The Public Sector in the Czech Republic in Light of the Public Choice Theory

Václav Rybáček [1] | *Jan Evangelista Purkyně University, Ústí nad Labem, Czech Republic*

Abstract

The aim of this paper is to discuss pros and cons of the current ways how the role of government in the society is analysed. In our analysis, macroeconomic aggregates provided by the satellite accounts of the public sector are used as an alternative analytical tool. This data supposedly better reflects the existing range of government activities as all government controlled entities are covered. Relevant time series by the Czech Statistical Office were prolonged making the analysis of long-term trends in the public sector size possible. The results are discussed against the theoretical background of the public choice theory. It was found out that there was an obvious bias to the deficit-driven provision of the public goods reflected concurrently in the growing indebtedness. On the other hand, the share of total revenues and expenditures remains rather stable over time.

Keywords	JEL code
Public sector, government, national accounts, public choice	*E60, H11, Z18*

INTRODUCTION

The role of government in the society has become one of the most frequent subjects of economic research over last decades. The increasing interest reflected profound institutional changes taken place in modern economies, especially the expanding government interventionism implemented through institutions of exceptional economic power intentionally established for this purpose and rising demand for clarification of how the government actions affect the economy. However, purely theoretical explanation would be found as insufficient or inconclusive; relevant statistical data and analysis supporting given conclusions are standardly required.

A long line of studies have examined the optimal size of government in relation to the wealth creation, economic growth or inflation. These empirical studies work mainly with the general government sector whose impact on the economy is expressed as the amount of government consumption or its share on GDP. However, a number of objections can be raised against this approach whereas these objections relate to the question of measurement and to the choice of aggregates best expressing the role of government in the society.

First, the delimitation of the general government remains still an open issue even though this question has been widely discussed. Under current circumstances, official government policy is normally performed, in part, by units still classified outside the sector of government units. Irrespective of the classification, these units, controlled by government or operating under the instructions of government bodies, put into practice government social and economic policy. In other words, these units convey the effects of government policy to the economic system. Ignoring of some of them can lead to the underestimation of the effective role of units operating in the so-called public interest.

Secondly, the government consumption can help to explain direct impact of government outlays on GDP as it is currently defined. But, overall role of government in the society would be underestimated as a larger part of government outlays has no direct impact on GDP. As shown in the text, government institutions can become more oriented on the redistribution of existing wealth rather than on productive activities themselves. If this trend exists, then the size of government will be perceived as smaller which may not correspond to reality.

In the text below, we offer an alternative view or tool to analyse the impact of the public sector using existing and estimated data. The development of the public sector in the Czech Republic will be investigated in terms of its size expressed in alternative ways. The results will be discussed against the theoretical background of economic theories dealing with the evolution of the public sector in modern democratic economies.

1 THE PUBLIC SECTOR IN ECONOMIC RESEARCH

Along with expansion of government intervention the demand for relevant information on the size of the government sector or the public sector has been rising. Data for the government sector or the public sector is provided in number of forms; however it is worth noticing that some effects of government regulations can be hardly measured as is the case of various types of regulations such as tariffs, barriers to entry into industry, etc. Thus, data usually covers only transactions and stocks in whose government or public institutions are directly involved in the accounting sense, i.e. interventions quite easily measurable.

Extensive research has been conducted with the aim to tackle the issues as an optimal size of government, the impact of government policies and the size of government on productivity, inflation and especially on economic growth. In this respect, Carr (1989) and Rao (1989) raised strong objections of the methodological nature. Main point is the way of calculation of government output. Since it is calculated as a sum of costs, there is a strong bias toward positive relationship between the size of government and economic growth. Moreover, output equalled to the sum of inputs implies that the contribution of government to total productivity cannot be effectively measured. These objections are highly relevant; the costs-based quantification of government output is, undoubtedly, a weak point in measuring of government activities.

In empirical researches, the size of government is preferably expressed as the amount of government consumption[2] or total government outlays.[3] In other words, it is based on the current way how the general government sector is identified. Nevertheless, the current classification has its own pros and cons and the on-going discussion and methodological changes in the underlying data can alter final findings of empirical researches examining the effects of government policies on the economy. Rewriting history can be to high extent prevented by using alternative tools as will be shown below.

Using these tools, we will investigate whether the development of the public sector in the Czech Republic complies with the suggestions of the public choice theory as formulated in Buchanan and Wagner (2000). In this seminal work in the field of the public choice theory, Buchanan and Wagner (2000)

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[2] E.g. Barro (1989), Gunalp and Dincer (2010), Chobanov-Mladeova (2008).
[3] E.g. Gwartney, Lawson and Holcombe (1998), Arpaia and Turrini (2008).

deal with the dynamics of the public sector over time. As this theory goes, the application of Keynesian macroeconomic policy in democratic societies inevitably leads to deficit financing irrespective of business cycle phase (and debt financing instead of tax financing of government outlays), inflationary pressures caused by fiscal policy and an expansion of the public sector in terms of its share on gross national income.

With these observations made by the public choice theorists, we will examine the behaviour of the public sphere using most recent data published by the Czech Statistical Office supplemented by estimated data for the sake of time series prolongation. When analysing the issue of the public sector evolution, we will incorporate main indicators as total expenditures or revenues, total amount of assets and liabilities held by units covered by the public sector which will be concurrently expressed as shares on selected denominators.

The term "public" will be used as defined in the national accounts methodology,[4] i.e. the population of units covered not only by the general government sector, but also those units considered as non-governmental, i.e. market producers under government control classified in the corporate sectors. The methodological part of the text contains more detailed information on relevant data sources and other adjustments made for the analytical purposes.

2 METHODOLOGY

Ambiguities mentioned above, which are conceptually related to the sector classification issue, can be overcome by use of alternative data set having the form of so-called satellite accounts. The satellite accounts are clearly linked to national accounts, however, units or activities are grouped differently to satisfy specific needs. For instance, it can cover purely the activities of units engaged in research and development, agriculture or health services. Main aim of this kind of accounts is to highlight specific features of particular units or activities; however, the link of satellite account methodology to national accounting is still maintained.

As our main interest is to investigate the public sector, we are dealing with the satellite account rearranging the central sector classification so that it will cover all units intentionally implementing social and economic policy of government. This is the case of the public sector satellite account whose structure, as to delimitation of group of units concerned, is more broadly described in the following paragraphs. In the Czech Republic, the satellite account covering public units is regularly published.

However, the most recent data published by the CZSO covers fairly a short period ranging from 2011 to 2013.[5] However, the analysis of the course of the public sector in term of its size and changing role in the economy should be based on data covering a longer period. The prolongation of time series has been made using data published by the CZSO and estimating data which cannot be directly overtaken from the published data. This procedure follows the sectoral structure of national accounts and the content of the public sector.

It is worthy to start the analysis with the discussion on the coverage of economic units. The public sector consists of all resident units controlled by government irrespective of market or non-market output they produce. The notion of control is defined "as the ability to determine general corporate policy of the corporation" (SNA 2008, par. 4.77). It implies that the public sector includes all units classified as government units whose economical behaviour is described by data for the general government sector (S13). Nevertheless, the methodology of the satellite accounts of the public sector goes far beyond the general government sector; economic results of market nonfinancial producers under control of government are counted in as well. Macroeconomic indicators for these producers were taken over from the sectoral accounts as units in question are grouped into sub-sector public non-financial institutions (S11001).

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[4] For more detailed analysis see Vebrova, Rybacek (2014).
[5] For this text, macroeconomic indicators as published by the CZSO at the end of January 2016 were used.

This holds true also for the central bank which represents another important component of the public sector. Units conducting monetary policy, which constitutes deliberate regulation of monetary conditions whereas final goals are defined by the law, are classified in the sub-sector S12001 which is separately published so that data could be easily taken over. However, other public financial institutions are not shown in one individual sequence of accounts so that appropriate data must be estimated using an alternative method.

This data gap has been filled by identification of the most significant units (public banks and public insurance companies), using their individual data and its integration into macroeconomics indicators of the public sector. These estimations make the picture of the public sector more complete, so the accounts for public institutions encompass government units, all public non-financial public corporations and a dominant part of public financial corporations.

The following box summarizes the structure of public sector as described above.

Box 1 The structure of the public sector

General Government Sector		Nonfinancial Corporations Sector		Financial Corporations Sector		Households Sector		Nonprofit Institutions Serving Households Sector
Public		Public		Public		Private		Private
		Private		Private				

Source: Public Sector Debt Statistics: Guide for Compilers and Users (2013)

In the analysis below, the aggregates on total revenues and expenditures expressed as percentage of GDP will be applied which leads us to the consolidation issue. Consolidation of data assures that the public sector is shown as it were one unit. Generally, consolidated data are preferred to non-consolidated one (O´Connor, Weisman, Wickens, 2004). It is thus preferred to eliminate the internal flows. One of the main reasons is to have reliable tool how to assess overall impact of government operations on the rest of the economy.

However, the reasoning of the consolidation is mainly focused on the case of flows. When assessing the influence of the public sector on the economy, consolidated data on flows are strongly preferred to avoid double-counting. As O´Connor, Weisman and Wickens (2004) stated, it will prevent the distorting effects due to different institutional arrangements across countries. The larger is the number of existing government institutions the higher is the frequency of transactions between them, so total revenues and expenditures will inflate.

In case of stocks, the situation is very different. Even internal debt reflects the financial stability of units constituting the public sector. If a public unit provides a loan to another public unit, it indicates that one public unit (debtor) is in a need to receive additional financial resources whereas the other unit (creditor) now faces the counterparty risk. So, the financial risk in the public sector has clearly increased; newly formed financial relation poses a threat to financial soundness of public units concerned.

Furthermore, consider commercial private bank selling central government bonds to local government unit. If this is the case, government bonds disappeared from consolidated debt statistics as if they were repaid or cancelled by counterparty. However, they still exist; moreover, the financial situation of one government unit (creditor) depends, to some extent, on the ability of other government unit (debtor) to repay its debt. At the level of individual units, the "internal debt" simply matters.

We should briefly touch the double-counting issue. Even if it cannot be denied that double-counting of debt instruments is conceivable, it would be rather rare case when, e.g., a public unit takes a loan from non-public institutions and channels newly received financial means to another public unit again in form of loan. Due to rare occurrence in the Czech reality in the investigated period, obtaining more complete picture of the public sector indebtedness will clearly outweigh the risk of double-counting. Based on this reasoning, the approach in the following analysis assumes the use of consolidated data for flows, while for the assessment of financial stability non-consolidated data on liabilities are exploited.

Flows in the public sector (mainly between the general government and other parts of the sector) can take wide range of forms including taxes, subsidies, interests or transfers of assets. Consolidation of data is very demanding on the availability of relevant information on counterparties. However, in some cases it could be assumed that both parties are classified within the public sector so that given flows (respective national account´s item) can be excluded in its entirety. This is the case of taxes paid by public units, subsidies or capital transfers on resources side of public units. The items just mentioned were consolidated reflecting the recommendation to eliminate the most important flows (O´Connor, Weisman and Wickens, 2004).

As mentioned above, financial soundness of the public sector will be assessed on the base of non-consolidated data. This approach is justifiable as "internal" debt also poses potential threats to the financial sustainability of the public sector. At this stage, it is worth to clarify the differences between EDP debt used for monitoring of public finance in the EU. EDP debt, presented as consolidated indicator containing selected balance sheet items, covers only government units whereas the debt is valued at nominal value. On the contrary, the public debt is defined more broadly as total sum of liabilities valued preferably at market prices. Public debt also covers, by definition, all public units.

Before the analytical part, some specifics of the Czech economy should be mentioned. In the last decades, the Czech economy has gone through profound institutional changes and a number of significant flows in terms of their nominal amounts have been carried out. But such flows would blur the analysis of long-term trend in the public sector development. To eliminate this "noise", we have identified significant (mainly) expenditures or transfers[6] of assets whose impact on the nominal level of revenues and expenditures is prevented. Data obtained by this procedure are used for drawing an alternative picture on the dynamics of the public sector.

3 DEVELOPMENT OF THE PUBLIC SECTOR IN THE CZECH REPUBLIC

The role which the public sector plays in the economy can be expressed in different ways, or rather by a number of indicators. It is our opinion that proper analysis cannot be based on one indicator only as this is typically the case of value added. Relying on one or two chosen indicators is the same as to look only ahead before crossing the road; we could omit or lost very important information on what is going on in the economy. Thus, we use both flows and stocks to describe a share which is taken by the public sector in the Czech Economy.

The following table shows the development of output (the item P.1 in national accounts) and value added of the public sector and corresponding shares on total values. The share of output has fallen by four percentage points (p.p.) over the period under investigation; however, the share on total value added has declined only by 1.5 p.p. over this period. This can be generally explained by a decline in intermediate consumption exceeding the decline in output.

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6   This is the case of transformation expenditures (losses of transformation institutions, etc.), privatisation of assets below their market value (whereas the difference is classified as expenditure of government sector) or church restitutions.

Table 1 Output and value added of the public sector, the Czech Republic (CZK mill., 2000–2013)

	2000	2001	2002	2003	2004	2005	2006
Output	895 544	865 940	893 618	970 618	1 028 461	1 037 498	1 104 494
– share in total output	16.9%	15.1%	15.0%	15.2%	14.6%	13.9%	13.2%
Value added (VA)	487 632	484 312	512 106	548 433	575 637	599 407	646 723
– share in total VA	20.8%	19.8%	19.9%	19.8%	19.5%	18.8%	18.6%
	2007	2008	2009	2010	2011	2012	2013
Output	1 173 101	1 223 302	1 250 919	1 230 185	1 257 917	1 239 570	1 245 950
– share in total output	12.7%	12.7%	14.1%	13.3%	13.0%	12.9%	12.9%
Value added	682 030	724 809	754 590	737 607	736 878	736 071	743 234
– share in total VA	18.7%	20.4%	21.1%	20.3%	20.2%	20.1%	19.3%

Source: <www.czso.cz>, own calculation

In other words, productive activities of public sector expressed as total output has been declining while in terms of value added the range of activity remains more or less stable. Nevertheless these figures can only tell the story about the development of productive activities as defined in the methodology of national accounts. To make one step further, we take the information on total revenues and expenditures the public units as these are defined in national accounts. These aggregates supposedly better reflect the overall role of the public sector in society. The following chart graphs the development of total revenues and expenditures expressed as shares in GDP.

Figure 1 Total expenditures and total revenues of the public sector, consolidated (% of GDP, 2000–2013)
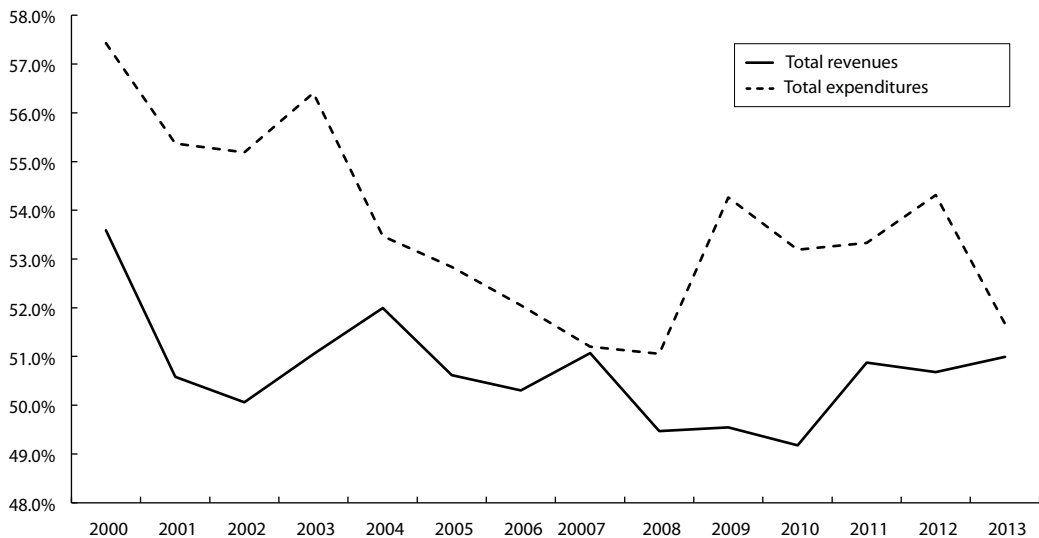
Source: <www.czso.cz>, own calculation

Both shares have been declining before the outset of the current recession starting in 2009. At that time, the trend of total expenditures has abruptly changed. Compared to the previous year, the share of total expenditures has shot up by more than 3 p.p. in 2009 while the share of total revenues has remained stable. It can be drawn from the chart that despite of both privatisation process and declining share in total value added, the role of the public sector currently tends to rise. This trend has become obvious especially since 2009.

As has been mentioned in the methodological part of the text, the analysis is supplemented with the aggregates adjusted by exceptional expenditures undertaken by government which are related to the transformation of the Czech economy or which otherwise bring a noise to the assessment whether the role of public sector tends to grow or not.[7] Adjusted time series is presented in the following chart. The results seem to be very similar to the previous analysis. However, from the long-term perspective, the share of total expenditures of the public sector in total GDP remains more stable with a tendency to grow since 2009 when the recession hits the economy.

Figure 2 Total adjusted expenditures of the public sector, consolidated (% of GDP, 2000–2013)
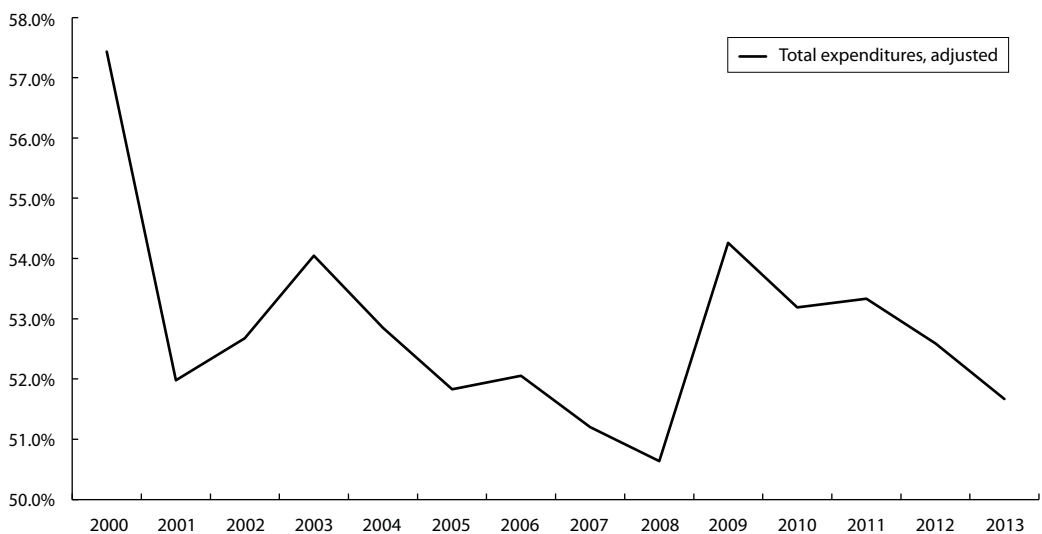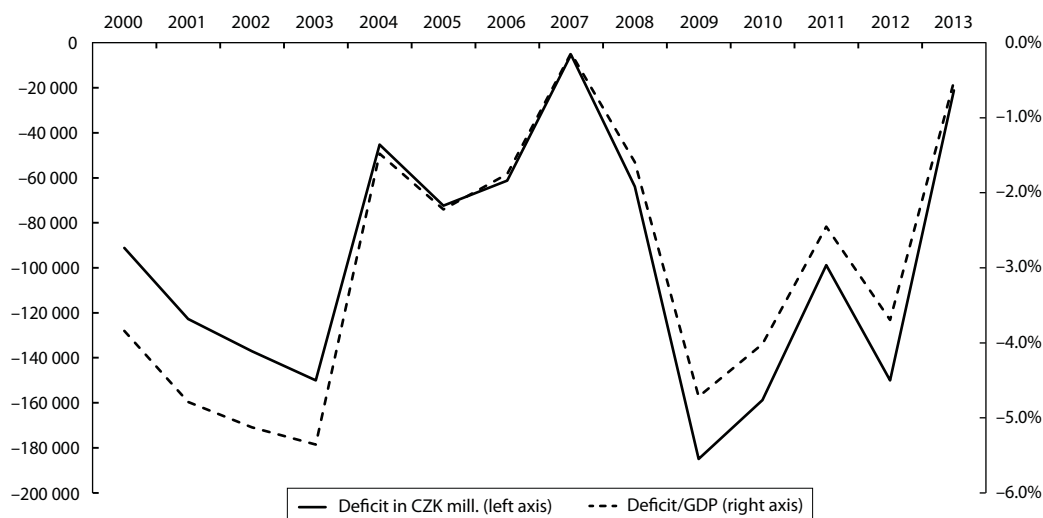

Source: <www.czso.cz>, own calculation

So from the perspective of flows, the public sector has been showing a declining share of productive activities in terms of output or value added. This trend is accompanied by rather stable or even rising trend in last years as indicated by the share of total revenues and expenditures of the public sector in GDP. The figures thus indicate that the public sector has become less oriented on productive activities along with stronger orientation on redistribution of funds circulating in the economy.

When studying the behaviour of any sector, the indicator of deficit/surplus offers very reliable input into the assessment of the financial situation. As can be drawn from the following chart, the public sector in the Czech Republic generates permanently quite huge deficits so that balanced budget has never been achieved during the investigated period. It is worth mentioning that this indicator is not influenced by the fact whether the data is consolidated or not.

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[7]   See footnote 4.

Figure 3 The public sector deficit, CZK mill. (% of GDP, 2000–2013)

Source: <www.czso.cz>, own calculation

Now we turn to the balance sheet items where public sector acts as owner of non-financial and financial assets and as debtor. The balance sheet items provide very important information mainly because they indicate the way of funding. As can be read from the following table, the public sector owns more than 50 percent of non-financial assets, but this share has fallen by 9 p.p. throughout this period. This decline can be explained by continuing privatisation process (housing, church restitutions, etc.) or by lower investments of public sector into non-financial assets.

We can conclude that there is a downward trend in the share of the public sector as far as non-financial assets are concerned. On the liability side, the situation is quite different. The public sector takes larger part of total value of liabilities than in 2000; the share has gone up by more than 2 percentage points. This

Table 2 Non-financial assets and liabilities of the public sector (CZK mill., 2000–2013)

	2000	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**
Non-financial assets (NFA)	13 153	13 187	13 168	13 080	13 186	13 670	13 910
– share in total NFA	63.0%	61.3%	60.4%	59.2%	58.1%	57.7%	56.3%
Liabilities	2 178	2 246	2 809	2 881	3 166	3 463	3 553
– share in total liabilities	22.3%	22.4%	25.6%	24.0%	25.0%	25.3%	24.6%
	2007	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**
Non-financial assets (NFA)	14 499	15 058	15 183	15 187	15 539	15 605	15 162
– share in total NFA	54.7%	53.7%	54.0%	53.5%	53.3%	53.2%	52.1%
Liabilities	3 841	3 961	4 278	4 526	4 644	4 991	5 045
– share in total liabilities	23.7%	23.5%	24.3%	25.0%	24.7%	25.7%	24.5%

Source: <www.czso.cz>, own calculation

can be rather surprising when we consider the trends in other indicators analysed above. It can confirm one of the aspects of the theory explained by Buchanan and Wagner (2000) which suggests that public sector has inherent tendency to intensify debt financing when providing services to the society.

When going on the level of individual items, we find out that mainly issuance of bonds in the public sector has been taken larger part of financing. Relevant comparison is exemplified in the following table.

Table 3 Changes on the liability side from 2000 to 2013 (in %)

| Changes from 2000 to 2013	Total liabilities	Debt securities
Domestic economy (net of public sector)	205%	216%
Public non-financial corporation	122%	595%
General government sector	432%	672%

Source: <www.czso.cz>, own calculation

In the non-public part of the economy, the amount of total liabilities has more than doubled whereas the same holds true for debt securities. In case of public non-financial corporation, total liabilities have risen moderately, but debt issuance has strongly exceeded the trend in the non-public economy. It becomes more evident in the case of general government sector. Total liabilities have quadrupled and the change in the amount of debt securities issued by government sector has gone up sevenfold.

Even if we do not consider the effect of revaluation, it can be concluded that public sector tends very strongly to debt funding which is getting increasingly used for the financing of redistribution rather than production. Buchanan and Wagner (2000) concluded that inherent tendency of public financing is increasing size of public sector expressed as its share in gross national income (GNI). The following chart shows the development of public sector aggregates in the period under investigation.

From the long-term perspective, the level of total expenditures (TE) and total revenues (TR) of the public sector remains more or less stable ranging from 52 to 59 percent. The share of total assets owned by public sector has declined by 25 percentage points whereas this trend is influenced also by

Figure 4 The public sector deficit, CZK mill. (% of GDP, 2000–2013)
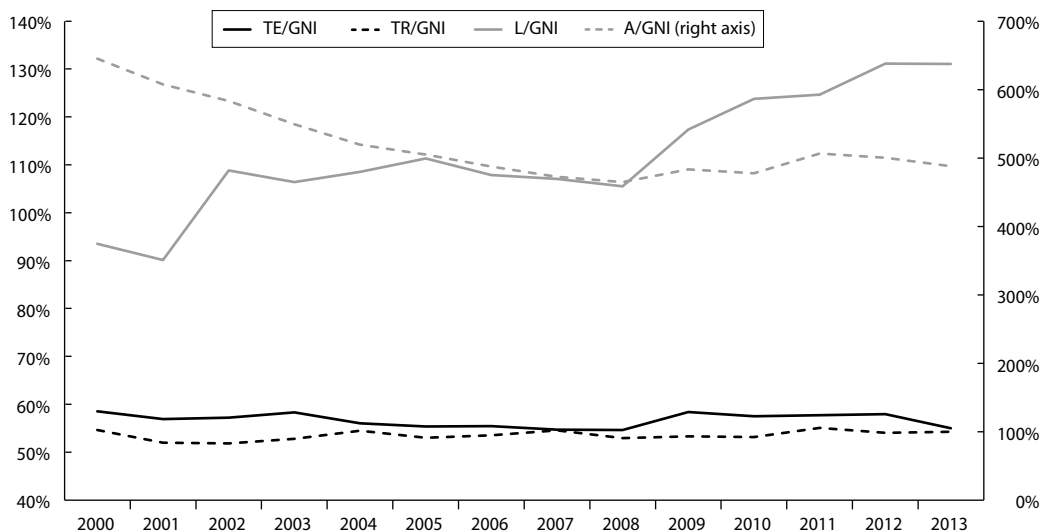
Source: <www.czso.cz>, own calculation

privatisation process. The most evident course is visible on the liability side of the public sector; the share of total liabilities of the public sector in GNI has grown by more than 40 percent.

Depending on the way the size of the public sector is expressed, we can make number of conclusions on the course of public sector´s size. One of the main points of Buchanan and Wagner is that due to *inter alia* increasing share of debt funding, decreasing perceived prices of public goods and services lead to the shift of scarce resources and financial means toward the public sector. Thus, as Buchanan and Wagner (2000) deal primarily with financial behaviour of the public sector, this analysis tends to confirm, in the last period, that there is a growing trend in the size of the public sector in terms of its expenditures and especially the amount of liabilities.

CONCLUSION

The text is focused on the public sector statistics which can be very manifold in analytical use. The satellite accounts of public sector represent useful tool overcoming the ambiguities of core national accounts as it groups together units through which government policy is implemented. It can supposedly better reflect the overall role of government in the society. We have used most recent data published by the Czech Statistical Office whereas the time series has been prolonged enabling to analyse long-term performance of the public sector in the Czech Republic. As public sector´s liabilities showed a strong rise exceeding that in the rest of the economy, the analysis confirms the conclusions of Buchanan and Wagner (2000) on the tendency of deficit and debt financing of public goods provision as the share of total liabilities of the public sector in total liabilities in the economy has grown by 40 percentage points expressed as share in GNI. Moreover, the final balance of the public sector revenues and expenditures indeed ends up in deficit irrespective of the phase of business cycle. On the other side, the share of total revenues and expenditures remains rather stable over time slightly above 50 percent of GDP which is not supportive of the theory suggesting the inherent tendency of the public sector to expand. Declining trend is evident in the case of total assets, the public sector ownership has declined by 9 percentage points expressed as share of assets held by the public sectors on total value of assets in the economy; nevertheless, these trends are undoubtedly affected by privatization process which has been taking place since the nineties.

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