

Vertical Imbalance and Bailout - The Case of Polish Local Governments Borrowing

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1. Introduction

This paper explores the link between the vertical fiscal imbalance and the borrowing of local governments in Poland. The focus of attention is the mechanism of eliciting a bailout from the central government through debt accumulation, and the usefulness of borrowing restrictions to prevent such strategies.

Vertical imbalance take place if expenditures for local goods can not be covered from local taxes and fees and must be financed with a participation of central government or by borrowing. The bailout problem means that central government have to use national revenues to pay for obligations of local governments that is in trouble because of lack of revenue sources. That means bailout is an extorted access to the common pool of funds caused by vertical imbalance and a result of institutional arrangements of decentralisation.

The paper is motivated by the latest institutional developments in Poland, particularly the decentralisation process and the design of borrowing restrictions, which in my opinion leads to a situation where bailout and extorted borrowing take place. Local governments, called gminas, experience significant vertical imbalance. The central government transfers add up to about 40% of all gminas' total revenues, varying between about 10 to 90% across jurisdictions. While the share of transfers in total gmina revenues has basically been the same all the time, the borrowing restrictions have changed dramatically. Until the decentralisation reform in 1998 there had been only one restriction: repayments of loans could not exceed 15% of the planned revenues. In 1998, the central government decided to introduce borrowing restrictions directly related to the Maastricht criteria, limiting public debt to 3/5 of GDP. After the introduction of this new limit, local governments' debt grew about 35% from 1999 to 2001, and the deficit of all gminas increased from a maximum of 0,15% before 1998 to over 0,2% of GDP each year.

The increase in borrowing may be directly related to the degree of vertical imbalance and useless borrowing restrictions. As Ernesto Stein (1999) shows, a high vertical imbalance combined with discretionary transfers and high borrowing autonomy may weaken budget constraints and thereby lead to larger government spending. The reason for that is simple: if own revenues are low local governments may overborrow and elicit grants from the central government. In the case of a high vertical imbalance the central government may find it difficult not to bailout – this gives the space for applying borrowing restrictions.

Carlsen (1994) explores the mechanism of eliciting grants through debt accumulation at a different dependence on intergovernmental transfers, and introduces borrowing restrictions. I use his model to build interpretations for an empirical time-series analysis of the borrowing behaviour of 2,500 Polish local governments in the years 1995-2001. The preliminary results show that borrowing in relation to revenues is positively correlated with local taxes and negatively with vertical imbalance. Local governments seem to issue new debts in order to elicit new grants instead of cutting less important activities, while the central government distributes new grants in order to avoid tax rises or expenditure cuts of local governments and to maintain the possibility of issuing new debt in the future. The borrowing restrictions of 1998 connected with high vertical imbalance increase the potential for bailout instead of reducing it.

The paper is structured as follows. At first I explore the institutional developments of the decentralisation process including the financial situation of the local governments and the borrowing restrictions imposed. In order to give a full view of the process I shortly present the intermediate and regional levels of governments, although the gminas, as the most important in the system, are of most interest. After that I present theoretical considerations concerning eliciting bailout in the presence of high vertical imbalance. The model of Carlsen, which I introduce for this purpose, provides a possible explanation of this mechanism. The paper ends with empirical results and conclusions.

2. Vertical imbalance and borrowing restrictions - shaping Polish decentralised system

Political circumstances and developments divide the decentralisation process into two time periods: from 1991 to 1998 and after 1998. The year 1991 is important as a date of introducing self-governments on the local level in about 2500 gminas, while the year 1998 is important because of the decentralisation reform on intermediate and

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regional levels. Until the reform in year 1998, 49 Voivodships with Voivod on the head, on regional and 254 rejons on intermediate level represented the central administration in the province. Rejons were established in July 1990 in order to support the general administrative work of Voivodships, especially with regard to rural Gminas. The basis of the decentralisation reform of 1998 in Poland was the constitution of 1997 which set the conditions of the administrative system. The reform of the system in 1998 introduced self-governments to the 16 newly created voivodships and more than 350 powiats. Free elections took place in voivodships, powiats and gminas in the same year. These three kinds of units were given budgeting and acting autonomy, a step that established the conditions for efficient decentralisation. The significant aspects of the decentralisation reform are: splitting the system into central and local units, introducing budgeting processes, personal responsibilities for budgeting in local units, public services supplied by competitive market players (public and private). As a result of the reforms the share of local government in public sector expenditures increased from 6.62 % in 1994 to 11.45 % and the share of central government expenditures in relation to GDP decreases by 18.67%. Local governments decide about 24.5 % of expenditures and get 27% of public sector revenues in 2001, their deficits are 0.43% while the central government's deficit is 5.12% of GDP. Nevertheless there is a growth of 90% of local governments deficits for the period 1994-2001, mostly observable since the decentralisation reform of 1998. The public debt in 2001 was 42.15% of GDP. Only 1.7% of this is debt of local governments debt and 40.45% is debt of the central government. It is important to notice that the growth rate of local debt is about 41% for the years 1999 – 2001. These numbers show the importance of local governments to public finance and their relationship to the central government. They also show an increase of debt and borrowing during the last three years. Now I shall present the legal solutions which reveal the full character of the decentralised fiscal system in Poland and will help to describe the borrowing behaviour of local governments.

**** Fig.1****

Main indicators of self-governments and central government

1.1 Decentralisation of expenditures

The most important tier of local governments is gmina. Even if gmina expenditures and revenues make up only 5 to 6% in relation to GDP, it is the highest amount of all tiers of government. At this time powiats with about 4% and particularly voivodships with about 1.5% share in public sector expenditures have much less meaning in the public sector than gminas and cities. The cities have to fulfill the tasks both of gminas and powiats and get corresponding revenues. Thus there is no need to describe the responsibilities of cities separately – one need just add these of powiats and gminas together. The assignment of responsibilities for every tier of government is a mixture of mandated and own tasks and some tasks are fulfilled according to the subsidiary principle. The subsidiary principle, in which the tasks are shared among all units of self-government and assigned to the lowest unit capable to provide it, is best represented in areas like transport, education and health protection. The system grants Gminas responsibility for all public matters of local significance not legally reserved for other units called “own tasks”. In case of “own tasks” local governments are responsible for delivering services, but are subject to some supervision by the central government. Municipal services like water belong to these services, as do heat and electricity supply, sanitation and waste disposal system. In the transportation and communication categories, Gminas and cities are responsible for local public transport and local highways. Gminas are responsible for basic public health and nursing services are supplied by gminas too. Other own tasks are primary education, housing, local environment protection, trade places cultivation, parks and cemeteries, running libraries, promotion of gminas and co-operation with non-governmental organisations and local communities. In addition, the central government may delegate mandated tasks placed on agreements negotiated with local authorities. The mandated tasks which are fulfilled by gminas are mostly in the area of social welfare.

Powiats are organising and providing those services that extend beyond gminas boundaries. Powiats are responsible for, space planning, construction supervision, counteracting unemployment, running institutions providing specialised social services for family and childcare. There are a lot of tasks that are assigned according to subsidiary principle. The examples are responsibilities for secondary schools and schools for disabled and hospitals which definitely goes beyond basic needs and capabilities of many gminas and were assigned to powiats. To mandated tasks belongs public order and fire protection.

The assignment of the tasks of voivodships—where regional development strategy should be created—caused a lot of conflicts between supporter of integrity and unitarity of Polish state. The supporters forced the maintenance of the central government's control of development strategies. In connection to this, Sejmiks (regional parliaments) were given responsibilities for regional development, but only very limited resources. Instead voivodships can place so-called “voivodship contracts” and multiyear investment programs with the central government. Apart from the tasks mentioned above Law on Voivodships of 1998 include running cultural

institutions, universities, counteracting unemployment by utilising Voivodship Employment Centres, the modernisation of rural areas, the preservation of environment, water management and land melioration.

The provision of services is highly dependent on off-budget departments of jurisdictions which belongs to central government before the decentralisation starts and were transferred to the sub-governments. These facts cause a lack of transparency who is responsible for what in the transition period and cause place of discretionality in shaping final responsibilities division. This situation is mostly due to the fact that many tasks are assigned experimentally to lower levels of governments and there is still demand for an active role of the central government.

1.2 The degree of vertical imbalance

In order to define the degree of vertical imbalance one may look at the dynamics of revenue categories of the whole self-government sector. It shows that the share of own revenues has been constantly decreasing by 20% since 1995: from 51.12% to 40.84%. This process started in 1995. Since that time the share of own revenues has fallen by one or two percent point per year. Within this revenue group, shared taxes have decreased by 30.28%, mostly due to the decentralisation reform in 1998. During this period, subsidies share rose by 10 percent points in 1996 and again by 10 percent point in 1998 due to the increase of the number of tiers. This means a rise of 147% in the whole period from 1994 to 2001. The grants behave in a different manner. Their share decreases from 21.65% in 1994 to 14.25% in 1998. After the decentralisation reform, this share rises by 2.48% to about 22%.

Each revenue category has a different meaning for each tier of government depending on the legal regulations set by the central government and the individual situation of the particular jurisdiction. In order to finance their tasks gminas have three revenue sources: their own revenues (local taxes and shares in central taxes, local fees and revenues from gmina properties), subsidies, and grants for tasks fulfilled on the base of agreements with the central government. Among the main sources of gmina revenues are "own revenues". Their share decreased from 54.8% to 52.1% of the total revenues. Gminas as the only one of all tiers of government may set rates of some local taxes within the limits set by central government. To these taxes belongs property tax, transport tax (liquidated in 1998), agriculture and forest taxes. Gmina do not set rates of inheritance tax and tax on business activity but both taxes belongs to gminas revenues. The most important of the "own revenues" are the revenue from tax sharing, which is in fact a form of formula based transfer. In the case of gminas it amounts to 16% (27,6% and 32,6% for mining gminas since 1998) of PIT revenues collected from gmina inhabitants and to 5% of CIT collected from legal entities based in gminas. To other revenues belongs transfers from central budget divided into general subsidies, road subsidy and matching grants. Subsidies are set and delivered on formula basis, while matching grants are discretionary payments made by central government to a local unit to fulfil a given task. General subsidy is divided into three parts. Education part (minimum 6,6% of central budget revenues) is distributed among gminas according to the number of pupils and the number of schools. Equalisation part get gminas with the per capita tax revenues indicator "G" lower then 85% of the indicator "P" calculated for revenues of all gminas. Gminas with indicator "G" higher then 150% of indicator "P" pay in order to increase the pool of equalisation subsidy. Remaining part are divided in relation to the number of citizens living in particular gmina. There are three grant types: 1) grants for delegated tasks, 2) grants from special purpose funds and 3) matching grants to co-finance self-governments own tasks. A modification of these rules were provided in year 1998 as the decentralisation reform took place. General subsidies consist of three parts: the basic part, compensation part, and of the education part. The basic subsidies are divided into the equalisation part calculated in the similar way as before and the remaining part which is distributed among all gminas and calculated per capita. The compensation subsidy is established to compensate for revenues from former tax on transportation means. The education subsidy depends on schools and pupils number as before but the amount for all sub-governments have to be equal minimum 12,8% of central government budget revenues. The additional grants categories for gminas are grants from state budget for the removal of public safety and order tasks and grants for tasks implemented by self-governments on the basis of agreements with central government agencies and other self-governments. New were grants from foreign donators and grants from central budget to co-finance the foreign grants. In gminas, grants have a share of 11.7% (with a short increase in 2000 when the share was 13.73%) and are the most unimportant revenue source from all.

Powiats and Voivodships can not set local taxes. Therefore to the category own revenues belongs only shares in central government taxes. Powiats get a 1% share of PIT, while voivodships get 1.5% of PIT and 0.5% of CIT revenues. Other own revenues are incomes from properties, assets, off budget departments and enterprises, privatisation, interest rates on liabilities. To the revenues from transfers belongs General Subsidy and grants. Subsidies are very important for powiats, with a maximum of 47.7 % of their income in 2000 and with a minimum of 44.4% in 1999. General Subsidy contains from three parts, slightly different from those for gminas. Equalisation part are available for powiats with PIT-share-income per capita under 85% and voivodships with PIT and CIT-share-income per capita under 70% of highest powiats or voivodship income in 1999 valorised

yearly with correction indicator. The third part of the General Subsidy is the Road Subsidy. The pool of road subsidies for powiats and voivodships is specified as a share of central budget revenues and divided among the units on a formula basis depending on quantities like length and quality of roads, number of cars and accidents. The grants are delivered according to the same rules like in case of gminas. The grants are the main revenue source for powiats (the share decreased from 49.4% in 1999 to 45.1% three years later) and voivodships where the share rose by 5 percent points to 52.2% in 2001. The most important of all powiats grants are the grants for delegated tasks. The most important ones for voivodships in 1999 and 2000 are the grants for own revenues.

To sum up, the system created in 1998 leaves the powiats and voivodships with little budgetary flexibility, no local taxes, and a dependence on central government transfers. Gminas and cities, thanks to the high shares in income taxes and the possibility to set local taxes, get less discretionary transfers like grants and subsidies than powiats and voivodships. Nevertheless the dependence on central government transfers vary between gminas with the income from local and shared taxes. Differences in the economic activity and the ability to collect such taxes are responsible for this. The variation in vertical imbalance is shown in table 1.

****Table 1****

Vertical imbalance of Gminas

As we can see, the dependence on all transfers from central government, shared taxes included, increased in average from about 60% to 70%. There are gminas where transfers are below 10% of revenues and some with over 90%. If we do not consider the transfers from shared taxes we get a mean of about 10% less. The same is true for the discrepancies between gminas. The questions that seem to be most interesting at this point are: does the degree of vertical imbalance influence the financial situation of local governments? Is there any bailout and is that bailout connected with high vertical imbalance? Do gminas equipped with higher own revenues borrow less in order to persist an even distribution of taxes?

In order to start answering these questions I will first describe the conditions under which local governments have to borrow. The restrictions are also interesting because gminas' debt rose faster after the introduction of restrictions in 1998 and—as we have seen—the expenditures and revenues assignment did not change significantly.

1.3 Borrowing restrictions, control of financial matters and budgeting procedures

Since 1990, the restrictions changed just after every parliament elections. The limitations in the years 1990 -1993 depended on the expenditure level. The short term loans and credits mostly used for covering deficits were to be paid in the same year and could not be higher than 12% of the expenditures in the current year. Repayments were not allowed to be higher than 5% of the planned expenditures. The amount of long term loans was to be defined in the budget of the jurisdictions. These regulations and limits were changed in 1993. The repayments of short and long term loans were not allowed to be higher than 15% of the planned revenues of the current year. The repayments also included, the payments of interests, potential guaranties and ransom of bonds. The amount of repayments was diminished by loans and credits that were secured by gmina properties. This allowed unrestricted borrowing because in practice any credit and loan could be secured by a property. Such a liberal position was introduced in the time of fast economic growth (5% of GDP). The limitations of borrowing of 1998 were set in the constitution and in the Law of Public Finance of 1998. The constitution allowed for a public debt—meaning the debt of all units— not higher than 3/5 of GDP. After reaching this benchmark, taking new loans and credits is forbidden. It is necessary to underline that the only restriction of borrowing for central government contains that of the Constitution.

The Law of Public Finance of 1998 introduced limitations in cases when the consolidated public debt exceeds 50% of GDP. There are three situations imaginable. In case of 50-55% of GDP the central government sets the budget with deficit to revenue ratio not higher than the deficit/revenue ratio of the previous year. This deficit to revenues ratio is the maximum allowed for any of local government. In a case when the central government debt exceeds 55% of GDP but is lower than 60%, deficits of any local government should be lower than central government deficit. If the public deficit to GDP ratio exceeds 60%, then local government deficits are not allowed. In addition to these limits there are a number of other limits. Repayment of obligations must not exceed 15% of revenues and 12% in case when national debt exceeds 55% GDP. The yearly debt of local government units must not exceed 60% of revenues of this unit in the current budget year. As in the previous periods, short term loans and credits to cover deficits have to be paid back in the same year. The new limitation is that they can be taken only from domestic banks and must be denominated in the Polish currency. The nominal value of the loan has to be set on the day of the transaction. Additional local governments which plan to take a long term credit or issue bonds need an opinion of creditworthiness. Such opinion which the jurisdiction is obliged to give to the creditor is drawn by Regional Audit Offices (RIO).

In order to ensure that local government units follow the borrowing rules described by laws, they are controlled in regard to the legality of acting by the Voivods, and in financial matters by the Regional Audit Offices (RIO) and Ministry of Finance. There are 17 Voivods which represent the central government in voivodships. The Executive boards present all laws enacted by councils, which are controlled by Voivods in regard to their conformity with the existing laws. Voivods can stop the execution of a law in the case of illegality. Such a decision can be challenged in administration court by the sub-government body. In the case of breaking the constitution (for example concerning the debt) or continuous breaking the law by a sub-government, the Polish parliament (Sejm) can dissolve the council or the executive board. In such a case, the Minister of Home Affairs appoints a person to fulfil the functions of sub-governments bodies. Such a person can also be appointed in the case of bad fulfilling of tasks of local government, for a maximum two years.

Regional Account Offices (RIO) were created in 1992 as units responsible to the Ministry of Home Affairs. The supervision of the legality of the jurisdiction's decisions and informing the borrowers of its credibility is one of the tasks of the RIO. RIO ensure the realisation of strict debt limitations established by the Polish government. RIO also approve all long-term debt resolutions adopted by jurisdictions. Borrowing increased beyond the limitations may end in restructuring procedures imposed by RIO and losing autonomy in setting the budget by a jurisdiction. The illegal decision made by local governments can be annulled by RIO which dictate the legal solution in such a case. The crucial point is that RIO can control the activity of local governments ex post but they cannot influence the decision making process. In order to make whole the control possible, some rules of reporting are established. In general, the rules present a chain of reporting. The off-budget departments report about revenues, expenditures and debt quarterly and not later than 10 days after the period expires to the executive boards. The executive boards give the same information quarterly (not later than 25 days after the period expiration) to RIO and additionally report about deficits, while RIO also reports quarterly (not later than 40 days after the period expiration) to the Ministry of Finance which is the third central government body directly involved in the central-local relations. RIO must get the report on the fourth quarter of a year not later than February 28, and the Ministry of Finance not later than March 15. After that date, the Ministry can react and adjust the budget plans for the next budget year. The rule of Ministry of Finance is very important because of the budgeting process and local revenue system based on shares in direct taxes. The Personal Income Tax (PIT) and the Company Income Tax (CIT) are collected by Treasury Offices. The shares in these taxes should be delivered to the local jurisdictions until the 10th of the next month. In case of a delay, the local governments get the interests. Treasury Offices also collect other revenues of local governments like inheritance taxes, which have to be delivered not later than 14 days after receiving on Treasury Office bank account. Treasury Office inform local jurisdictions quarterly about the realisation of expected revenues.

Three points have to be stressed out concerning the budgeting procedures. In Poland budgets of local governments, like the central one, have to be annual and unitary. This means that operating and capital budgets cannot be split up and that the budget is legally binding only for one year. This solution is good for central but not an optimal practice for local governments because of other functions and a need to implement multi-year investments. Nevertheless local governments in Poland realise long term projects including them, each year, into the annual budgets. The second one is the problem of deficit constraints which have to be held in case of an increase of public debt/GDP ratio over 50%. To hold the constraints, local governments will have to adjust their deficits in the budget proposals for the following year. The relevant information for such a decision will contain facts only for the first half of the current year (information given by Ministry of Finance until September 30) and for the previous year (information given until May 31). Such a situation may lead to serious problems for many jurisdictions, particularly those involved in investment programs and paying back former credits. The third characteristic issue for the Polish system is the position of RIO and their prerogatives in the budgeting process. The fact that the RIO ex post opinion on budget proposal is needed to enact the budget by the council allows to have ex ante influence on the most important decision of the council. In a case when the council would not cooperate and as a result the budget would not be ready until 31 of March, RIO may set their own budget. The rule that local governments have to inform the spending ministers (like the minister of education or public health) has a co-ordinating aspect between local and central governments. The ministers receiving information about the financial plans of local governments before the final enacting of the budgets may make some discretionary decisions concerning the expenditures of the ministers or grants for sub-governments. The discretionary changes concerning the grants and subsidies for local governments can also be made by ministers during the budget year, but not later than November 30. These solutions increase the field of acting for central government but because of a lack of accountability aggravate the position of local governments.

The borrowing restrictions changed together with establishing new tiers of government that are very dependent from central government transfers. The restrictions set the limit on public debt that include local debt and make the implementation of repair procedures depending of passing certain benchmarks. The idea of implementing such heavy restrictions was to impose fiscal discipline. These borrowing conditions were directly related to the

Maastricht criteria which Poland desires to meet. According to the figure it is easy to see the relation of overall public debt and local government debt. The fiscal discipline of sub-governments does not influence the debt level of the country. Passing the 50% debt/GDP ratio depends on the policy of the central government. Nevertheless the debt of local governments is increasing. Gminas and cities issued most of the debt but powiats and voivodships debt growth rates are much higher—about 90% compared to 30% of gminas.

****Fig.2****

Debt of governments to GDP

****Fig.3****

Self governments deficits and expenditures

Since 1998 gmina deficits have increased while the assignment of tasks and revenues has not significantly changed. Only the borrowing restrictions have changed. It is important to ask if there is perhaps a mechanism that motivates the governments to borrow and to expect to be bailout by the central government and that for some reasons prevents the restrictions from working. To sum up three questions are highly important. Do local governments equipped with higher own revenues and lower vertical imbalance have lower deficits? Do the local governments extort additional grants or do they use their own revenue sources to cover the debt? Do the borrowing restrictions in Poland limit issuing of excessive debt?

3. Theoretical considerations and possible answers

The theory and empirical results that we find in literature give us some hints about how these questions should be answered and what we can expect as for the situation in Poland. Let us consider two cases. The first one is an ideal case, based on fiscal federalism theory, where all programs with local benefits are decentralised and financed with local revenues. In such a system local governments have no incentive to overextend the budget and to overborrow. They prefer the equal distribution of taxes. Issued debt may be paid from their own revenues. In this situation a high degree of local governments' own revenues allows the central government to commit to no bailout rule. Such a conclusion is supported by the results presented by von Hagen and Eichengreen (1996) on the relationship between bailout and vertical imbalance. They consider two extreme situations. The first is a situation in which all taxes belong to the central government. In case of regional shocks and resulting financial troubles of local governments, the central government can allow the local government to go bankrupt or bail it out. On the other hand, if taxes are collected by local governments the central government has a third option: it can put pressure on the local governments in order to increase their own revenues and service the debt.

The second case which we observe in reality is a high degree of vertical imbalance which may be directly related to an increase in borrowing and insufficient borrowing restrictions. Let us first of all consider the situation in which there is a vertical imbalance which is not completely covered by intergovernmental grants, as the central government may wish to put pressure on local governments in order to cut costs of provided services. In this case we speak about the problem of unfounded mandates. The vertical imbalance in the case of unfounded mandates will lead to deficits and borrowing as local governments will try to find sources to close the gap between expenditures and revenues. This gap may be very hard to close and may require higher borrowing, if the costs cannot be cut easily. It will be the case if local governments are responsible for the supply of certain services (health care or education), but the wages or standards are set nationally and local governments may have no lee-way to manage the expenditures and will not feel responsible for financial troubles if the national obligation should be an unfounded mandate. In such a situation there is scope for discrete bailouts.

In principle there is a rationale for borrowing in the sense that benefits of investments such as schools or roads are spread over time, thus financing should be spread to next generations and over time as well. Nevertheless some dangers of borrowing do exist at a local level. The most important is that in the case of soft budget constrains the central government can be forced to bailout heavy indebted local governments, to avoid cutting in goods and service provision. As Ernesto Stein (1999) shows, a high vertical imbalance combined with discretionary transfers and high borrowing autonomy may weaken budget constrains and thereby lead to larger government spending. The reason for that is simple: local governments may overborrow and elicit grants from the central government. In the case of a high vertical imbalance the central government may find it difficult not to bailout – this gives the space for applying borrowing restrictions. In fact borrowing restrictions exist mostly in countries of high vertical imbalance (Eichengreen and von Hagen 1996).

To sum it up, the central government can choose between two strategies. On the one hand it can give a lot of fiscal autonomy and try to commit to no bailout rule and in the presence of vertical imbalance impose borrowing restrictions that would limit the danger of bailout caused by accumulation of debt.

4. A model of bailout and borrowing restrictions

The model of Carlsen (1994) shows how a strategy of eliciting bailout through debt accumulation may work. The central assumption of this model is that local governments do not make long term budget commitments. Such a situation emerges if there is a crisis and funds are needed immediately, or if there is a vertical imbalance exists local governments are not allowed to plan expenditures for a longer period. The model describes the debt policy as an outcome of a two-period game between three agents: the local and the central governments and a bureau which produces services Q_j and slack S_j on behalf of the local government. Slacks are some activities of low importance which should be cut in order to improve efficiency of providing services. The local government finances spending through local taxes T_j , grants from the central government G_j and net borrowing $D^j_{j+1} - D^j_j$. Debts have to be paid back in period two. The local government's payoff is $U(Q_j, T_j)$. The local government decides to accumulate debt and elicit grants from the central government if the initial debt level in period 1 passes a certain value D^*1 . This value describes the ability of the local government to pay for its own debt. If the local governments elicits grants, they have to accept an uneven intertemporal distribution of output and taxes. The central government provides grants for local authorities. The payoff is given by $U(Q_j, T_j) - \forall G$ in which \forall are opportunity costs of providing grants. Grants are supplied if the local debt in period 2 passes a certain value D^*2 and the local government would not be able to pay for own debt without extraordinary tax rises or cutbacks in output.

The game consists of two periods with central government moving as first. In both periods the central government first sets the grants, then the local government sets local taxes and the bureau's budget while at the same time the bureau sets slack. There are two regime policy outcomes. The regime 1 policy takes if the grants are not needed. In that regime the central government observes that the initial local debt is below the value D^*1 and the local government can pay for his debt by itself, grants $G_1=0$. Then the local government sets taxes and decides about borrowing. It does not elicit grants because it is able to pay for its own debt by itself and it will be not credible to ask for bailout. As the local government and the bureau move simultaneously, the local government has to assume some slack and therefore will spend more in the first then in the second period. The accumulation of debt in the first period induces the local government to increase local taxes and the bureau to reduce slack to counteract the reduction in output and pay back the debt in period two. As a result, higher debt leads to higher taxes, lower slack and lower output in period two, but the local government pay for its own debt by itself. If the initial debt of the local government in period one rises above the threshold D^*1 , the central government has to decide about the amount of grants. It may pay the whole difference $D_1 - D^*1$ and doing so induce the local government to behave like in regime 1, or it may provide smaller grants that do not cover $D_1 - D^*1$ in period 1, which leads to regime 2 policy. In that regime the local government decides to maximise the output and set no local taxes in period 1 in order to accumulate maximal debt. The bureau's slack is not limited. In period two D_2 exceeds D^*2 and the central government must bailout the local government. Thus grants will be supplied only if the local government is sufficiently indebted. The presence of the threat to accumulate debt in period one if D_1 exceeds D^*1 induces the central government to provide sufficient grants in period 1 to prevent regime 2. The grants will be higher if the vertical imbalance is higher and the ability to pay for own debts is lower. In order to decrease the taxes provided in period one and to eliminate the possibility of debt accumulation borrowing restrictions may be improved. In order to reduce regime 2 utility and to prevent debt accumulation, $D^*1 + Q_{max} + S_{max} > D_{restr}$. Thanks to these restrictions the local government knows that regime 2 debt is not possible and it has to set higher taxes or cut slack in period 1, which leads to an increase in value D^*1 . Therefore the central government can cut grants without pushing the local one into regime 2 policy. Smaller grants will not be a problem this time because restrictions make even tax policy of local government more credible and the bureau will cut the slack in period one.

The restrictions introduced in Poland actually mean that local debt in period 2 must be smaller than public debt minus central government debt ($D^*2 < 1 - D_{central}, D_{central} + D^*1 = 1$). The level of central debt depends on local debt D^*1 . Thus the level of local debt in period two D^*2 , is a result of the central government's decision on central debt and the its decision on grant G_1 given the initial local debt D^*1 . A low central debt means that $1 - D_{central} > D^*1 + Q_{max} + S_{max}$, the restriction is useless and the threat that local government elicit grants still exists while the central government cannot reduce grant G_1 if $D_1 > D^*1$. A significant increase in central debt reduces the $1 - D_{central}$ limit to $1 - D_{central} < D^*1 + Q_{max} + S_{max}$ making restrictions work. The restrictions work faster if the ability to pay own debt D^*1 is higher, which means that lower vertical imbalance leads to more effective restrictions. If there is no space for new debt (the limits are exhausted) the central government may have the incentive to provide higher G_1 in order to have the possibility to issue new debt and not having to raise taxes as much as in the case of financing own debt. A sort of competition for the available debt pool may take place. If CG wants to pay back its own debt it must supply G_1 , otherwise regime 2 has to be taken into account.

5. Empirical results and conclusions

As the theoretical considerations and the Carlsen model suggest, local governments may not be able to pay their own debts from their own resources in case of a high vertical imbalance. As local government expects that additional grants (bailout) will be supplied only in the case of sufficient indebtedness, it accumulates debt and so tries to elicit grants. Local government deficits force the central government to prevent the local debt from rising above the critical value and to supply grants. Therefore, I would expect a negative relationship between grants and budget balance.

If the local governments have more own revenues the deficits will be smaller. There should be a negative relationship between vertical imbalance and borrowing on the one hand and a positive relationship between own revenues and borrowing on the other hand.

The borrowing restrictions which limit the possibility to accumulate debt allow the central government to commit to no bailout rule and reduce grants. Local governments will therefore cut activities of low importance and the ability to pay for their own debt will increase. A functioning restriction should limit the grants and improve the budget balance in relation to own revenues. The restrictions introduced in Poland give these results only if the central government is sufficiently indebted or if vertical imbalance is low.

For empirical analysis I use the data of the Polish Main Statistical Office (GUS). There are data for 2,456 gminas (including cities) for the years from 1995 to 2001. In order to analyse the data I use the fixed effects model (FE) to explore the relationships within gminas. The following variables are used:

Dependent variables:

- log expenditures of gminas/revenues (Logexprev), [revenues-expenditures]/revenues (resrev),
- [revenues-expenditures] per capita with correction for inflation (resinflcap).

Explanatory variables:

- Local taxes/[subsidiaries+grants] (OwnSG),
- dummy for years of restriction*Local taxes/[subsidiaries+grants] (OwnSGrest),
- [subsidiaries+grants]/revenues (SGrev),
- dummy for years of restriction* [subsidiaries+grants]/revenues (SGrev)
- population share (Popshare)
- dummy for years of restriction (Restr)

****Table 2****

Empirical results

Table 2 gives the answer to the first question of interest: Do local governments equipped with higher own revenues and lower vertical imbalance have lower deficits? As we can see from the PCSE regression, higher vertical imbalance leads to higher deficits while higher share of own revenues in relation to grants and subsidies improve the balance result. Introducing another dependent variable—the log expenditures to revenues—shows that the increase of the share of local taxes to grants and subsidies leads to lower expenditures compared to revenues. The opposite happens if vertical imbalance is increased. More grants and subsidies automatically lead to higher expenditures. These results are independent of the population size of the jurisdiction as the explanatory variable population share is insignificant. These results indicate that local governments equipped with higher grants borrow more than those enjoying higher own revenues. The observation that higher grants and subsidies shares in revenues lead to higher expenditures and higher borrowing of gminas keeps up the line of theoretical considerations presented before. Moreover, the model of Carlsen seems to give a good prediction of the behaviour of the local governments, which elicit grants by increased borrowing.

****Table 3****

Empirical results

Table 3 gives the answer to the question as to whether the borrowing restrictions in Poland limit the issuing of excessive debt. In the time when restrictions were applicable (1999–2001), the results quoted above became even more relevant. Higher share of local taxes compared to transfers means lower deficits, but the coefficient increased from 0.004 to 0.057. In contrast gminas with higher vertical imbalance borrow twice as much as before. Similar results are observable if we take log expenditures to revenues as dependent variable. In the time period 1999-2001 central government increased deficits and central government debt share as well, making the borrowing restrictions stronger. This limited borrowing of those local governments with low vertical imbalance. Those with higher dependence on transfers borrowed more.

The paper explored the link between vertical imbalance and borrowing of local governments in Poland. The empirical results confirm the theoretical considerations that self-governments equipped with higher own revenues borrow less what may indicate that they fill more responsible for the debt that they issue as less grants are available for them. In contrast those local governments with high vertical imbalance spend and borrow more. The pressure that they make on central government using debt accumulation is credible and in result higher grants are available. The borrowing restrictions introduced in Poland work only in case of governments with higher own revenues. Local governments with higher vertical imbalance borrow more than before the restrictions were introduced.

6. References

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Table 1. Vertical imbalance of Gminas

Vertical imbalance /Grants+Subsidies to revenues/	Mean	Std. Dev.	Min	Max
1995	0,59/0,35/	0,13/0,14/	0,01/0,005/	0,94/0,83/
1996	0,68/0,52/	0,11/0,12/	0,12/0,05/	0,91/0,80/
1997	0,67/0,51/	0,10/0,12/	0,08/0,04/	0,90/0,82/
1998	0,70/0,54/	0,11/0,13/	0,08/0,02/	0,93/0,88/
1999	0,69/0,58/	0,11/0,13/	0,01/0,05/	0,92/0,85/
2000	0,69/0,58/	0,12/0,14/	0,14/0,11/	0,92/0,87/
2001	0,6778824	0,1105871	0,12/0,08/	0,91/0,86/

Table 2. Empirical results

	FE	FE	FE	PCSE
	Logexprev	resrev	Logexprev	resrev
OwnSG	-0.002 (5.11)**	0.002 (5.85)**		
OwnSGrest	-0.003 (2.73)**	0.003 (2.58)**		
Sgrev			0.091 (13.71)**	-0.044 (0.020)**
Sgrevrestr			-0.024 (2.93)**	0.049 -0.031
Popshare	-9.38 -0.29	7.242 -0.21	1.224 -0.04	-0.038 (0.020)*
Restr	0.016 (11.73)**	-0.016 (11.49)**	0.02 (4.28)**	-1.677 (0.518)***
Constant	0.016 -1.18	-0.018 -1.25	-0.034 (2.36)*	0.009 -0.012
Observations	17192	17192	17192	17192
Gminas	2456	2456	2456	2456
R-squared	0.01	0.01	0.02	0.01

Standard errors in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

Table 3. Empirical results

	FE 95-98	FE 99-01	FE 95-98	FE 99-01	FE 95-98	FE 99-01	FE 95-98	FE 99-01
	Logexprev	Logexprev	resrev	Resrev	resrev	resrev	Logexprev	Logexprev
OwnSG	-0.003 (7.54)**	-0.059 (10.65)**	0.004 (8.52)**	0.057 (9.80)**				
SGrev					-0.105 (14.59)**	-0.205 (6.70)**	0.109 (15.90)**	0.224 (7.73)**
Constant	0.014 (17.04)**	0.061 (17.40)**	-0.017 (19.95)**	-0.063 (17.02)**	0.038 (10.61)**	0.089 (5.09)**	-0.042 (12.45)**	-0.103 (6.22)**
Observations	9824	7368	9824	7368	9824	7368	9824	7368
Gmina	2456	2456	2456	2456	2456	2456	2456	2456
R-squared	0.01	0.02	0.01	0.02	0.03	0.01	0.03	0.01

Standard errors in parentheses

* significant at 10%; ** significant at 5%; *** significant at 1%

