INFLATION-INDUCED WEALTH TAX IN BELGIUM

BY PETER PRAET*

Free University of Brussels

The OECD has recently pointed out [8] that the stance of fiscal policy is disguised in many countries by the large and increasing scale of interest payments on government debt. Since "these high interest payments in part compensate government's creditors for rapid inflation-induced decline in the real value of their securities ... it is now difficult to assess the macro-economic significance of government deficits by inspecting unadjusted current statistics. ... Observed budget deficits are large, ... yet when the effect of recession itself and the effect of inflation on debt servicing are subtracted, fiscal policy is seen to be restrictive on demand". (page 13) Conventional national accounts which, under inflation, include spurious elements can obscure the understanding of important economic behavior.

In earlier papers in this Review (Praet [9], [11]) we have adopted a "broadened" definition of income *à la* Haig [3] or Simons [14] in order to capture the distributional effect of inflation through the wealth account. The main result was that the adoption of a wealth-based definition of income strongly modified the level and the distribution of income of the household sector. In the present note, we give estimates of the redistributional effect of inflation through the wealth account in favour of an important net debtor sector of the economy: the public sector, defined in a restricted sense as the central government. This definition leads us to omit the often discussed problem of the inflation tax on cash balances.

We define income as the maximum possible consumption holding the purchasing power of net wealth constant, or as consumption plus the change in the real value of an economic unit's assets. Such a definition presents the advantage of being stock-flow consistent[1] since:

$$\frac{d(K_t/P_t)}{dt} = \frac{Y_t}{P_t} - \frac{C_t}{P_t}$$

where

K_t = stock of net wealth

P_t = price level

Y_t = broadened disposable income

C_t = consumption expenditures.

*The author is grateful for valuable comments from Professor J. Vuchelen of the University of Brussels.

[1] A pair of variables $x_{(t)}$, $y_{(t)}$ is stock-flow consistent if $y_{(t)} = \dot{x}_{(t)}$ or y is the flow counterpart of the stock variable x (see Siegel [13], page 85).

This identity is not respected if Y_t = the current disposable income concept with P_t = a consumption price index.[2]

Inflation has two major effects on public finances: flow and stock effects. The idea of *flow effects* is that inflation raises the cost of government services and investment while simultaneously increasing the amount of revenues received. A problem arises when these adjustments do not occur in the same way and with the same speed. Aghevli and Kahn [1] have suggested that one of the dynamic forces sustaining inflation in developing countries is inflation-induced fiscal deficits. After a change in the price level, total government expenditure would adjust faster than revenue such that a procyclical bank-financed budgetary deficit develops (see also Heller [4]). This may not be the case in developed countries notably because of the progressivity of direct taxation with limited indexation of tax brackets.[3] Due to the problem of finding appropriate price deflators for public revenues and expenditures, this aspect is not treated in the present note. The *stock-effect* of inflation results from the fact that the government is a net debtor and that creditors do not always correctly anticipate the inflation rate (or possibly because the government uses its coercive power to impose acquisitions of public debt). With the exception of the work of Siegel [13] in the United States, this problem has been the subject of little research.

Applying the definition of income of Haig and Simons leads to[4]:

$$BR_t = R_t - K_{t-1}\left[\frac{P_{t-1}}{P_t} - 1\right]$$

$$= R_t + CG_t$$

where

R_t = government revenue

BR_t = "broadened" government revenue

K_{t-1} = outstanding debt

P_t = price index (government expenditure deflator)

CG_t = real capital gains.

Since K_t = a liability, under inflation CG_t = a gain for the government. The budgetary deficit is $(R_t - E_t) < 0$ with E_t = government expenditure and our reformulated government deficit is $(BR_t - E_t)$ which will be called "restricted" deficit since one expects $(BR_t - E_t) > (R_t - E_t)$.

The inflation-induced wealth tax rate on the public debt is equal to the unexpected inflation: $TW_t = (\dot{P}_t - \dot{P}e_t)$, assuming that the inflation premium included in the nominal interest rate corresponds to people's actual expectations. Since no "good" series of price expectations is available (see Praet [10]), estimates

[2]In the case where P_t = price index of the stock of net wealth, the identity is of course respected in both definitions. Haig and Simons stress the importance of consumption purchasing power considerations in the valuation of people's income.

[3]However, in the United Kingdom, where attempts have been made to formulate budgets in real terms, a deterioration in the terms of trade of the public sector has been found (see Price [12]).

[4]See Praet and Vuchelen [11] for details on the methodology.

of the inflation wealth tax cannot be directly presented: they can only be melted within the real *ex post* interest payments flows, i.e.:

$$K_{t-1} \cdot [ir_{e,t} + \dot{P}e_t - \dot{P}_t]$$

where $ir_{e,t}$ = real *ex ante* interest rate.[5] Further research will consider the other elements of the government's wealth account and the costs or benefits resulting from changes in the market value of government securities (taking into account repurchase premia and interventions by the "Fonds des Rentes"). Moreover, the inflation tax which operates through the public debt should be considered simultaneously with the flow effects of inflation on the public debt. For this, it would be useful to decompose the real *ex post* interest rate net of taxes (ir_t) into its various elements:

$$ir_t = in_t(1-\tau) - \dot{P}_t = in_t - \dot{P}e_t - \tau(in_t - \dot{P}e_t) - \tau\dot{P}e_t - (\dot{P}_t - \dot{P}e_t)$$

where

in_t = nominal interest rate on public debt

τ = tax rate

$\dot{P}e_t$ = expected inflation

$\tau(in_t - Pe_t)$ = tax on the real *ex ante* interest rate

$\tau\dot{P}e_t$ = tax on the expected inflation (= flow effect of inflation)

$(\dot{P}_t - \dot{P}e_t)$ = inflation-induced wealth tax, TW_t.

Losses in "real value" of domestic private sector holdings of public debt are often noted in economic and business papers. For the EEC, the European Commission has presented estimates of these losses, calculated as $K_{t-1} \cdot \dot{P}_t / GNP_t$ (see EEC [2], page 69). Such estimates, which do not take into account the inflation premium, are of limited significance.

Table 1 summarizes for Belgium the stock-effect of inflation on the Central Government for the last three decades. Estimates are given for 1981. The *outstanding debt* (column 1) includes long and short term borrowings by the Central Government[6] and includes liabilities expressed in both Belgian francs and in foreign currency. A more precise estimate should distinguish domestic and foreign debt; however the share of debt in foreign currency was relatively small until 1980 (7.3 percent on average over the period 1952–1980; 2.7 percent in the seventies). A similar phenomenon of under-anticipation of the inflation rate also occurred in a number of developed countries. In terms of GNP, the outstanding debt decreased from 66.1 percent in 1952 to a minimum 39.1 percent in 1974; it then increased to 56.3 percent in 1980 and approximately 65 percent in 1981. Corresponding *interest payments* in percent of government revenues are given in column 2. Interest payments represented 11.4 percent of total

[5]Moreover, the unexpected inflation term would be extremely difficult to estimate because one would have to construct a kind of weighted average of expectations corresponding to each period of issue of the public debt.

[6]Including the so-called "indirect" debt which mainly represents borrowings by the "Fonds des Routes" and the "Office de la Navigation."

TABLE 1

ESTIMATES OF THE WEALTH-EFFECT OF INFLATION ON THE GOVERNMENT BUDGET, BELGIUM, 1953–1981

	Outstanding debt ($\times 10^9$Fr)	Interest Payments	Real Capital Gains	Reduced Interest Payments	Budgetary Deficit	Reduced Budgetary Deficit	Reduced Budget Deficit (in % of budgetary deficit)	Interest Rate on Outstanding Debt	
		(In % of total government revenue)			(In % of GNP)			Nominal (%)	Real *ex post* (%)
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
952	266.3	—	—	—	—	—	—	—	—
953	282.3	9.8	—	9.8	−3.9	−3.9	100.0	2.9	2.9
954	298.2	10.2	—	8.0	−3.7	−3.7	100.0	2.8	2.8
955	311.6	11.2	0.7	10.4	−2.9	−2.8	95.5	3.1	2.9
956	317.8	10.6	2.2	−0.6	−1.3	−1.2	91.9	3.0	−0.2
957	323.6	10.2	12.0	1.8	−1.1	−1.1	98.3	3.1	0.5
958	345.6	11.4	3.5	7.9	−4.2	−3.6	85.0	3.3	2.3
959	373.6	11.7	7.9	3.8	−4.4	−3.0	66.8	3.4	2.3
960	396.1	12.5	4.0	8.5	−3.8	−3.1	80.5	3.6	2.5
961	411.0	12.5	—	12.5	−3.0	−3.0	100.0	3.8	3.8
962	423.2	12.1	4.4	7.7	−1.8	−0.9	50.0	3.9	2.5
963	446.0	11.8	5.5	6.3	−3.2	−2.1	65.0	3.9	2.1
964	462.1	11.4	9.7	1.7	−1.9	—	−1.3	4.0	0.6
965	484.6	11.5	13.5	−2.0	−2.6	0.2	−5.9	4.3	−0.7
966	503.5	10.7	12.0	−1.2	−1.9	0.8	−40.1	4.5	−0.5
967	525.4	10.9	8.8	2.2	−2.3	−0.3	14.2	4.8	1.0
968	567.2	10.7	9.0	1.8	−3.2	−1.2	36.4	4.9	0.8
969	595.8	11.3	9.4	2.0	−2.7	−0.5	19.2	5.3	0.9
970	619.6	11.4	11.7	—	−1.8	0.9	−46.4	5.9	—
971	642.9	11.1	15.4	−4.1	−2.4	1.2	−50.8	5.9	−2.2
972	710.2	10.4	13.7	−3.3	−4.0	−0.8	19.0	6.0	−1.9
973	763.7	9.2	12.1	−2.9	−2.9	—	−1.5	5.7	−1.8
974	820.6	9.5	18.8	−9.3	−2.7	1.9	−69.6	6.4	−6.3
975	928.6	8.9	20.1	−11.2	−4.7	0.6	−13.3	6.7	−8.4
976	1,058.6	9.4	11.0	−1.6	−5.0	−2.1	41.8	7.2	−1.2
977	1,228.6	10.1	9.7	0.3	−5.9	−3.2	53.8	7.5	0.2
978	1,426.9	10.3	6.2	4.1	−6.0	−4.2	69.7	7.5	3.0
979	1,638.9	12.6	7.6	5.0	−6.5	−4.3	65.6	8.5	3.3
980	1,956.8	16.0	11.2	4.9	−8.7	−5.4	62.5	9.9	3.0
981(e)	2,439.1	21.5	13.4	8.1	−12.8	−9.1	70.8	11.3	4.3
Averages									
1953–1969	—	11.2	6.0	4.7	−2.8	−1.7	44.6	3.8	1.6
1970–1981	—	11.7	12.6	−0.8	−5.3	−1.9	16.8	7.4	−0.7
1953–1981	—	11.4	8.7	2.4	−3.8	−1.8	33.1	5.3	0.6

Sources: Ministry of Finance [7] and Jacobs [5].

government revenues over the period 1953–1981. This percentage was relatively constant with the exception of 1980 and 1981 when it increased to 16.0 percent and 21.5 percent respectively. The nominal interest rate (column 9) increased from about 3 percent in 1953 to 11 percent in 1981. *Real capital gains* (column 3) represented amounts equivalent to 8.7 percent of total government revenues (1953–1981) or 12.5 percent in the seventies. These gains in favor of the public sector had the effect of reducing the interest payments from 11.4 percent of total government revenues to an effective 2.4 percent (1953–1981). *The real ex post interest rate* before taxes (column 9) was nearly nil on average over the whole period. Until 1969, the real interest rate was of the order of 1.6 percent. In the following decade, negative rates were registered until 1977: −2.7 percent per year. From 1978 to 1981, the real rate became positive with an annual rate of 3 percent similar to the real rate observed in the early fifties. The reformulated budgetary deficit based on accrual instead of cash basis accounting is reduced by 70 percent over the period 1953–1981 or by almost 90 percent in the seventies (column 7).

These results illustrate the extent of the impact of inflation on the *economic* position of the public sector. Notably as a result of the high unexpected inflation rates that occurred during the last ten years or so, economists have tended to rediscover the importance of real stock variables for understanding economic behavior. In the field of public finance, however, attention has probably been concentrated too much on purely cash-flow aspects of the budgetary deficit. Data show that the effective tax burden on the private sector was, in fact, higher than generally believed. The mechanism of the inflation-induced wealth tax could usefully be incorporated in models which consider the impact of the public debt on the economy, notably when dealing with the problem of expectations on future taxation necessary to finance interest and amortization payments.[7] Finally, the very recent years indicate a reversal since 1978 of a trend which started in 1964 and culminated in 1975. This can probably be attributed to a kind of error-learning process (all over the Western world) among the net creditor sectors of the economy.

BIBLIOGRAPHY

[1] Aghevli, B. and Khan, M., Government Deficits and the Inflationary Process in Developing Countries, *IMF Staff Papers*, September 1978.

[2] Commission of the European Communities, Directorate-General for Economic and Financial Affairs. Annual Economic Report 1980–81, *European Economy*, November 1980, No. 7.

[3] Haig, R. M., *The Federal Income Tax*, Columbia University Press, 1921.

[4] Heller, P. S., The Impact of Inflation on Fiscal Policy, IMF, DM/80/49, July 17, 1980.

[5] Jacobs, P., De Evolutie van de Overheidsschuld in Belgie, Institut Belge de Finances Publiques, *Colloque sur les Problèmes Actuels de la Gestion de la Dette Publique*, Bruxelles, 22 mai 1981.

[6] Jump, G. V., Interest Rates, Inflation Expectations, and Spurious Elements in Measured Real Income and Savings, *The American Economic Review*, Vol. 70, No. 5, December 1980.

[7] Ministry of Finance, Belgium, *Bulletin de Documentation*, Various issues.

[8] OECD, *Economic Outlook*, Paris, December 1981.

[7]See Thys and Vuchelen [15] for a survey of the literature on this subject. If one admits the extreme view that public borrowings are deferred taxation, obviously the depreciation of the public debt in real terms has no major long term effect on the real economy since the losses incurred by the creditors are counterbalanced by a decrease in the need for future taxation.

[9] Praet, P., The Impact of Capital Gains on the Distribution of Income in Belgium, *The Review of Income and Wealth*, Series 26, No. 4, December 1980.
[10] Praet, P., A Comparative Approach to the Measurement of Price Expectations, *Cahiers Economiques de Bruxelles*, No. 90, 2e trim. 1981.
[11] Praet, P. and Vuchelen, J., The Broadening of Income to Include Capital Gains: Results for Belgium, *The Review of Income and Wealth*, Series 25, No. 3, September 1979.
[12] Price, R. W. R., Public Expenditure: Policy and Control, *National Institute Economic Review*, No. 90, November 1979.
[13] Siegel, J. J., Inflation-Induced Distortions in Government and Private Saving Statistics, *Review of Economics and Statistics*, 1979.
[14] Simons, H. C., *Personal Income Taxation*, University of Chicago Press, 1938.
[15] Thys, F. and Vuchelen, J., Analyse Economique de la Dette Publique, Institut Belge de Finances Publiques, *Colloque sur les Problèmes Actuels de la Gestion de la Dette Publique*, Bruxelles, 22 mai 1981.