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# Do Public Budget Deficits Crowd Out Private Capital Expenditures?

## The Case of the United States, 1981-1984

by Hans-Peter Fröhlich, Saarbrücken\*

**Those economists who expected the increasing US budget deficits in recent years to have a negative impact on private investment spending have so far been proved wrong. Hans-Peter Fröhlich provides an analysis of what has happened and examines the interrelation between public sector deficits and private capital expenditures.**

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After four years of "Reaganomics" the US economy now seems to be buoyant. Still, the federal budget deficit does cast a shadow. The excess of expenditures over revenues doubled between 1981 and 1982. In 1983 there was again an increase of almost 100 % thus bringing the deficit to the record level of almost \$ 200 billion.<sup>1</sup> It has since remained more or less at that level and similar figures are predicted for the rest of the decade (on the basis of current data).

Many observers view this trend with serious concern. Most notably, they fear that the public sector may absorb too high a proportion of the economy's savings so that relatively few funds are available for private borrowers on the capital market. According to this view, the inevitable result will be a reduction in private investment spending which is deemed undesirable from a macroeconomic perspective. This process is usually termed "crowding-out".

### The Crowding-Out Theory

One prominent advocate of the proposition that public budget deficits crowd out private investment is Martin Feldstein, the former chief economic advisor to President Reagan. His argument runs as follows<sup>2</sup>: from 1983 to 1988 the federal budget deficit will average about 5 % of GNP. Since total net private saving in the United States has averaged less than 7 % of GNP for the past quarter century, government borrowing is expected to absorb three-fourths of all domestic saving. To reduce private investment to the remaining funds would require very high interest rates. In practice, such a drastic reduction in private investment would not be necessary because the capital inflow would finance

some additional investment in the United States. But even a trade deficit equal to 3 % of GNP – or more than a third of total exports – would still leave net investment well below its historic level.

Feldstein is representative of many economists who offer similar arguments.<sup>3</sup> They all focus on sectoral financial balances, thus referring to a basic accounting identity according to which the total of all sectoral financial surpluses and deficits or – which comes to the same thing – the total of all sectoral changes in stocks of net financial assets (F) in any economy is necessarily zero for each period ex post. Any increase in net financial assets, i.e. any increase in claims by any specific sector, is necessarily offset by a reduction of the same amount of net financial assets, i.e. by an increase in liabilities of one or more other sectors. If the economy is divided into the sectors business (b), private households (h), foreign sector (f) and government (g), we can write

$$(1) \quad 0 = \Delta F_b + \Delta F_h + \Delta F_f + \Delta F_g$$

As is well known, the increase in the government's net financial asset holding (= the government's financial surplus) is nothing more than the public budget surplus, i.e. the difference between tax revenues (T) and

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<sup>1</sup> Data: Federal Reserve Bank of St. Louis (ed.): *Monetary Trends*, October 1984, p. 14.

<sup>2</sup> Remarks by Martin Feldstein, Chairman, Council of Economic Advisors, before the Chamber of Commerce International Forum, Washington, September 14, 1983. Printed in: *Deutsche Bundesbank, Auszüge aus Presseartikeln*, No. 96, October 8, 1983, p. 3.

<sup>3</sup> Similar views have recently been taken by, for example, Walter Heller: *The Deficit Issue can't be Avoided*, in: *The Wall Street Journal*, Nov. 8, 1984; Paul Samuelson: *Interview in: Wirtschaftswoche*, Vol. 38, No. 19, May 4, 1984, p. 61; Henry Wallich: *America's real budget problem – for 1984 and beyond?* in: *The Banker*, Vol. 133, Dec. 1983, p. 23.

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government spending (G). Similarly, the increase in the stock of net financial assets of the foreign sector is equivalent to the economy's current account deficit, i.e. the excess of imports (M) over exports (X). Consequently, (1) can be rewritten as follows:

$$(2) \quad -\Delta F_b \equiv \Delta F_h + (M-X) + (T-G)$$

The following general conclusion can be drawn from (2): whenever the non-business sectors' total acquisition of net financial assets (the right-hand side of (2)) diminishes, the increase in liabilities of the business sector will diminish by exactly the same amount. To relate this more specifically to the context under consideration in this paper: whenever the public budget deficit rises (the budget surplus falls) without private households and foreigners combined increasing their net acquisition of financial assets by at least the same amount, net borrowing of the business sector necessarily must fall. There can be no argument about that since we have been dealing with mere accounting identities so far.

Yet it is exactly at this point that the crowding-out theory must be criticized. The reason is that from business borrowing one cannot automatically draw conclusions concerning the strength of investment spending. To be sure, sectoral financial balances and business investment are not entirely unrelated, but the link is more complex than it appears in the above quotation from Feldstein. It is specified by the so-called business-profits equation which, according to John Maynard Keynes, is one of the most fundamental economic identities.<sup>4</sup>

### The Business-Profits Equation

Profits (Q), i.e. business income, are composed of business consumption ( $C_b$ ) plus business investment ( $I_b$ ) less borrowing ( $-\Delta F_b$ ). The latter in turn corresponds to the net acquisition of financial assets (the financial surplus) of the other sectors, so that the business-profits equation can be set out in this way:

$$(3) \quad Q \equiv C_b + I_b - \Delta F_b - (M-X) - (T-G)$$

This equation illustrates a relationship which remains valid under every conceivable circumstance. It alone provides a reliable and precise definition – in the sense of an ex post identity – of the interrelation between public budget deficits and private investment.

Let us now assume an exogenous increase in the public sector deficit which is not entirely offset by a

higher financial surplus of the foreign sector and private households combined and/or an increase in business consumption. Then the following two extreme cases are conceivable as regards the influence of higher public deficits on private investment spending:

- Business profits remain fairly constant and capital expenditure is reduced. This is what advocates of the crowding-out theory think will usually happen. In this case, the level of businesses' income, consumption and savings is unchanged. There is, however, a change in the structure of savings: acquisition of real assets diminishes while, at the same time, acquisition of financial assets increases (or borrowing decreases).
- Capital expenditure remains unchanged or even increases and as a corollary of the higher budget deficit, business profits go up. With this scenario the business sector's total savings (= acquisition of real and financial assets) increase in line with lower business borrowing, which – since consumption is unchanged – implies higher business incomes, i.e. higher profits.

Both of the processes described above are extreme cases. Mixtures of the two will generally occur in reality. It is impossible on an ex ante basis to predict which process will eventually dominate. This depends on the conditions and behavioural functions in each specific case. Only an ex post examination of the relevant data can show how the variables linked together in the business-profits equation have actually changed.

### The Empirical Evidence

Any statements concerning any possible crowding-out of private investment must first of all focus on the public budget deficit. In the United States the budget deficit has increased rapidly over recent years at the federal level (cf. Table 1).

There is much to be said in favour of interpreting the increase in the US budget deficit as an exogenous impulse and thus as a causal force. It can be attributed primarily to the tax cuts and to higher spending on some budget items in recent years.<sup>5</sup> Only a comparatively small proportion of the deficit can be ascribed to endogeneous factors.<sup>6</sup>

Note, however, that the growth of the federal budget deficit does not in itself allow conclusions on the overall public sector deficit. Public finances at the local and state level must also be taken into account. Yet no

<sup>4</sup> John Maynard Keynes: A Treatise on Money, Vol. 1, Ch. 10.

<sup>5</sup> A similar view is taken by OECD: Economic Surveys 1983-84, United States, December 1983, p. 13 ff.

<sup>6</sup> See the cyclically adjusted data in, for example: Federal Reserve Bank of St. Louis (ed.): Monetary Trends, November 1984, p. 14.

substantial changes have occurred in their financial balance during the period under consideration; rather, it was hovering around zero.<sup>7</sup> So total net borrowing of the public sector has clearly increased from 1981 onwards.

The higher public deficits have been at the most partially offset by movements in the opposite direction on the part of the other non-business sectors. As to the private households, there was a pronounced rise in savings, but most of those savings were devoted to the acquisition of real assets (housing, consumer durables) rather than financial assets. As a consequence, the financial surplus of private households remained almost constant between 1981 and 1984 – although with some fluctuations (see Table 2).

The situation is somewhat different in the foreign sector. On balance, foreigners acquired additional claims against Americans each year. It is, however, very difficult to give any really precise figures because the statistical discrepancies between the US current account deficit and the financial surplus of the foreign sector (which should correspond in theory) are extremely large. Nevertheless, there can be no argument about a marked increase in American indebtedness vis-à-vis the rest of the world after 1981.<sup>8</sup>

The question of whether the public sector deficit was causally responsible for this trend – as has frequently been argued<sup>9</sup> – is of secondary importance. Only the purely accounting relationships are of interest in this context: during the period under consideration, the increase in public borrowing was accompanied by increased lending on the part of foreigners. Yet in combination with the modest acquisition of financial assets by private households, this was insufficient to fund the growing public deficit. To put it another way, the public sector absorbed an increasing fraction of the total available credit. Correspondingly, net borrowing by the business sector diminished from 1981 onwards. In 1984 it did in fact increase somewhat but was still well below the level of the base year, 1981 (see Table 3).

To sum up, it can be said that net borrowing by the public sector increased rapidly, while at the same time that of the business sector diminished. But how about

**Table 1**  
**Financial Deficit of the**  
**Federal Government, 1981-1984**  
(in \$ billion)

1981	1982	1983	1984 <sup>a</sup>
79.1	155.5	193.6	169.7

<sup>a</sup> Average for the first three quarters at annual rate

Source: Board of Governors of the Federal Reserve System (ed.): Flow of Funds Accounts, Third Quarter 1984, Washington D.C., 1984, p. 15. Any differences from the budget deficit according to the national income accounts are due to statistical discrepancies.

**Table 2**  
**Financial Surplus of Private Households, 1981-1984**  
(in \$ billion)

1981	1982	1983	1984 <sup>a</sup>
186.2	234.6	180.5	178.7

<sup>a</sup> Average for the first three quarters at annual rate

Source: See Table 1.

**Table 3**  
**Financial Deficit of the Business Sector, 1981-1984**  
(in \$ billion)

1981	1982	1983	1984 <sup>a</sup>
93.9	56.5	24.8	84.7

<sup>a</sup> Average for the first three quarters at annual rate

Source: Board of Governors of the Federal Reserve System (ed.): Flow of Funds Accounts, Third Quarter 1984, Washington D.C., 1984, p. 9.

**Table 4**  
**Real GNP and Real Non-residential Fixed**  
**Investment in the First Six Quarters**  
**of Economic Expansions**  
(compounded annual rates of change in %)

Expansion Period	Real GNP	Real Investment
1982/IV – 1984/II	7.1	16.4
1975/I – 1976/III	5.3	3.7
1970/IV – 1972/II	5.7	5.3
1961/I – 1962/III	6.0	8.1
1958/II – 1959/IV	5.7	7.0
1954/II – 1955/IV	6.6	12.3
1949/IV – 1951/II	11.2	14.1

Source: Federal Reserve Bank of St. Louis: National Economic Trends, September 1984, p. 1.

**Table 5**  
**Gross Private Real Non-residential Investment**  
**as a Share of GNP**

1948-1955	1956-1965	1966-1973	1974-1979	1980-1984/II
9.3	9.3	10.6	10.6	11.4

Sources: Up to 1979: Federal Reserve Bulletin, January 1983, p. 5. From 1980: author's own calculations based on: Survey of Current Business, Vol. 64, No. 7 (July 1984), p. 23.

<sup>7</sup> Cf. Board of Governors of the Federal Reserve System (ed.): Flow of Funds Accounts, Third Quarter 1984, Washington D.C., 1984, p. 13.

<sup>8</sup> Ibid.

<sup>9</sup> See, for example, Ronald I. McKinnon: Dollar Overvaluation Against the Yen and the Mark in 1983: How to Coordinate Central Bank Policies, Stanford University, unpublished manuscript, p. 15.

<sup>10</sup> Cf. OECD: Economic Surveys 1983-84, United States, December 1983, pp. 38 f.

<sup>11</sup> Survey of Current Business, Vol. 64, No. 7 (July 1984), p. 23, and No. 10 (Oct. 1984), p. 9.

business investment spending for which Feldstein and many others predicted a fall "well below its historic level" as a result of variations in the sectoral financial surpluses and deficits described above?

### Investment Spending

There could scarcely be a greater disparity between what was predicted and what actually happened. The slump in capital expenditures which was expected on the basis of the crowding-out theory has not occurred; instead, precisely the opposite has taken place: business investment boomed and set up new records!

After the continued – cyclical<sup>10</sup> – fall until the end of 1982, investment spending went up dramatically in 1983. Between 1982/IV and 1984/III gross private domestic investment (seasonally adjusted at annual rates) increased by almost 70 % in real terms.<sup>11</sup> This investment behavior is particularly impressive if compared with periods of economic expansion in the past. Never before in the post-war period has real non-residential fixed investment grown faster than in the present recovery in the United States (cf. Table 4).

Similarly, gross business fixed investment as a share of gross domestic product was higher than ever before in recent decades (see Table 5). It achieved a new post-war peak at 12.5 % in the third quarter of 1984.<sup>12</sup>

Whichever statistics are employed to assess the recent performance of investment spending in the United States, there are no grounds whatsoever for alleging that the rapid increase in public sector borrowing has had a negative impact on private capital expenditures. Based on the empirical evidence, there is no indication of any crowding-out of private investment by the sharp increase in the public deficit.

This is particularly remarkable in view of the interest rate level. Capital expenditures reached the described record level at a time when, at 7 - 8 %, real interest rates in the USA were extremely high – compared with interest rates in other industrial countries as well as with interest rates in earlier expansion periods in the United States.<sup>13</sup>

### Business Profits

This development may seem surprising at first sight. It is, however, quite understandable if the behavior of the last major variable in the business-profits equation is taken into account, i.e. business profits Q. They went up dramatically: between 1982/II (the trough of the last recession) and 1984/II profits increased by almost 100 % or \$ 140 billion (seasonally adjusted at annual rates).<sup>14</sup>

This is the reason why there was no crowding-out as was often expected – in spite of the pronounced increase in the public deficit, the fall in business borrowing and the record high of real interest rates. While the public sector displayed increasing excesses of expenditures over receipts, business earnings improved rapidly. As a result, external financing requirements were moderate although capital expenditures by the business sector set record levels. In other words: the reduction in private investment financed through borrowing was more than offset by an increase in investment financed through internal funds.

So far we have been merely describing empirically observable relations between various variables. The economist will further enquire into the causes and effects in order to obtain a causal explanation of the observations. A thorough analysis of the data indicates that only a comparatively small proportion of the rise in business profits can be attributed to cyclical factors. Instead, the primary source seems to be a lower tax burden resulting from the Economic Recovery Tax Act of 1981.<sup>15</sup>

Thus, the higher public deficit and the expansion of business profits may be considered as two different sides of the same coin. Both phenomena reflect the cut in businesses' taxes. The increase in the federal deficit due to lower tax receipts prepared the ground for a self-supporting expansion of private capital expenditures financed through the strong internal cash flow.<sup>16</sup>

So, in contrast to the predictions of Feldstein and other advocates of the crowding-out theory, one may even argue that the United States experienced a strong investment boom in the recent past not in spite of, but precisely because of, the rapidly increasing public deficits. Government borrowing has not crowded out private investors from the capital market; rather, those investors were in a position to withdraw from the capital market voluntarily.

<sup>12</sup> Federal Reserve Bank of St. Louis (ed.): *National Economic Trends*, October 1984, p. 1.

<sup>13</sup> Bank for International Settlements: *Annual Report No. 53* (1982/83), p. 76, and No. 54 (1983/84), p. 82.

<sup>14</sup> *Survey of Current Business*, Vol. 64, No. 7 (July 1984), p. 77, and No. 10 (Oct. 1984), p. 16.

<sup>15</sup> Cf. *Survey of Current Business*, Vol. 64, No. 4 (April 1984), p. 9.

<sup>16</sup> The following similar view is taken in the *Federal Reserve Bulletin*, May 1984 (p. 402): "Although total capital expenditures of nonfinancial corporations increased sharply in the early stages of the recovery, external financing requirements were moderate ... The strong internal cash flow was attributable primarily to an improvement in economic profits ... and a lower tax burden." According to a report by a US Congress Committee, the business sector accounted for 12.5 percent of the total tax revenue of the United States in 1980. By 1983, however, this share had been halved to 6.2 percent. Cf. *Frankfurter Allgemeine Zeitung*, No. 274 of Dec. 4, 1984, p. 13.

### Questionable Line of Thought

This theory should not be misinterpreted as a plea for large-scale public deficits as a means to overcome economic stagnation. For one thing, the experience of the United States cannot simply be applied to other countries. For another, US policy-makers cannot remain indifferent to the large budget deficits even if the feared crowding-out of private investment has not materialized. In this connection we need think only of the problems which may arise if the present boom in the US economy is superseded by a recession, or if the present – apparently unlimited – confidence of foreign investors evaporates, thus causing a reversal in the international flow of capital.

Instead, the lesson of the case of the USA between 1981 and 1984 should be that one has to be careful when, as repeatedly happens, one uses variations in the acquisition of net financial assets (= variations in the financial surpluses and deficits) of the non-business sectors as a basis for drawing inferences concerning business borrowing – and from that, further inferences concerning the volume of private investment spending.

Admittedly, we are dealing here with a line of thought encountered not only in the context of the crowding-out theory. For example, this view also underlies the frequently advocated proposition that an increase in savings by private households is a sufficient, or at least a necessary, condition for any increase in investment. This line of argument is, in principle, very similar to the crowding-out theory: higher capital expenditure by the business sector is inferred from an increase in financial asset acquisition by a specific sector of the economy which – other things being equal – means an increase in financial asset acquisition by all non-business sectors and thus inevitably lower borrowing by the business sector.<sup>17</sup>

In this context, too, it is true that an increase in business investment as a corollary of higher financial asset formation by the non-business sectors is only one possibility in the business-profits equation. It is equally

plausible that a rising excess of receipts over expenditures of the non-business sectors will be accompanied by a fall in business profits while business investment remains constant. If the drop in business earnings is sufficiently large, there may even be a negative correlation between private household savings and business investment spending just as, conversely, private investment actually increased in the USA as the public sector absorbed a growing fraction of the funds available in the capital market.

If one wants to use variations in sectoral financial deficits and surpluses to draw conclusions concerning business investment activity, these must be based on the business-profits equation (3). This alone provides a reliable definition of the link between net financial asset acquisition of all non-business sectors on the one hand and business investment spending on the other hand. By looking at this identity it can easily be seen that the volume of private investment is in no way limited by the financial deficits or surpluses of any sector. Variations in sectoral financial balances only permit conclusions as to the amount of business investment financed through borrowing. But no conclusions can be drawn from them concerning the overall level of business investment spending.

Those drawing such conclusions ignore elementary economic interrelationships. Accordingly, their predictions run the risk of being contradicted by actual subsequent developments. This is exactly what has happened to those economists who were concerned about a crowding-out of private investment in the wake of the massive expansion of the federal budget deficit in the United States between 1981 and 1984.

<sup>17</sup> Cf. for example, Monthly Report of the Deutsche Bundesbank, Vol. 36, No. 1 (January 1984), p. 35: "The 'overall savings of the economy' which reflect the growth in real assets and the net acquisition of claims against foreigners, thus providing a rough estimate of the expansion of the economy's capital stock, are – as regards their level – determined essentially by the volume of private household savings." In popular or pseudo-academic writings this view is expressed, for example, in the following terms: "(Apart from the Japanese) we Germans lead the world in private savings and that is a good thing because without savings there is no investment." (Südwest-Presse Tübingen, No. 6, Jan. 8, 1985, p. 1).

## KONJUNKTUR VON MORGEN

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