

NBER WORKING PAPERS SERIES

AMERICAN ECONOMIC POLICY
AND THE INTERNATIONAL DEBT CRISIS

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Working Paper No. 3532

NATIONAL BUREAU OF ECONOMIC RESEARCH
1050 Massachusetts Avenue
Cambridge, MA 02138
December 1990

I wish to thank Jürgen Donges for his helpful comments and Kai Konrad, Harald Kotsch, and Stephan Panther for their help in collecting the empirical data. This paper is a revised version of an earlier paper published in German: Sinn (1989a). It was completed while the author was consultant of the IMF's Fiscal Affairs Department and the Olin Visiting Professor at Woodrow Wilson School, Princeton University. The support of these institutions is gratefully acknowledged. This paper is part of NBER's research program in Taxation. Any opinions expressed are those of the author and not those of the National Bureau of Economic Research.

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ABSTRACT

This paper advances the hypothesis that the world debt crisis was mainly induced by the dramatic rise of US interest rates in the first half of the eighties. It sees this rise in interest rates primarily as a result of a tight US monetary policy and excessively large investment incentives provided by the 1981 US tax reform. A welfare analysis shows that the policies could have increased the US advantage from lending its capital abroad, had they been more moderately designed. The actual policies, however, were by far too strong to produce this result.

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1. Preliminary Remarks

The international debt crisis began as a problem of the credit relationship between the USA and its Latin American neighbors. Since 1982 Mexico, Peru, Argentina, and Brazil have reduced or stopped servicing their debts, and in 1976, 60% of these countries' gross external debts were owed to private American banks.¹ Since 1982 the crisis has spread to other areas and European and Japanese banks have also had to write off part of their claims. African and Asian developing countries, too, have encountered payments difficulties.

How did this situation come about? Currently at least three different possible explanations have been offered.

The first attributes the problem to the carelessness of the debtor countries. These overestimated their ability to repay and underestimated the debt service burden. The loans were used primarily to finance public expenditure, which brought no pecuniary return, instead of being used to finance private investment projects, whose revenue could have helped service the debts (World Development Report 1988).

The second explanation accuses the debtor countries of being unwilling to pay. It is argued that they could service their debts but that there is no means available to put pressure on them to meet their obligations. This makes it rational for them to refuse to pay when they can no longer expect net imports of resources in future (Eaton and Gersovitz 1981, Eaton, Gersovitz and Stiglitz 1986, Cohen and Sachs 1986, and Niehans 1986).

The third explanation focusses on the behavior of the banks. The expansion of international banking in the 1960's increased competitive pressures to such a degree that the banks proved unable to resist the lure of the fast money they expected to earn by

¹Calculated from World Debt Tables Vol. I, November 1980, and from tables in Hardy (1979, p. 192).

lending to the developing countries - this despite early indications of the very high risks involved (Emminger 1986 and Wallich 1986).

None of these explanations will be disputed in this paper. The question of unenforceable claims is certainly extremely important for understanding the longterm problems of international lending. However, the role played by American economic policy in the particular debt crisis of the last few years should not be overlooked. The crisis itself resulted from the combined effects of many different factors, but American economic policy may have been responsible for the interest rate explosion that occurred at the beginning of the 1980's at the time the debt crisis started, and indeed seems to have triggered the latter off. The explosion of interest rates resulted in enormous capital imports into the US, part of these were supplied by additional capital exports from other developed countries but part were funds that otherwise would have been available to the less developed countries. Attempts to understand the debt crisis cannot afford to ignore this phenomenon.²

Section 2 presents some important empirical trends that characterize the debt crisis, and Section 3 discusses the role of American economic policy, especially the fiscal policy introduced during Reagan's presidency. The fourth section considers whether this policy and its effects on the world economy were beneficial for the Americans. The fifth section reaches some conclusions and, in addition, makes some brief comments on the significance of the American tax reforms of 1986.

2. The Debt Crisis in the Light of International Economic Developments

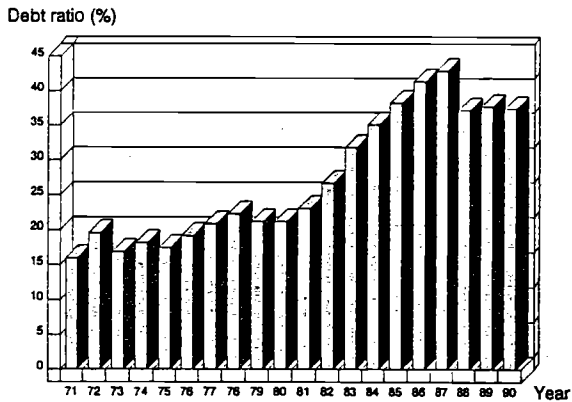
At the end of 1989 the total external debt³ of the less developed countries (LDC's) amounted to almost \$ 1.2 trillion. Almost one third of this had accrued since the start of the international debt crisis in 1982. The increasing indebtedness was not the kind

²Cf. also Tanzi (1989), World Development Report (1988), and Sinn's (1988a) "background paper" to this report.

³World Debt Tables 1989/90, p. 78.

normally associated with economic growth, and seems threatening particularly when compared to the other economic aggregates. The development of total LDC external debt relative to GNP – the debt ratio – is shown in figure 1. The size that the debt problem has taken on in the eighties is obvious.

Figure 1: Growing Debt Burden of Less Developed Countries 1970–1990



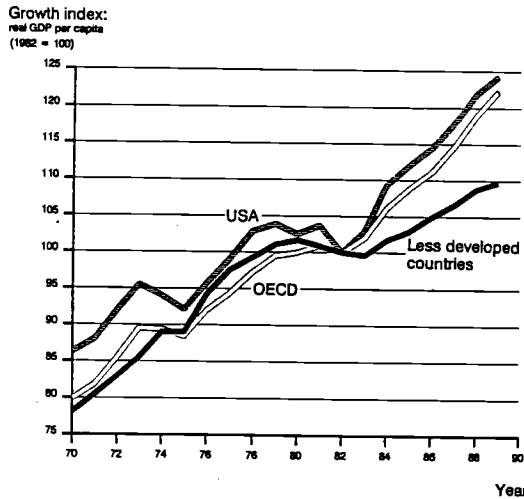
Sources: World Debt Tables 1980/81, Table 1 and pp. 3, 85, 119, 179, 205, 229; 1987/88 (Vol. I) pp. 2-5, 1989/90 (Vol.1), p. 78. World Economic Outlook: May 1990, Tables A5, A8, A46.

Note: The debt ratio is defined as the ratio of long term external debt and GNP. The amount of debt does not include IMF loans and loans of less than one year duration. The value for 1990 is calculated from an estimate of the World Economic Outlook, May 1990.

The growth of the debt ratio does not only reflect LDC borrowing behavior. The very large changes in the dollar exchange rates in recent years also have influenced this ratio. There are two countervailing effects. On the one hand, a depreciation of the dollar relative to the currencies of less developed countries leads to a rise in the dollar value of their GNPs. On the other hand, a depreciation of the dollar raises the dollar value of those debts denominated in currencies other than the dollar. The latter effect seems to be

stronger than the former, explaining the major part of the growth rate of the LDC debt in 1985 and 1986 (cf. OECD 1987, p.50). While the growth rate in dollar-denominated LDC debt was as high as in previous years, the growth rate adjusted for exchange rate factors had fallen monotonically from 17% in 1982 to 9%, 8%, 3%, and 2% in 1986. Similarly, the sharp decline in the debt ratio after 1987 cannot only be attributed to debt reduction operations – which certainly were important at the time – part of it was the result of the temporary dollar appreciation in 1988 and 1989.

Figure 2: Changes in Growth Ranking



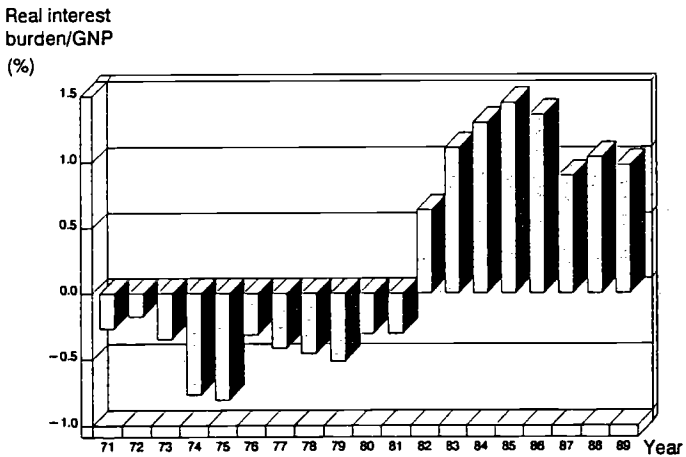
Sources: World Economic Outlook: May 1980, Table 2; April 1987, Table A6; April 1988, Table A6, May 1990, Table A6. Historical Statistics: Table 3.2, 1960–1980, 1960–1986. World Development Report: 1987, Table A1, A2. Main Economic Indicators: August 1988, p. 176, May 1990, pp. 172, 178.

Note: The curves show the value of current per capita GDP divided by the corresponding value in 1982 when the debt crisis began.

The development of the debt ratio was furthermore influenced by the growth rate of LDC output. On average, the real growth rate of per capita GDP of less developed

countries in the decade before (1972 - 1982) was 1.9 %. Since then (1982 - 1989) the average growth rate has been 1.3 % and is showing no tendency to improve. As against this, the growth rate of US per capita output was only 0.8 % in the decade before the crisis and rose in the following seven years to an average of 3.2 %. Figure 2 compares the LDC growth rate with the growth rates of the OECD countries and the USA. It can be seen that, in the years before the international debt crisis the LDC growth rate exceeded that of the USA. However, when the debt crisis emerged, the USA and less developed countries changed places in the growth rate ranking order.

Figure 3: From Interest Subsidy to Interest Burden



Sources: World Debt Tables: 1980/81, Table 1 and pp. 3, 85, 119, 179, 205, 229; 1982/83, pp. 2, 3; 1987/88 (Vol I), pp. 2-5; 1989/90, p. 78; Survey of Current Business: 1989, June, Table 8.1; 1990 June, Table 8.1.

Note: The ratio shown in the table is defined as $[\text{Nominal long term LDC debt service} - (\text{US GDP inflation rate} \times \text{size of nominal long term LDC debt})] / \text{nominal LDC GNP}$.

It is not the debt itself, but the debt service that constitutes the burden for

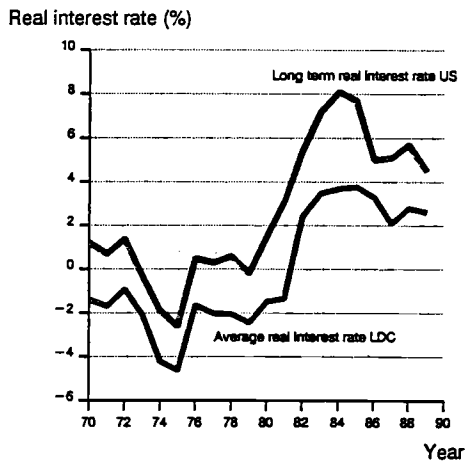
less developed countries. Figure 3 shows how the real interest burden has changed relative to LDC GNP. The real interest burden is defined as the nominal interest burden minus the inflation-induced reduction in the real value of LDC debt. The latter is calculated using the US GDP price deflator. Weighted indexes of LDC dollar export or import prices could have also been used, but, as most of the debts are defined in dollar units and as the dollar is the most important transactions currency, it seems appropriate to use the basket of goods produced in the USA as the numeraire. (To be sure, terms of trade changes have contributed to the debt crisis, but these changes should not be confused with debt service effects.)

The figure demonstrates what is arguably the most important single cause of the debt crisis: the dramatic rise in the real interest burden in 1982. This is the year in which Mexico declared itself unable to meet its payment commitments and which is seen as the start of the crisis. Before 1982, LDC's were paying interest but the interest paid was not sufficient to outweigh inflation losses of the creditor countries. De facto, LDC's were being rewarded by their creditors for being willing to look after the latter's money capital. Their indebtedness was not a burden for less developed countries, on the contrary it provided them with an ever flowing source of real income. They could afford to continue borrowing a net amount that was higher than their interest payment obligations and in the process were not becoming poorer. Only since 1982 have they actually had to carry an interest burden. A fundamental change in actual credit conditions occurred in that year, a change that could in no way be expected to proceed smoothly.

The reason for the changed conditions was the rapid increase in US nominal and real interest rate levels which quickly spilled over to the rest of the world. The turn of the decade from the 70's to the 80's was characterized by falling inflation rates combined with sharply rising interest rates. This resulted in a rise of real long term interest rates in the US from around zero in 1978/79 to almost 8% in 1984. Since then the rates have fallen

but have not returned to anywhere near their old levels. As figure 4 shows, the average real interest rate that the less developed countries actually had to pay on their outstanding debt was always below the US real long term rate, but its time pattern was similarly dramatic, showing the same jump in the period before 1984.

Figure 4: The Pattern of Change in Real Interest Rates in the USA
and the Less Developed Countries



Sources: Historical Statistics: Table 8.1, 1960–1980, 1960–1986; Survey of Current Business, Dec. 1988 and May 1990, Table 8.1; Main Economic Indicators, August 1990; World Debt Tables: 1977, Table 1B, 1G; 1980/81, Table 1; 1982/83, pp. 2,3; 1987/88 (Vol. I), pp.2–4, 1989/90 (Vol. 1), p. 78.

Note: The US real long term interest rate is defined as the nominal interest rate on US government securities with a maturity of at least five years minus the US GDP inflation rate. The real LDC interest rate is equal to the average nominal interest rate paid by LDC's for government and private loans (except for IMF loans), with a maturity of at least one year, minus the US GDP inflation rate.

One reason for the similarity is that both interest rates are calculated using the US GDP inflation rate. Another reason, however, is the equalizing effect of interest arbitrage. This arbitrage is of little importance for that part of LDC loans made by public

authorities. It is, however, very important for the lion's share of the loans which is made by private banks, the more so as private loans are relatively short term and are therefore frequently rescheduled. In 1980, for example, according to World Bank estimates, only a quarter of Latin American countries' debt was very long term; 70% of the loans had a maturity of less than three years; and 40% had to be paid back in less than one year (World Debt Tables, Vol I, 1987/88, p. XI). A change in US interest rate levels could therefore be transmitted very quickly to interest rates on LDC debt.

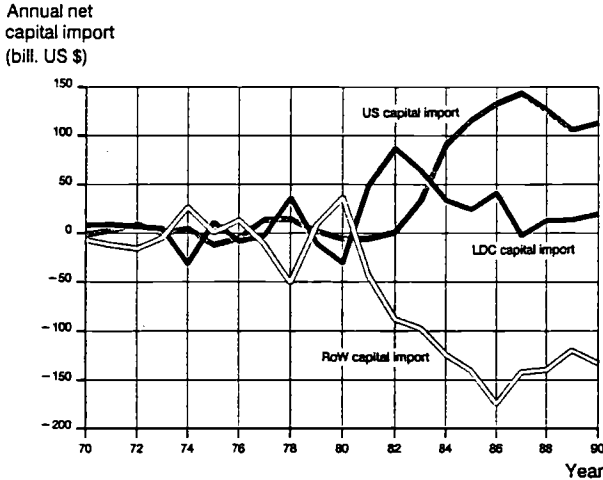
The picture would appear even more ominous if the real interest rates of the less developed countries were defined in terms of LDC export goods rather than US output goods. Because the appreciation of the dollar since 1981 reduced the relative price of LDC exports, the estimates for real interest rates would be even higher for the period following the crisis (cf. World Debt Tables, April 1988, Table A26). However, interest rates thus defined may not be very appropriate for evaluating US policies.

Capital that otherwise would have been available for other countries was kept in the USA, or attracted there, by the high US interest rate levels. Initially this took the form of a run on dollar securities which, concurrent with the ongoing rise in the US real interest rate, led to a steady rise in the value of the dollar in the first half of the 80's.⁴ Later, the subsequent normal reaction of the American current account balance resulted in a very large inflow of capital into the US. From 1985, when the dollar began to fall again, short run revaluation effects helped US capital imports to reach a peak value of \$ 150 b. in 1986 and 1987. As suggested by figure 5, the US was able to import the capital partly by generating export surpluses in other OECD countries, partly by crowding out LDC capital imports. From 1982 to 1987, annual US capital imports rose by \$ 144 b., exports by other OECD countries increased by \$ 57 b., and LDC capital imports fell by \$ 87 b.⁵

⁴See Sinn (1985, 1987b).

⁵It is true that the Plaza agreement in September 1985 was an international attempt to reduce the value of the dollar, however, as argued in Sinn (1987b) this attempt had no

Figure 5: The Change in the Direction of International Capital Flows



Sources: Annual Report: Table 8, 1973, 1974. Survey of Current Business Table 5.1, July 1974, July 1978, July 1984, July 1986, July 1987, May 1988. World Economic Outlook 1982, Table 15; April 1988, Table A36, May 1990, Tables A31, A36. Estimates for 1990 from World Economic Outlook May 1990, Table A33.

The sharp reduction in the capital imports of the less developed countries confirms the monotonic fall in the exchange-rate-adjusted growth rate of these countries' debts, mentioned above, which fell from 17% to 2% between 1982 and 1986. It is true, in 1974 and 1980 there also had been a drastic reduction in LDC capital imports, even to the extent of a change in sign. In those years, however, the oil price shocks and the resulting short run export surpluses of the LDC's were responsible. The recent reduction in LDC capital imports came about despite a worsening of their terms of trade (World Debt Tables, April 1988, Table A26) and cannot therefore simply be attributed to revaluation

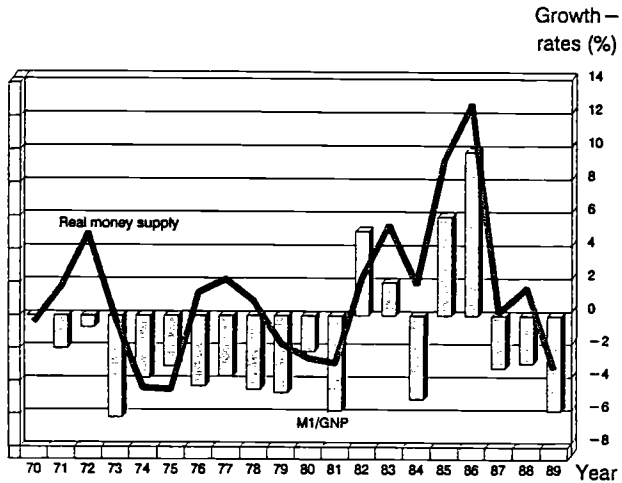
visible impact on the exchange rate. The dollar started to decline in February 1985 and continued doing so after the agreement. The true explanation for the dollar's decline may be the anticipation of the 1986 US tax reform which was announced shortly after President Reagan had been reelected in Autumn 1984. See also Feldstein (1988) and Sinn (1988a).

effects. The rapid rise in US real interest rates is undoubtedly a very important factor in the deflection of the capital flows. The cause of the debt crises is to be sought not only in the less developed countries themselves but also in the USA, their largest creditor.

3. The Role of American Economic Policy

The sudden explosive increase in American interest rates can be explained in terms of at least three economic policy measures: the tight monetary policy, the budget deficit, and the tax incentives for investments introduced by the Reagan government when it took office in 1981.

Figure 6: US Monetary Policy



Sources: Historical Statistics: Table 8.1, 1960–1980, 1960–1986. Main Economic Indicators: 1964–1983, p. 77; Feb. 1986, p. 90; Aug. 1988, p. 94, August 1990, pp. 96, 98, Survey of Current Business, Dec. 1988 and May 1990, Table 8.1.

Note: The growth rate of the real money supply is defined as the difference between the growth rates of M1 and the GDP deflator.

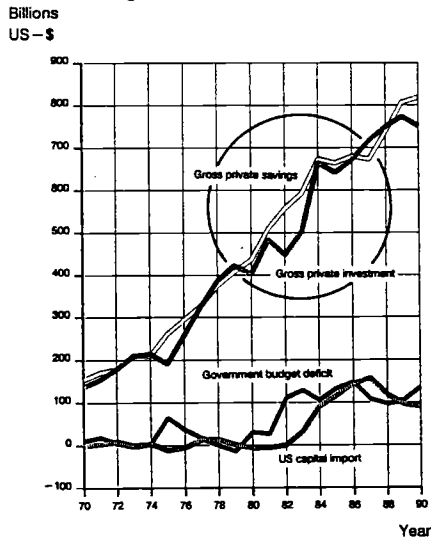
Before the crisis, monetary policy tended to be passive and its effects were not immediately apparent. In the sixties, the growth rate of the nominal money supply fluctuated between 4% and 9%, and, until 1982, showed a slightly rising trend. From 1976 the growth rate was never below 6%. cursory observation would therefore not initially suggest much of a role for US monetary policy as an explanation for the high American interest rates. It must be remembered, however, that the inflation rate at the end of the 70's was extremely high and had to a large extent soaked up the nominal growth of the money supply. As figure 6 shows, the real money supply hardly rose at all and certainly did not keep pace with the growth of real national product: the M1/GNP ratio was falling over the whole decade, contracting each year from 1973 by at least 2%. To this extent, US monetary policy in the period before the debt crisis was clearly restrictive. Monetary policy made a decisive contribution to the rise in US interest rates at the beginning of the eighties and to the subsequent debt crisis.

Under the Reagan administration American budgetary policy took a particularly dramatic turn, and, despite window-dressing attempts to suggest otherwise, it was basically of keynesian design. On the one hand, although a supply-side orientation was claimed, only half-hearted consideration was given to a reduction in government expenditure; there was primarily a transfer from social to defense expenditure. On the other hand, a substantial reduction in tax revenue followed from the passing of the Economic Recovery Tax Act in August 1981, only nine months after Reagan took office. In the five years from 1982 to 1986 the cumulative US budget deficit reached what many saw as the ominous level of \$ 630 b.

It has frequently been argued that this deficit was unplanned and that it took the government by surprise, convinced as it seemed by Laffer's self-financing hypothesis. However, the truth is different. In the appendix to the Tax Reform Act of 1981, a tax loss

of \$ 744 b. had already been predicted for the above-mentioned five year period (Joint Committee on Taxation 1981) and the Department of the Treasury had in August 1981 independently estimated a tax loss of \$ 724 b.⁶ In government circles at least, it was fairly precisely known what to expect.

Figure 7: US Flow of Funds



Sources: Survey of Current Business: Table 5.1, July 1974, July 1978, July 1982, July 1984, July 1986, July 1987, May 1988, May 1990.

The US budget deficit had burst out of its usual boundaries and has often been held solely responsible for the high level of American capital imports in recent years. As figure 7 shows, this is an obvious interpretation in view of the similarity between the budget deficit curve and that which shows both the current account deficit and the level of

⁶US Department of the Treasury, Office of Tax Analysis, Table "Changes in Fiscal Year Receipts Resulting from Conference Agreement on H.R. 4242", The Economic Recovery Tax Act of 1981, August 3rd, 1981, unpublished.

capital imports. It would be difficult to argue that the latest American economic boom, the high real interest rates, and the capital inflow induced by these had nothing to do with Reagan's keynesian policies.

Nevertheless, the growth dynamics, which can be seen from figure 2, and the extent of the American investment boom after 1982, shown in figure 7, are surprising. 1982 saw not only the start of the debt crisis, it was also a year of world wide economic recession. The increase in investment in the two years following this recession were, according to a study by Bosworth (1985), twice as large as in all previous boom phases; these all had a surprisingly stable pattern of acceleration of investment. There is a coincidence between capital imports and the rise in investment - it is more pronounced than that between the budget and current account deficits - and there is an even more striking coincidence between the maximum of the real interest rate and the peak of investment in 1984 (cf. Figures 4 and 7). None of these aspects fit well with the argument that the rise in interest rates and the capital inflow that followed this were caused by the tight monetary policy alone, nor do they fit with the argument that expansionary fiscal policy was the main culprit. According to both arguments, investment would have had to be reduced or at least the investment boom, which far exceeded that of earlier upswing phases, would not have been able to occur.

The incentive effect on investment of the tax reform of 1981 may provide an explanation for the fact that, up to 1984, there was an unusually strong investment boom despite the rise in real interest rates.⁷ A new method of tax depreciation - the Accelerated Cost Recovery System - was introduced in addition to the investment tax credit which was a subsidy of up to 10% of gross investment. Compared to the previous Asset Depreciation Range System, which was oriented towards the ideal of true economic depreciation, the

⁷Bosworth (1985) is rather sceptical of this argument but the following commentary by Summers makes it clear that Bosworth's estimate of the value of the incentive effect may be inappropriate.

new scheme meant that the average depreciation period was approximately halved, and, combined with the investment tax credit, the reform was equivalent to (in effect) an immediate write-off system for industrial plant and equipment. This aspect was later put forward as the official reason for the 1986 tax reform of the Reagan government (Department of the Treasury 1984, pp. 105-107) and has recently been documented again by Fullerton, Gillette, and Mackie (1987, p. 144) by means of exact calculations for individual categories of investment goods.

The effects of the Accelerated Cost Recovery System on international capital movements have been investigated by the present author elsewhere (Sinn 1984, 1985). On the basis of a model in which international capital movements come about by means of loans contracts and in which interest income is taxed on the residence principle, it was shown that changes in tax rates and depreciation allowances have very different effects on international capital movements. With true economic depreciation (following the Johansson-Samuelson definition) tax rate changes do not induce capital movements, because, from the point of view of the individual investor, domestic and foreign investments are equally affected. In an open economy they affect saving incentives but have no direct effect on investment. Accelerated depreciation allowances, on the other hand, are measures that selectively promote real domestic investment. In contrast to an overall fall in tax rates, these allowances raise the capitalized value of domestic investment projects for every given level of interest rates, thus stimulating the demand for investment goods and pushing up the level of domestic interest rates from the demand side. This leads to the exchange rate and current account effects, described in the last section, which make a real capital inflow possible. A long run, accumulated capital inflow in the order of magnitude of at least \$ 1000 b. was forecast (Sinn 1984). At the time this order of magnitude appeared excessive in view of the then current US current account deficit, but by the end of 1990 the value of US capital imports accumulated since the reform of 1981

will have reached approximately \$ 390 b., that is, almost 90% of the predicted level.

The effects of depreciation allowances are often underestimated in the literature, as they "only" cause a temporal shift of the tax burden and not a permanent tax saving. It is argued that depreciation allowances only have a stimulating effect on firms' investment decisions in the introduction phase, for tax relief only takes place then. At best, there will be a permanent tax relief effect in a growing economy, while in a stationary economy the incentive effect on private investment will soon disappear because the tax base will approach that under true economic depreciation. This view cannot stand up to a theoretical examination, for it overlooks the fact that an immanent rise in taxes, which would be brought about by a break in the stream of investment, creates a continuing investment incentive, even though the effect of accelerated depreciation can no longer be identified by looking at only the size of the current tax burden.⁸ In contrast to reductions in tax rates, depreciation allowances do not provide firms with permanent tax relief, but do nevertheless create strong and lasting investment incentives. They are a cheap means of stimulating capital formation, a means which the USA has made use of with good reason.

The immediate write-off system that the USA in effect had from 1981 to 1986 did not represent just a marginal change. Under this system, with corporate tax rates of 46%, American investment projects could carry a rate of interest twice as large as projects in countries where depreciation rules were oriented towards true economic depreciation. In other words, for a given number of investment projects, the capital demand curve in the US occurred at rates of interest twice as high as those in countries that had the same production technologies but did not have investment incentives like the Accelerated Cost Recovery System and the Investment Tax Credit. Looked at in this way, the predicted and actual capital inflow into the USA is no longer surprising.

Previous investigations of the relationship between American investment

⁸Cf. here the discussion between Neumann (1988) and Sinn (1988b) in the *Jahrbücher für Nationalökonomie und Statistik*.

allowances and the capital inflow have concentrated on capital movements between the USA and the other OECD countries (cf. Sinn 1984, 1985, 1987a, 1989b). As figure 5 shows, these movements were indeed very large. It is clear, however, that such investigations can be carried over analogously to the less developed countries. Compared to the capital movements that could have been expected to occur if American economic policy had been neutral, the less developed countries have also lost capital to the USA. As mentioned above, their capital imports fell annually from about \$ 90 b. in 1982 to practically zero in 1987, while US capital imports rose from zero to a good \$ 140 b. in the same period! The real problem of the debt crisis is tied up with the capital flow back to the USA. The debt moratoria and the other external characteristics of the crisis are simply the screeching tires of the capital transport vehicles that were forced to make a sudden sharp turn by the USA's policy.

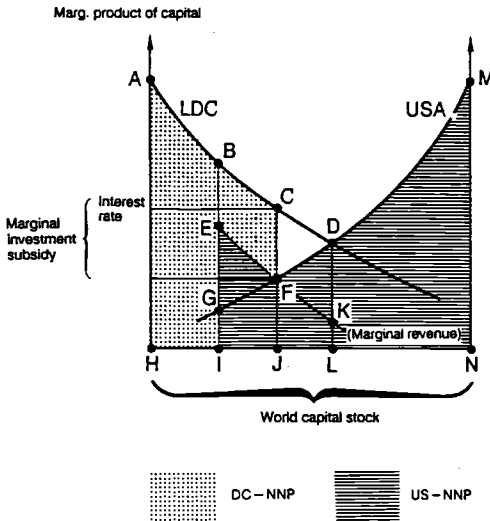
4. Cui Bono?

Who were the gainers and who the losers from the deflection of international capital flows towards the USA? The short term advantages for the USA are well-known. The American economy moved closer to full employment than the other OECD countries and its economic growth reached record heights. It is also clear that the less developed countries were adversely affected. The drying up of the capital inflow forced them to cut back their imports radically and they entered a phase of economic stagnation. There are, however, other long run welfare effects in addition to the obvious short run effects. These long run effects were to be expected as a result of the American policy of stimulating investment, or would have had to be expected if the US had not changed the direction of its tax policy again.

These welfare effects can be illustrated with the use of the Kemp-MacDougall diagram shown in figure 8. Assume a steady-state world economy with

a given total capital stock that is available for the USA and the less developed countries. With given technologies and given supplies of the other factors of production, each country has a specific marginal product of capital curve net of economic depreciation. In the diagram, the amount of capital used by the LDC's is measured from left to right and that of the USA from right to left. The thickly drawn lines are the regional specific (net) marginal product of capital curves. The combined capital stock of the two countries is equal to their combined wealth, but the amount of capital employed in one country is not necessarily equal to that country's wealth. It is assumed that the USA is rich in the sense that its wealth is larger than the amount of capital represented by the point of intersection of the two curves (LN) so that it would be a net lender in the case of an efficient distribution of the world capital stock. In the diagram, it is assumed that US wealth is given by IN and that of the LDC's by HI.

Figure 8: Optimal Investment Incentives from the Point of View of the Creditor Country



It is assumed that international capital movements take the form of bond trading and loan contracts, and that international interest income flows are taxed in accordance with the OECD Model Taxation Convention of 1977 (OECD 1977). The latter means that the residence principle is used and that small source taxes are allowed, but are credited in the country of residence. Under these conditions capital income taxation does not affect international portfolio investment even when the national tax rates are different. For the sake of simplicity, the analysis abstracts from differences between profit or corporate taxes on the one hand and personal income taxes on the other. This simplification ensures that the taxation systems do not discriminate between retained profits and loans as sources of finance and a specification of the firms' financing decisions can be omitted. International differences in tax rates are permitted.

Suppose, in the LDC's there are no tax investment incentives as there are in USA and the depreciation rules require true depreciation. Under these conditions, profit maximizing firms invest up to the level where the marginal product of capital is equal to the market rate of interest irrespective of the level of domestic taxes. Since this investment behavior is welfare optimal for each individual LDC which is too small to affect world interest rates by its own actions, it is assumed that public investment follows similar rules: official loans to developing countries are used to finance public projects up to the point where the last project's rate of return equals the market rate of interest. A violation of this rather heroic assumption would certainly have implications for a welfare theoretic assessment of the capital market equilibrium from the point of view of the world as a whole. However, as the following arguments concerning the assessment of this equilibrium from the point of view of the USA would not be affected, the assumption is an admissible simplification.

US firms, too, would extend their employment of capital up to the point where the marginal product of capital equals the interest rate, if tax depreciation

allowances followed the theoretical ideal of income taxation and there were no investment incentives in operation. In this case, world capital market equilibrium would be determined at point D where the two marginal product of capital curves intersect. The world interest rate would be DL, and the USA would lend an amount IL of its capital to the less developed countries.

From the point of view of all countries, this situation would be optimal because world output, the area under the two curves, would be smaller for every other distribution of capital. However, from the point of view of the USA in isolation, an optimum would be different. The USA is a large country which can influence world interest rates by its own actions and thus can gain from carrying out a monopolistic capital supply policy. The essence of such a policy would be to reduce the supply of capital on world markets and to lend less capital there under more favorable conditions.

In principle, the investment incentives introduced in 1981 are a suitable means for achieving this reduction. They induce American firms to invest at home beyond the point where the marginal product of capital equals the market rate of interest and thus drive the market interest rate upwards, reducing America's net capital supply to less developed countries. Incentives that maximize US national income or net national product are optimal for the USA. The allocation of capital that corresponds to this is shown by the Cournot point C in figure 8. Below this point - at F - the marginal product curve of the USA, which is also the marginal opportunity cost curve of capital lending, cuts the marginal revenue curve of capital lending EFK. The marginal revenue is the rise in net interest income earned in the LDC's when the capital supplied to them increases by one unit. Marginal revenue is below the market rate of interest because no price discrimination is possible and because the less developed countries impose source taxes. Without source taxes, the marginal revenue curve would go through point B. The gross interest, which the first unit of capital loaned receives, would be equal to its marginal revenue. With source

taxes, however, the first unit of capital must be content with a net-of-tax return below the market rate of interest.

In the optimum, US net national product is shown by the hatched area in the diagram. It consists of the US net domestic product FMNJ plus the net factor income earned in the less developed countries EFJI. The net national product of the LDC's is shown by the dotted area and is equal to the difference between net domestic product ACJH and net factor income EFJI paid to the US. Here the world market interest rate is CJ. It equals the marginal product of capital of the LDC's but exceeds the marginal product of capital of the USA by the amount of the marginal US investment benefit CF. The marginal investment benefit produces the gap between marginal cost and marginal revenue that signifies the monopoly solution.

If there were no investment incentives, that is, if the LDC's received loans of capital equal to IL, the net national product of these countries would be larger by the amount CDKF, and that of the USA smaller by FDK, than in the monopoly case. For both countries taken together, there would be a welfare gain of CDF compared to the monopoly situation, but the USA would be worse off.

On the other hand, if the marginal investment benefit had risen to BG, no capital at all would have been exported. Compared to the monopoly solution, the LDC's would have to forfeit an amount of national product equal to BCFE and the USA would lose the amount of EFG. No one would benefit from this. The best solution from the point of view of the USA is therefore achieved when it exports capital of amount IJ, and the best solution from the point of view of the world as a whole would be achieved with an export of capital of amount IL. So much for the model.

It is obvious that this model is, in many ways, not suitable for describing precisely the welfare effects of the international debt crisis. In particular, the negative real interest rates of the seventies make it difficult to identify the equilibrium solution D with

the world's historical situation before the debt crisis. The model could be suitable, however, for a welfare analysis that compares alternative scenarios for the development of the world economy. The end of the seventies represented a disequilibrium situation for the USA which it wanted to get out of by means of a restrictive monetary policy and large scale tax reforms. It had the choice between a neutral tax system that would have led to a world capital market equilibrium at D, or a non-neutral system by means of which American investment chances would effectively improve at the expense of the rest of the world. The latter system was chosen.

Whether the policy was quantitatively designed so that the optimal point C could be reached, or whether it was aimed at reaching it at all is an open question. There was certainly no conscious attempt to reach an optimum of the kind described above, for that American policy was far too internally directed. It is more likely that the American government was quite prepared to put up with the disadvantages to the rest of the world for the sake of giving its own economy a boost. The search for motives is a futile undertaking. Economic science does not attach much importance to the question of whether an economic actor optimizes consciously or not, and it would be quite wrong to pass a moral judgement on US policy. The analysis presented here makes no attempt to explain why the US decided to carry out a high interest rate policy, it is simply concerned with the welfare effects of that policy.

As far as the quantitative aspect is concerned, it seems that the American policy was too strong to achieve optimal capital imports. After all, the officially estimated value of US net foreign wealth position (US assets abroad minus foreign assets in the US) had already become negative in 1984 and since then has fallen below minus \$ 660 b. in 1989 (see Survey of Current Business June 1990). Such a result can naturally not be an indication of an optimizing policy, for no monopolist would let the quantity supplied fall to zero, let alone become negative. Serious reservations are, however, appropriate insofar as

the American statistics may not be very accurate. They comprise the unadjusted historical cost value of capital investments and take no account of the increase in their value since the time of purchase. Since American investment overseas occurred earlier than foreign investment in the USA, the stock statistics must show Americans to be poorer than they really are (see also Amuzegar 1988 and Sinn 1987a, p. 230, n.38). This observation is confirmed by looking at the flow statistics for the net factor income Americans receive from overseas. The latter showed that, until 1988, not even the sign for the American wealth position could have been correct. In 1988, the US was reported to have a net foreign wealth position of \$ - 531 b., but the net investment income received by the US was \$ + 1.6 b. (see Survey of Current Business, June 1990, Tab. 2). It was not until 1989 that this net income eventually turned negative. Only now (1990) can there be little doubt that the US is a debtor country.

So it seems that a more moderate policy of investment incentives might have helped the US to increase its national advantage from lending capital abroad. The policy actually chosen was too strong to produce this result.

5. Concluding Remarks and Future Prospects

The US economic policy at the start of the 1980's was a gigantic experiment which caused all kinds of disruption to the world and which was observed with incredulous astonishment by many non-US economists. The combined effects of a very restrictive monetary policy, an exceptionally expansionary budget policy and a massive investment incentive scheme led to a truly explosive increase in American real interest rates. This in turn drove the dollar to unanticipated heights and, by way of a current account deficit, induced a huge inflow of capital into the US. The less developed countries were faced with a sudden, unexpected change in the conditions of their loans contracts. In the seventies, they had been, in effect, rewarded in the form of negative real interest rates, for their helpfulness in

looking after the capital loaned to them, now they were suddenly faced with the demand that they actually service their debts. In some countries, the immediate reaction to the changed conditions was a refusal to pay – this was the outward sign that a debt crisis was occurring. However, the circumstance that the high interest rates forced the less developed countries to abruptly limit their credit intake was probably even more important. This limitation resulted in a stagnation phase which increased the debt ratio instead of reducing it. As a result of American policy the driving forces of economic growth were shifted away from the less developed countries and the rest of the world to the USA.

This result could have been in the American interest, not only from a short run point of view, but also in terms of long run investment strategies, had the policy been of a more moderate design. The United States, as the formerly largest capital exporter, could have manoeuvred itself into a position where it could have lent somewhat less capital to developing countries under more favorable conditions than previously. However, the policy was too strong to achieve this result and gave rise to capital imports which were larger than optimal.

Since then, in the light of the magnitude of the reaction to its policy, the US has become nervous about its own daring. The tax reform introduced in 1986 cancelled many aspects of the 1981 reform⁹. In particular, the investment incentives brought in in 1981 were largely set aside. The fall in the dollar from 1985 can be seen as a reaction to the new tax reform which had already been announced in 1984.¹⁰ It is suggested that this fall will lead to a long term improvement in the American current account balance and thus to a drying up of capital imports into the USA. The experiment would then be at an end, and this would justify a hope for a renewed phase of growth in the less developed countries and elsewhere in the world with moderate interest rates and loans contracts that can actually

⁹See Sinn (1989b).

¹⁰See fn. 5.

be fulfilled by less developed countries. The new American tax system is largely free of "bribes" for capital, as Samuelson (1964) once called depreciation allowances. Capital can again flow freely to those countries where it can most usefully be employed. It is to be hoped that the presently less developed countries will be among them.

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