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## BUDGET DEFICIT AND PUBLIC DEBT IN POLAND IN THE TRANSFORMATION PERIOD

### INTRODUCTION

Nowadays, a deficit of a state budget has become a common matter in most countries, including Poland. However, a creation and a permanent increase of the deficit may be controversial. The most important problems include following questions<sup>1</sup>:

1. Are the fiscal deficit and the public debt sources of inflation?
2. Is the public debt a harmful burden for future generations?
3. Will an increase of the public debt lead to a fiscal bankruptcy?

Answers to these questions may differ depending on the subscribed theory of finance. It is very difficult to get clear-cut answers on such questions for Polish economy in the last decade. Firstly, it has been a period of a transition from the planned to the market economy. In most cases, the changes that took place after 1989 were dynamic, tumultuous, so Polish economy couldn't be considered stable. There was no good theory or simple answers how to get through the changes fast and painless. Secondly, at the beginning of the transformation process, we didn't have enough data to prepare reliable statistical measures or create econometric models. Thirdly, Poland was one of the forerunners of transformation, so Polish authorities didn't have any practical background from countries that had gone through the transition before.

To do further research on the fiscal deficit we should first define and distinguish two keywords: the fiscal deficit and the public sector deficit. The fiscal deficit, called budget deficit, is negative (adverse) balance of the state budget. The second expression includes all segments of public finance. This "global" method of calculation is often called General Government and has been using by OECD and EU countries. Reuters' journalists propose

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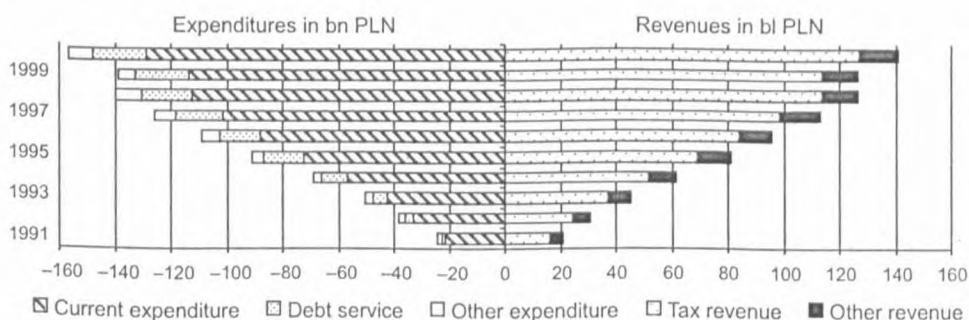
<sup>1</sup> See: S. Owsiaak, *Finanse publiczne. Teoria i praktyka*, PWN, Warszawa 2000, p. 243.

their own definition and say: "The public sector gap, called economic deficit in Poland [...] includes the deficit of central government, local authorities and state agencies minus transfers to private pension funds"<sup>2</sup>.

### 1. CHARACTER OF POLISH FISCAL DEFICIT

In Poland, the fiscal deficit is defined as the part of budget spending which is not covered by the revenue. It is officially called the State budget deficit and specified in the Public Finance Act. According to art. 64.1: "the difference between revenue and spending of the state budget determine a surplus of the state budget or a deficit of the state budget"<sup>3</sup>. Most economists indicate that Polish budget deficit is strictly connected with the transition from the planned to the market economy.

A value of a fiscal deficit is established yearly by a Polish Parliament in the Budget Acts. Central Statistical Office (Główny Urząd Statystyczny – GUS) presents extensive data on the budget<sup>4</sup>. Apart from the state budget, GUS puts forward a consolidated central budget according to the International Monetary Fund methodology, which includes the state budget, Social Insurance Fund (FUS), Pension Fund (FE-R) and Labour Fund (FP). Domestic and foreign debts of the State Treasury are also presented. Similar statistics are prepared by the Ministry of Finance (MF). The budget revenue and expenditure are shown below.



Graph 1. Budget expenditure & revenue

Source: own elaboration based on MF publications.

<sup>2</sup> Reuters, *Poles Confront Deficit*, European Businessman, Autumn 2001, p. 70.

<sup>3</sup> Ustawa z 26 listopada 1998 r. o finansach publicznych, art. 61.1 (Dz.U. nr 155, poz. 1014 ze zm.).

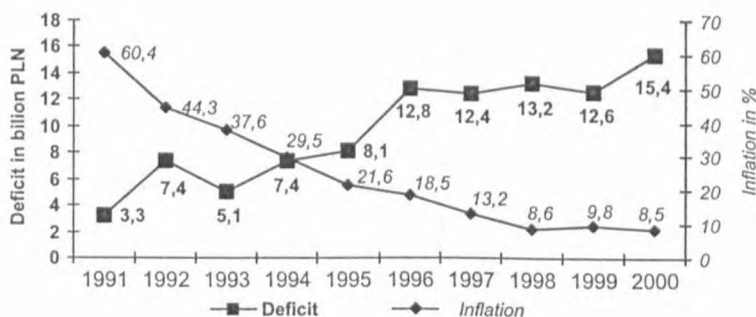
<sup>4</sup> See e.g.: Central Statistical Office, *Statistical Bulletin*, November, Warsaw 2001, tables 19–22, p. 61–63.

As seen on the graph, expenditure and revenue were both raising rapidly during the last decade. The revenue has been strictly connected with taxation. In the expenditure structure, excluding current spending, the debt service cost were growing systematically as well as significantly. You can also observe that, in most cases, revenue was raising lower than expenditure. That means, that the budget deficit was increasing systematically.

All the statistics shown on the graph 1 are nominal, so the increase of budget spending and revenue can be thought as dependent on inflation. However, a systematic raise of the revenue and expenditure was followed by a dramatic plunge of inflation. That is why the connection between the value of state budget deficit and inflation is not transparent. It is analysed in the next paragraph.

## 2. BUDGET DEFICIT AND INFLATION

The deficit of the state budget can, but don't have to, affect inflation. The answer depends on the theory of economy as well as on the economics of a country. Direct financing of the budget deficit by the central bank is considered to foster inflation to a large extent. Such a practices were prohibited by Polish Constitution in 1997<sup>5</sup>. The graph below introduces volumes of inflation and budget deficit in Poland in the transformation period.



Graph 2. Inflation & Budget Deficit (in billion PLN)

Source: own elaboration based on GUS and MF publications.

<sup>5</sup> Konstytucja Rzeczypospolitej Polskiej uchwalona 2 kwietnia 1997 r., art. 220.2.

As you can see, the growing budget deficit was followed by decreasing inflation. This real situation seems to differ from most theories of economics. Similar situation appeared when the deficit was measured as a percentage of GDP. It is shown at the graph below.



Graph 3. Inflation & Budget Deficit (in *per cent*)

Source: own elaboration based on GUS and MF publications.

An econometric model was prepared to check, how the budget deficit affect inflation. I propose a simple, linear equation:

$$Infl_t = \alpha_0 + \alpha_1 Defic_{t-1}$$

$Infl_t$  – inflation (consumer price index – CPI) in *per cent*,

$Defic_{t-1}$  – the deficit of the state budget in billion PLN in previous year,

$\alpha_0, \alpha_1$  – parameters of the equation.

An estimation for the model is shown in the table below.

Table 1

Estimation for Inflation & Deficit model

SEE =	4.43	RSQ =	0.9291	RHO =	0.32	Obser =	10 from 1991.000
SEE+1 =	4.35	RBSQ =	0.9203	DW =	1.36	DoFree =	8 to 2000.000
MAPE =	18.28						
Variable name	Reg-Coef	Mexval	t-value	Elas	NorRes	Mean	
0 Infl						25.20	
1 intercept	54.01701	501.4	16.774	2.14	14.11	1.00	
2 Defic[1]	-3.62023	275.6	-10.242	-1.14	1.00	7.96	

Source: results of the econometric estimation in "G" computer program.

According to the estimation, we received the following equation:

$$Infl_t = 54,01701 - 3,62023 Defic_{t-1}$$

t-value:            (16,774)        (-10,242)

At first sight, the model seems to be a "good" one. The determination index RSQ equals 0,9291. It means that the changes of the budget deficit explain the volume of inflation in 92,9%. The "t-value" shows that the level of the budget deficit has a crucial influence on inflation (at the level of statistical essentiality amounting 0,001). In other words, the probability of that fact amounts over 99,9%. However, a significant "content-related" problem appears. An estimation of the parameter amounts -3,62. A "-" symbol means that a growth of the budget deficit causes a significant decrease of inflation. It is opposite to theories of economy. Basing on the statistics and the proposed econometric model, we can say **that there is a statistical connection between values of inflation and the deficit, but it would be very hard to find a direct "casual" effect.** A similar situation appears when hypothesis on the interaction of inflation and money supply is verified. The researches give very interesting results. An increase of money supply seems to follow slumping inflation. While an index of an increase of money supply (MS) was raising rapidly, CPI index was going down systematically. Paradoxically, an opposite situation followed in 1999: MS fell and CPI rose for the first time since the transformation period started. Such a situation can indicate that "inflation in Poland has non-monetary sources"<sup>6</sup>. That is why **there is no simple, direct connection between levels of inflation and budget deficit.** We should also pay attention to a fact that CPI index fell by several times while MS index changed (rose) only by about 40%.

### 3. BUDGET DEFICIT AND GOVERNMENT SECURITIES - COST OF STATE TREASURY DEBT

The budget deficit or the public sector deficit always need to be financed. There are a few ways to do that, but the most effective and the most popular is the state borrowing. Financing of the deficit leads to borrowing and, in consequence, creates **State Treasury debt or public debt.** The most popular and effective way of financing of the deficit is the issue of the

<sup>6</sup> Z. Polański, *Polityka pieniężna w Polsce w drugiej połowie lat 90: bieżące problemy i strategiczne wyzwania*, NBP, Departament Analiz i Badań, Materiały i Studia, z. 72, Warszawa, luty 1998, p. 7.

State Treasury securities. According to the Public Finance Act, art. 54, treasury securities can be issued with maturity:

- one year or shorter (including 364 days) – in particular: treasury bills,
- not shorter than one year (365 days) – in particular: treasury bonds<sup>7</sup>.

The treasury bills are short-term, discount, bearer securities. The bills' primary market consist of weekly auctions. They are issued by Ministry of Finance, as an agent of the State Treasury. The maturity can be: 4, 8, 13, 26, 39, 52 weeks<sup>8</sup>. The face value of each bill amounts 10 000 PLN. The bids are prepared by the Polish central bank, called National Bank of Poland (NBP). Big, institutional investors can participate in the auctions only. They must have the "bid participant" status. The secondary market is an open, kerb one. There are no special legal rules here, so it is the most liquid sector of the treasury securities market<sup>9</sup>.

Treasury bonds can be discount, fixed interest bearing, floating-rate or even convertible bearer securities. They are offered to domestic and foreign investors. Many of them, meant for institutional investors and called "wholesale bonds", are sold on auctions prepared by NBP. The rest is distributed by retail trading network and sold in "retail outlets". Retail bonds are stock-exchange securities. The secondary market is organised by Warsaw Stock Exchange (Warszawska Giełda Papierów Wartościowych)<sup>10</sup>.

The most important „wholesale” treasury bonds are:

- Zero-coupon (still in use),
- Two-year fixed rate (last issue – 01. Sept. 1999),
- Five-year fixed rate (still in use),
- Five-year fungible (last issue – 12. Jun. 1999),
- Ten-year fixed rate (still in use),
- One-year index-linked (last issue – 25. Feb. 1998),
- Ten-year floating rate (still in use),
- Convertible (still in use)<sup>11</sup>.

**“Economic deficit in Poland is seen as the best measure of the effect of state borrowing on the economy...”**<sup>12</sup> Reuters said. However, “borrowing” is expensive, because it creates costs of the debt service. Authorities have to pay interest on the borrowed capital. These cost differ from each other depending on the way of borrowing (bank credit, government securities

<sup>7</sup> Ustawa z 6 listopada 1998 r. o finansach publicznych, art. 54.1, 2.

<sup>8</sup> I. D. Czechowska, *Bony skarbowe i bony pieniężne – analiza porównawcza*, „Bank i Kredyt”, październik 1997, p. 31.

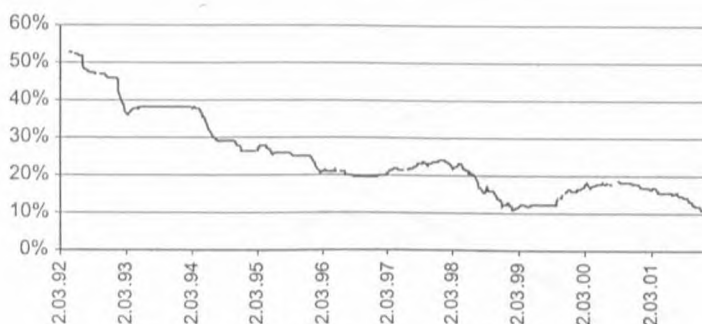
<sup>9</sup> C. Kosikowski, Z. Szpringer, *Finanse publiczne. Komentarz do ustawy z dnia 26 listopada 1998 roku, Zachodnie Centrum Organizacji, Zielona Góra 2000*, p. 153–154.

<sup>10</sup> *Ibidem*, p. 154–165.

<sup>11</sup> According to web-site information: [www.mf.gov.pl](http://www.mf.gov.pl), file: *ObligacjeHurtowe.exe*.

<sup>12</sup> Reuters, *Poles Confront Deficit*, p. 70.

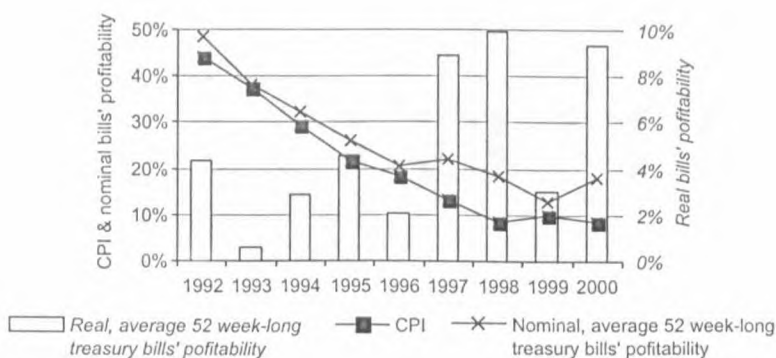
etc.). The frame of reference can be a profitability of 52 week-long government bills. These bills appeared in Poland at the beginning of 1992 and have been issued by the State Treasury since then. The average profitability of the bills is shown on the graph below.



Graph 4. 52 week-long government bills – average profitability rate

Source: own elaboration based on information from Ministry of Finance web-site: [www.mf.gov.pl](http://www.mf.gov.pl). (file: *BonySkarhowe.exe*)

As seen on the graph, the interest on the bills has been fluctuating slightly as well as decreasing systematically. Due to high inflation, at the beginning of the transition process, government had to pay over 50% on the borrowed capital. Nowadays, the yearly cost of such a debt amounts about 10%. To check how expensive is borrowing by the issue of the treasury bills, we should compare the interest on them with the index of inflation. It is made on the next graph.



Graph 5. Nominal & real interest rate on 52 week long treasury bills

Source: own elaboration based on GUS and MF publications.



As shown on the graph, the value of interest on the bills was generally following decreasing inflation. However, the real profitability of the bills was fluctuating strongly from about three per cent to almost ten per cent.

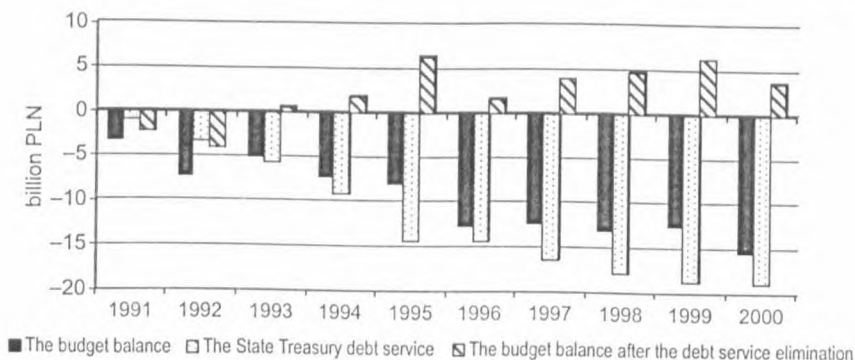
The 52 week-long treasury bills are just an example of the state issue. As it was already said, there are many more government securities that are used to finance the budget deficit and all of them are more or less expensive and generate large cost of debt service. This cost affect the budget expenditure. It is shown on the graph below.



Graph 6. Participation of the debt service in the state budget expenditure

Source: own elaboration based on GUS and MF publications.

As shown on the graph the participation of the debt service in the state budget expenditure was raising from 4,1% in 1991 to 15,8% in 1995, then fell down slightly to 13,2% in 1996 and remained constant on the level 12–13%. Such a high cost of the debt service affects budget balance and contributes to a rise of fiscal deficit. It is illustrated on the next graph.



Graph 7. The budget balance & the State Treasury debt service

Source: own elaboration based on GUS and MF publications.



As you can see, the state treasury debt service has generated very high expenses for the government. Since 1993 there would be a budget surplus in Poland after the debt service elimination. Paradoxically, the public debt (which was incurred in order to cover the former deficit) generates big costs of its service which affect a rise of the current budget deficit.

## CONCLUSION

As specified in the paper, Polish budget deficit is strictly connected with the transformation and all the economic changes that took place after the year 1989. During all the period the budget expenditure were generally raising faster than revenue, causing systematic growth of the state budget deficit. However, the increase of the deficit is not a transparent issue. Basing on the statistics, we may say that there is a statistical connection between values of inflation and the deficit, but it would be very hard to find a direct "casual" effect. The most effective way of financing of the deficit, which is the state borrowing, generate large cost of public debt service. These cost can, to some extent, be burden for future generations.

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## DEFICYT BUDŻETOWY I DŁUG PUBLICZNY W POLSCE W OKRESIE TRANSFORMACJI

Niniejszy artykuł jest próbą analizy deficytu budżetowego i długu publicznego w Polsce w okresie transformacji. Zawiera on ocenę wielkości i charakteru deficytu w trakcie przekształcania polskiej gospodarki z systemu centralnie planowanego na rynkowy. Badaniu poddano m. in. wzajemny związek między wzrostem cen towarów i usług konsumpcyjnych a wartością deficytu budżetowego. Ponadto krótko przedstawiono skutki wzrostu polskiego deficytu i długu publicznego.