. 08903.

Figure 1.   Domestic and International Crowding Out

Figure 2.   International Crowding Out

budget is b percent and the volume of corporate investment increases from $0N$ to $0B$. The government deficit of $\$0G$ crowded $\$NB$ of investment out of fulfilment. The relationship between $0G$ and NB will depend upon the way in which the deficit is eliminated: there are simply too many possible permutations and combinations of policies and effects to specify the relationship beyond the fairly obvious $0 < NB < 0G$.

The government deficit is assumed to be $\$0G$ and net saving is $\$0N$. The foreign (short-term) rate of interest is set equal to b percent and the demand for funds by the corporate sector remains unchanged at DD'. Foreign capital will flow into the country as indicated by the schedule FF'. These flows are sensitive to the home-country rate of interest. As drawn, net inflows of funds from abroad amount to $\$NK$ per period. Some of the DCO is eliminated by the availability of foreign funds and the remaining crowding out (KB) can be attributed to the elasticity of the demand for funds by the corporate sector and the elasticity of supply of foreign financial inflows.[2]

Figure 2 shows the effect of the induced interest-sensitive capital flows on the rate of exchange and the balance on goods and services. For convenience, the Figure depicts the $/DM exchange rate on the vertical axis. The Figure assumes that unilateral transfers and flows of permanent (interest-insensitive) capital are independent of the rate of exchange and can be disregarded. In the absence of the interest-sensitive capital inflow (NK), goods and services are shown as balanced at rate of exchange t. When the capital flow induced by the government deficit is added to the foreign demand for dollars for U.S. goods and services, the total demand for dollars shifts to the right and the dollar strengthens to s deutsche marks per dollar. At rate of exchange s, the United States runs a deficit on goods and services equal to NK. The capital inflow is a transfer and the dollar has strengthened by exactly the amount needed to effect the
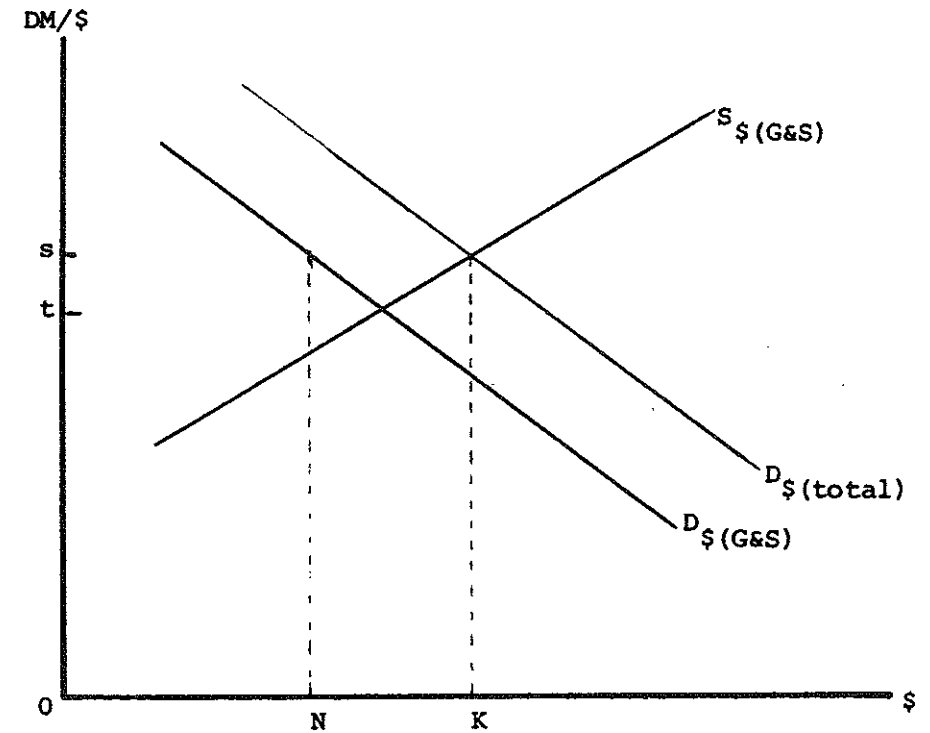
transfer: this is the classical solution to the transfer problem (Johnson, 1958, pp. 171–177). The degree of appreciation of the dollar depends upon the slopes of the two schedules and the magnitude of the transfer. The variability in income levels in the two countries should be quite small as the United States will have higher investment and a deficit on goods and services account and the other country will have a trade surplus to counter the slowdown in the rate of capital formation.

A government deficit in an international economy will wreak its crowding out effect on the country's tradable-goods industries as well as on the rate of capital formation. The additional capital formation undertaken in the high-interest country does not represent an increase in national net worth (as would occur if the investment were funded by domestic saving). The frustrated crowding out (NK) is financed by a reduction in the country's international net worth—defined as the total value of tangible assets owned by residents in foreign countries plus the debt of foreigners to those residents less the equivalent liabilities.

Undoubtedly, the mechanism of ICO is less tidy than has been depicted. The country which incurs the short-term debt must face mounting interest payments (although these may be reinvested rather than repatriated) and, ultimately, capital is likely to flow out of the high-interest country as investors lose faith in the stability of the exchange rate and cannot find cover in the forward market for a reasonable hedging premium. There is some danger that the withdrawal of funds by foreigners could be self-reinforcing and trigger an avalanche of withdrawals so that the dollar will fall dramatically. This possibility (known in current Washington jargon as a "hard landing") might have serious effects for the stability of the

international monetary system. Under these conditions, the dollar will weaken substantially below that (real) rate of exchange needed to allow the U.S. economy to increase its international net worth at an acceptable rate. The U.S. economy is faced, first, with the need to adjust as an overvalued dollar causes the contraction of capacity in tradable-goods industries and, later, to readjust again as the dollar weakens and substantial expansion becomes needed in the same industries. Thus, a temporary swing in the international value of a currency will inflict a double dose of real adjustment costs.[3] The instability of the dollar's real effective exchange rate is shown in Table 1.

Undoubtedly the mechanism by which production of tradable goods is crowded out by induced capital inflows is more complex than has been shown here. Nonetheless, the mechanism portrayed does illustrate the main causal links and goes a long way to explain the large current account deficits in the United States in the years 1983 through 1985. Fieleke (1984) shows that a surprisingly exact relationship holds between the budget deficit and the rate of exchange and between the budget deficit and the current account balance (lagged one year). Fieleke's charts are updated and reproduced as Figure 3.

The simple analysis presented above has, conspicuously, omitted any reference to monetary policy and the rate of growth of the money stock. Any growth in the money stock

TABLE 1
International Crowding Out

	Real Rates of Interest*** (per percent annum)			Real Effective Exchange Rate of the U.S. dollar (1980-82 = 100)	U.S. Federal Deficit** ($ billions)	U.S. Current Balance** ($ millions)
	U.S.A.	Germany	Japan			
1979*	2.42	5.76	5.60	88.0	27.3	-991
1980*	3.80	3.43	6.81	89.4	73.8	+1,873
1981 (1)	4.50	10.52	4.79	94.5	78.9	+6,339
(2)	6.47	8.72	6.22	101.2		
(3)	7.33	8.04	6.08	105.0		
(4)	5.02	5.46	4.53	102.2		
1982 (1)	6.27	5.76	3.95	105.0	127.9	-8,061
(2)	7.65	5.09	4.81	107.5		
(3)	6.66	2.77	5.78	112.6		
(4)	4.47	1.64	6.19	114.2		
1983 (1)	3.95	1.63	5.83	110.1	195.4	-40,790
(2)	4.27	4.60	5.19	111.1		
(3)	4.70	3.52	4.90	114.1		
(4)	5.30	3.97	5.56	114.4		
1984 (1)	5.13	2.16	5.65	113.0	175.3	-107,858
(2)	6.55	4.71	5.09	115.1		
(3)	6.91	5.23	3.93	120.4		
(4)	5.45	5.25	4.70	123.3		
1985 (1)	4.98	3.70	4.43	128.4	202.8	-117,664
(2)	4.48	2.99	5.03	125.3		
(3)	4.57	2.37	4.08	118.9		
(4)	4.66	3.11	n.a.	113.0		

Sources: Nominal short-term interest rates from OECD, Main Economic Indicators, (various issues) and the *Federal Reserve Bulletin* (various issues), real effective rates of exchange from Morgan Guaranty, *World Financial Markets*, (various issues), federal deficit and current deficit from *Survey of Current Business* (various issues).

*Annual data for background.

**The deficits are shown as annual amounts because to show quarterly data would imply a greater-than-warranted exactness: obviously, many factors affect relative real interest rates between home and abroad and the consequent internatonal capital flows and the federal deficit is merely a single, very important item. Figure 3 shows the existence of a one-year lag between changes in real exchange rates and the current balance.

***Short-term interest rates are, unfortunately, not exact equivalents. The U.S. rate is effectively an "earning rate" for depositors (90-day commercial paper) while the German and Japanese rates are "lending-rates" (3-month loans in Frankfurt and the 3-month "Gensaki" rate.
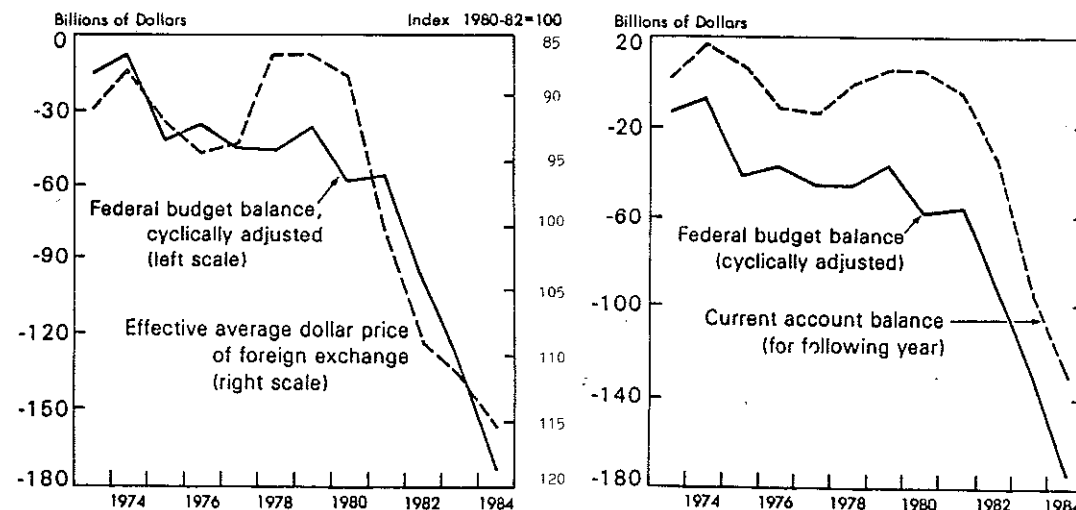

Figure 3. Federal Deficits, Exchange Rates and Current Account Deficits.
Source: Norman S. Fieleke, "The Budget Deficit: Are the International Consequences Unfavorable?" *New England Economic Review* (May/June, 1984), pp. 5–10. For data sources, see original. Note that the exchange rates are real rates and that the federal deficit is cyclically-adjusted. Data for 1984 were updated for this chart by Dr. Fieleke.

represents a source of loanable funds and any increase in the demand for money is a use of loanable funds. If the central bank has a target rate of growth of the money supply (however defined) and that growth does not affect the net supply of loanable funds, the omission of the role of the central bank is not a matter of serious concern. Similarly, if the central bank is conducting monetary policy so that it aims to contribute to or detract from the supply of loanable funds at a steady rate, the effect of monetary policy can easily be incorporated in $0N$ in Figure 1. The most severe complication exists when the inflow of foreign saving affects the intermediate target of the central bank. An example of this would be for some of the foreign capital to be lodged in instruments which were included in the central bank's measure of the money supply. In this way, the domestic credit base would not increase as quickly as it otherwise would and some of the foreign funds would not contribute to additional expenditures on investment (or interest-sensitive goods) but would at the same time contribute to the strengthening of the currency and to ICO. This section has tacitly assumed that all foreign capital flows are invested in instruments that are not included in the central bank's definition of the money supply.

II. POLICY IMPLICATIONS

Feldstein is unconcerned with the costs of ICO, deeming them to be outweighed by the benefits of the increased flow of domestic investment which ICO permits:

> The question of whether it would be desirable to have a lower valued dollar is equivalent to asking whether it is better to allow the temporary increase in the budget deficit to reduce domestic investment and interest-sensitive consumer spending or to reduce the proportion of goods for export and of goods that compete with imports from abroad. The answer is clear in principle: It is better to reduce exports and increase imports. (1983a)

Feldstein's assessment seems to underestimate the costs of his (and the Reagan Administration's) policy.[4] He seems to define those costs purely in terms of a reduction in output and profitability in the tradable-goods industries and with a reduction in international net worth. The very essence of crowding out requires that one of three groups of industries must suffer as a result of a budget deficit: interest-sensitive consumer goods; investment goods or tradable-goods. The damage will be particularly strong for industries such as the automotive industry which is both a tradable-goods industry and an interest-sensitive consumer goods industry. Feldstein's preference for additional investment (and inevitably interest-sensitive goods in general) over the tradable-goods industries seems to imply that there is no difference in the social cost of having any of the three sectors depressed and, perhaps, that higher growth rates will eliminate the deficit. In fact, the difference in short-run employment as a result of ICO will be negligible because the expansion of consumption and investment will offset the decrease in output in the tradable-goods sector.

It is necessary to consider five other effects which collectively imply that ICO has substantially greater costs than Feldstein's preferred choice and that ICO is a more serious consequence of a budget deficit than simple DCO. These additional costs constitute a strong argument for increased total saving on the part of the United States and for a combination of higher taxation as well as reductions in expenditures.[5] The five effects are:

1. The Effect of the Financial Debt on the Borrowing Country;
2. The Burden of the Debt on Developing Countries;
3. The Duration of the effect of ICO on tradable-goods industries;
4. The Misdirection of Domestic Investment;
5. The Special Problem of the Yen.

The Effect of the Financial Debt on the Borrowing Country

The inflow of foreign saving resulting from higher interest rates in the country with an excessive government deficit must be assumed to be supplied by capital transfers from other developed nations. The redistribution of expenditures among these countries may be considered of little account, although the nations supplying the funds are effectively forced into positions of reduced investment and higher net exports.

Potentially, the effects are substantially more serious for the country with the capital inflow. The high interest-rate country will be effectively financing capital formation, government expenditures and interest-sensitive consumer goods with foreign saving. This process will reduce its international net worth and, to the extent that government expenditures are consumption and that expenditures on consumer goods increase, total net worth will also be reduced. (Additions to the capital stock will be less than the decrease in international net worth). This process does not necessarily imply a reduction in welfare.

A second adverse effect resulting from the temporary financing of domestic expenditure by foreign saving is that increases in foreign held debt in the form of liquid instruments, increases the potential for wide swings in the exchange rate. The costs of such a phenomenon as noted above, are potentially seriously disruptive in terms of the allocation of resources and the need for adjustment. Such swings can also affect the viability of large commercial banks, which are heavily dependent on foreign deposits.[6] When the currency in question is a key currency, weakness in large commercial banks can induce problems of global stability with even greater

repercussions that will call for high levels of co-operation and skill on the part of central bankers.[7]

The Burden of the Debt on Developing Countries

If flows of saving are diverted away from developing as well as from developed countries, then the costs of an inadequate total rate of saving (private and public) in the high interest-rate country transcends simple aggregate economics. There is a potential problem of equity or economic morality because investments in developing countries will have positive externalities that are absent in rich countries. The return on saving in the United States may exceed the private return available to lenders in their own country but may not exceed the social return. The likelihood that saving (and capital) from developing countries will be attracted to a developed country with relatively high real rates of interest is made greater by the difficulties inherent in implementing effective controls on capital movements.

Capital flows are not the only way in which domestic saving in developing countries can be siphoned off to finance expenditure in the developed world. Interest payments on foreign debt reduce the amount of the flow of saving that can be used for domestic capital formation. Interest on foreign debt can be considered as mandatory consumption of imported goods. Increased commitments of interest reduce the quantity of imports available with a given value of exports.

The high interest rates in the United States have contributed to the Debt Crisis. When dollar-denominated debt carries fixed rates of interest, high interest payments on debt are only incurred as maturing debt is rolled over. When a large amount of debt is effectively short-term, higher nominal rates of interest on dollar liabilities quickly and substantially increase the real cost of the interest burden. The effect of the U.S. Government's deficit is to raise nominal and real rates on dollar-denominated debt.[8] In fact, the integration of international capital markets which generate the flows of funds from developed countries which cause ICO, is beneficial to developing-country debtors because it reduces the level of interest rates in the United States below the autarkic rate (from a to c in Figure 1 above). *Per contra*, without the deficit, borrowing countries would only be paying b percent. At the same time, the overvaluation of the dollar[9] shifts the gross barter terms of trade against the developing countries and enhances the drain on domestic investment.

The Duration of the Effect of ICO on Tradable-Goods Industries

The equivalence which Feldstein seems to attribute to the loss of income of any of the three groups of industries may be misleading: the assumption is that both the magnitude and the duration of the effects are equal for each industry. The assumption about the duration of the effects is unjustified: the unfavorable effect of a period of low profitability will be greater for tradable-goods industries than for domestic industries because of the asymmetric effect of changes in profit rates on competing industries from different nations.[10]

Given domestic price levels and prices in local currencies, a strengthening of the dollar will reduce the competitiveness of U.S. tradable-goods industries in terms of the costs of their foreign-based competitors. Unless prime costs can be reduced as the home currency appreciates (in real terms), internationally-competing companies will lose market shares and sales volume and profit-rates and profits will decline. The main damage of currency overvaluation is felt in

the loss of dynamism in firms confronting foreign competition in home or foreign markets. Profit-seeking corporations are organic entities and they can be deprived of profits only at some significant cost to their ability to survive in a competitive setting. This is the most serious effect of currency overvaluation.

Firms require infusions of new equipment, new products and new ideas. All of these needs require the reinvestment of profits: a firm starved of profits becomes less well able to compete. In principle, reduced profits can be offset (in part at least) by reductions in the rate of dividend payout and the rate of reinvestment maintained. This option is rarely exercised by firms, except in extremely severe conditions because it will adversely affect their equity costs. A reduction in the flow of reinvested profits results in reduced expenditures on research and development, product innovation, and equipment replacement. The lack of expenditures on R & D in its broadest sense, together with an inability of a firm to maintain the up-to-dateness of its equipment and productive capacity, reduces its longer run ability to compete in markets. While firms in countries with overvalued currencies are experiencing penury, their foreign competitors are likely to be enjoying above average profits as higher prices in their domestic currencies combine with increased rates of capacity utilization and market shares to generate exceptionally high flows of profits. To the extent that dividend increases tend to lag behind profits, and that the cost of inputs also lags behind the increase in prices in domestic currency, the firms are blessed with a cornucopia of funds which can be devoted to all of those activities which are likely to improve the firm's competitiveness in future years. Thus, the damage from currency overvaluation is positively related to the duration of the overvaluation and, one may surmise, becomes increasingly severe as the overvaluation continues because of the cumulative nature of the effects of increased or reduced flows of internal reinvestment.[11]

A second potentially serious effect of overvaluation relates to an asymmetry in the distribution of market shares. It is easier to lose a share of a market than to regain it. Market shares will be affected by relative prices, and if the overvaluation of the currency endures for a significant period of time, the change in relative prices (unconnected with the inherent efficiency of the competing firms) will steadily shift market shares in favor of the corporations benefiting from an undervalued currency. Product loyalty or brand loyalty will be severely tested, and the opportunity is given for a foreign firm to create its own degree of product acceptance with what would otherwise be a less accessible group of purchasers. This opportunity coincides with a period when the disparity in internal reinvestment flows allows the firms with expanding market shares to exploit this opportunity to the full. Such strategies may include aggressive promotional campaigns, penetration of new geographic markets (which would have been uneconomic with normal profit rates), and a strengthening of the marketing-and-distribution networks. When the currency overvaluation disappears, the damaged firms may find themselves with a significantly reduced market share and be faced with heavy promotional costs if they are to overcome the loss of vitality in product design and manufacturing methods and the greater penetration of their traditional markets by foreign manufacturers. The foreign competitors also will have access to the better managerial personnel while depressed industries may have lost their best people or most promising recruits to more thriving sectors. This effect might be a source of future differences in X-efficiency (Leibenstein, 1978). It may be that the unavailability of internal funds will be felt most severely in the very fast-growth, high-technology industries, so that future growth rates are reduced.

Firms in industries not exposed to (significant) international competition may suffer the same losses in the modernity of their capital stock and in the vitality of their product design

when they are subjected to the adverse effects of autarkic crowding out. The important thing here is that all firms are subjected to more or less equal treatment and, when the DCO is reduced, they can expand again on equal terms.

The Misdirection of Domestic Investment

Investors receive incorrect signals about the relative long-term profitability of different industries since currency overvaluation enhances the profitability of domestic industries relative to tradable-goods industries. Greater-than-warranted investments will, therefore, be made in domestic industries and, when the currency overvaluation finally is terminated, there will be excess capacity in those industries. Unless the tradable-goods industries have been too severely damaged in terms of long-term loss of market share, there will be a shortage of capacity in these industries and resources will have to be transferred from domestic-goods industries to tradable-goods industries. This is the essence of the inefficiency that comes from accommodating reversible disturbances. In a period of fast growth, this problem will be of less importance than in a period of sluggish growth.

The Special Problem of the Yen

The rate of saving out of disposable income by Japanese households varied between 22.4 and 18.7 percent between 1976 and 1981. In contrast, the corresponding rate in the United States averages about 8 percent.[12] Consider the concept of "net saving," defined as the excess of private sector saving (households plus corporations) over private sector investment and the deficits of the various divisions of government. Net saving, if positive, will tend to slow the economy toward recession in the absence of a surplus on goods and services account. A country with a high average propensity to save will tend to have low interest rates to encourage consumption of interest-sensitive goods. Government deficits would also be encouraged as a means of absorbing the flow of saving. Given some integration of national capital markets, a country with relatively low returns on financial assets is also likely to be well-endowed with financial corporations specializing in the transfer of domestic funds into foreign capital markets where returns will be higher than are available at home. Thus, a country with a high rate of saving by global standards is likely to be an exporter of financial capital. If all foreign countries have more or less equal (real) rates of interest, the outflow from the high-saving country can be expected to be divided among foreign markets according, in some rough measure, to the importance of the national economies and the size of the capital markets. This distribution may be described as "neutral."

When one country has a much lower-than-average rate of net saving (private sector plus governments), it will offer very high yields on its financial assets relative to other countries. It can expect, therefore, to receive a disproportionately large share of the capital outflow of the high-saving country. In reality, Japan is the high saver and the United States is the low saver. The United States will therefore receive a much larger proportion of the outflow of Japanese financial capital than that prescribed by the neutral solution. In consequence, the dollar will be relatively more overvalued against the yen than against the European currencies. Thus, the role of the federal deficit is to contribute to a disproportionate share of the current US deficit being a bilateral deficit with Japan. Japanese industry, blessed with a high rate of domestic saving, finds its competitiveness enhanced against home firms and other exporters in what is probably the most open major market in the world. The relative overvaluation of the dollar against the

yen and, to a lesser degree, the existence of quotas rather than tariffs as a means of limiting the bilateral deficit have allowed Japanese firms to increase their competitive advantage and relative X-efficiency against their U.S. competitors by all of the avenues described in paragraph (3) above in this section.

III. CONCLUSION

Section I has confirmed the validity of Feldstein's original analysis of ICO under a system of flexible rates of exchange. The government deficit affects the strength of the dollar and reduces the competitiveness of U.S. industries in international markets. The distinction between DCO and ICO is a classic example of the way in which the introduction of the international sector will severely qualify results obtained with a closed-economy model.

While Feldstein is aware of the costs imposed on U.S. tradable-goods industries by a deficit through ICO, he seems to underestimate those costs. The most fundamental omissions from his lexicon are points (3), (4) and (5) in Section II. These costs far exceed the benefits which accrue to higher rates. The argument for the reduction of the federal deficits of the Reagan administration is stronger than that made by Feldstein.

FOOTNOTES

1. Feldstein is not responsible for the nomenclature developed here.
2. The analysis assumes a constancy of flows rather than a stock adjustment mechanism. While this makes the exposition easier, it is highly probable that there are stock adjustment dimensions to the capital movements (Gray, 1975)
3. On the welfare/efficiency costs of accommodating reversible disturbances, see Gray (1974, ch. 5).
4. This may be due to the assumed temporary quality of the deficit.
5. The argument for an increase in taxes could be seen as being a normative judgment but there is an argument that the refusal of Congress to implement further cuts in expenditures does indicate that federal expenditures have been minimized in a political sense if not in some absolute economic sense.
6. Exposure of this kind required the Federal Reserve System and the Federal Deposit Insurance Corporation to prevent the bankruptcy of Continental Illinois in 1984 in order to prevent a sudden exodus of foreign deposits from other U.S. banks.
7. The interaction between the weakness of major banks and the stability of the world's monetary system is considered under the concept of "stability efficiency" in Gray and Gray (1983).
8. Evans (1985) purports to prove that interest rates are independent of government deficits. His analysis omits international flows of funds and is unacceptable (see Gray and Loeb, 1986).
9. Some may see an apparent inconsistency in referring to an overvalued dollar under a regime of flexible rates of exchange. A currency will strengthen in the foreign exchange market for two reasons: first, a favorable real disturbance will provide a long-lasting change in conditions which validates the stronger currency (the effect of harnessing North Sea oil on the pound is an example); second, the strength of the currency is short-lived and (inevitably) subject to reversal. Overvaluation shows itself as a discrepancy between the strength of the currency compatible with long-run targets and the short-run market-clearing rates. Such a discrepancy can usually be attributed to short-term and unsustainable conditions in financial markets.
10. This assumes that the domestic firms are not driven into bankruptcy by foreign competition during the period of currency overvaluation.
11. Note that a global recession handicaps firms in all countries more-or-less equally so that while the rate of internal reinvestment is reduced, firms in one nations are unlikely to suffer a relative loss of dynamism.
12. OECD data and Department of Commerce data respectively

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