Wolff, Guntram B.

Working Paper

Fiscal crises in US cities: Structural and non-structural causes

ZEI working paper, No. B 28-2004

Provided in cooperation with:
Rheinische Friedrich-Wilhelms-Universität Bonn

Suggested citation: Wolff, Guntram B. (2004) : Fiscal crises in US cities: Structural and non-structural causes, ZEI working paper, No. B 28-2004, http://hdl.handle.net/10419/39523

Zentrum für Europäische Integrationsforschung
Center for European Integration Studies
Rheinische Friedrich-Wilhelms-Universität Bonn

Working Paper

Guntram B. Wolff

Fiscal Crises in U.S. Cities: Structural and Non-structural Causes

B04-28
2004

Fiscal Crises in U.S. Cities: Structural and Non-structural Causes

Guntram B. Wolff*

Bonn, August 2004

Third version.[1]

Abstract

Financial difficulties of U.S. cities have recently become a major issue of concern. However, there is little agreement on why certain cities experience crises while others do not. Two arguments are put forward: Cities suffer from (1) structural problems like high immigration, congestion etc. (2) non-structural political problems like the weakness of the mayor, union-power etc. Starting from a common pool model of municipal goods we estimate demand equations for spending and debt with structural variables. The estimation is based on 900 US cities in 1985, 1991 and 1999. Structural factors predicted by the model explain most of the variation of spending and debt levels. Furthermore coefficients are stable over time. However, excessively high debt burdens as indicators of potential crisis, and high spending levels are outliers and not explained by structural factors.

JEL: H74, H72, E62, P1, R0

Keywords: fiscal crisis, U.S. cities, local public finance, common pool resource problem, cluster analysis

*ZEI - Center for European Integration Studies, University of Bonn, Walter-Flex Str. 3, 53113 Bonn, Tel: 0228/73 - 1887, e-mail: gwolff@uni-bonn.de

[1]Part of the research for this paper was done during a stay at the University of Pittsburgh. Financial support by the DAAD (German Academic Exchange Service) is gratefully acknowledged. I would like to thank Alberta Sbragia, Jürgen von Hagen, Mark Hallerberg, Ronald Moomaw, Kerstin Bernoth, Matthias Paustian, Bert Rockman, Rolf Strauch, Jennifer Wu and seminar participants at Ohio State University, Bonn Graduate School of Economics and ZEI for many helpful discussions. Remaining errors are mine.

1 Introduction

Fiscal distress and crises have become issues of considerable concern for U.S. states and cities. Mayors ask for state aid to compensate for revenue short falls (The Economist May 22nd, 2003) and (Herbert January 16, 2003). Some argue that New York City now faces the worst fiscal crisis since the mid-1970 (Cooper May 7, 2003). In Oregon, school districts consider shortening the school year to avoid large deficits. Even states are affected by the fiscal distress and lay off employees. While media coverage of fiscal distress and crises is substantial, systematic evidence on determinants of crises and, at an earlier stage, distress is quite scarce.

The present paper investigates the determinants of fiscal distress in 900 U.S. cities in the mid 1980s, early 1990s and late 1990s. Since no systematic data-set on the occurrence of fiscal crises in U.S. cities exists, we identify cities in fiscal crises with a cluster analysis. The cluster of cities with a high debt-per-capita level is in state of distress, while low debt-per-capita levels are a sign of fiscal health. We argue that fiscal distress is a situation from which fiscal crisis is likely to result. Potential determinants of fiscal distress are derived from a common pool resource model. In this model, the budget of a city is considered to be a pool from which the inhabitants of a city want to get as many services as possible. Since many services benefit only limited groups, while the burden of financing is spread on all tax payers through the common budget, voters will demand more than they would if they incorporated the full cost of the service. Thus, spending will be higher than in the case of an optimal planner. In an intertemporal setting, it is shown that the common pool problem will in addition lead to higher debt levels.[2] The degree of the common pool resource problem is operationalized by structural factors such as economic performance and socio-demographic characteristics. As these characteristics vary across cities, expenditure and debt of cities will be different. We empirically test the model and show that cross-city variation of spending and debt is well explained by the model. In a second step, we assess the importance of the factors identified by the model to explain extreme fiscal outcomes of crises.

Views on what constitutes a fiscal crisis are diverging in the literature.[3] Inman

[2]A large political economy literature investigates debt accumulation at a country level, for surveys see Alesina and Perotti (1995) and Woo (2003). In contrast, Barro (1979) explains the accumulation of public debt in a neoclassical model by a now standard tax-smoothing argument. Sustained accumulation of debt can, however, not be explained by his model.

[3]Honadle (2003) in a survey of State auditors finds that only 10 States have a formal definition of crises, 21 States made clear that their states do not define fiscal crises in any way. 36 States reported that they had cities in a crises recently. McConnel and Picker (1993) discuss municipal bankruptcy from a legal point of view.

(1995) defines a fiscal crisis as a situation when a city's potential to raise revenues is insufficient to cover the city's legally required expenditures. Case studies have shown that a fiscal crisis is usually characterized by the refusal of lenders to give any additional credit. In the case of Philadelphia, the lenders of the city government refused further credit, since part of the credit was to be used to repay accumulated debt. The refusal to give further credit to a local government certainly constitutes an important criterion for fiscal crises.

The credit worthiness of a city is evaluated among others on the basis of the debt burden. The city of New York ran current account (as opposed to capital account) deficits for more than ten years before the outbreak of their crisis and accumulated a large debt burden. Lenders then stopped to give further credit and a fiscal crisis resulted. As Capeci (1991, 1994) shows, the interest rate charged for newly issued bonds reacts to the current fiscal stance of a city, most notably to the borrowing and debt level. Higher debt levels result in higher nominal interest rates, reflecting the increased default risk. Bayoumi, Goldstein, and Woglom (1995) also argue that the probability of default is an increasing function of the absolute debt level and the interest payment. They find empirical support for this hypotheses for a sample of American States. Debt levels are therefore a good indicator of fiscal distress of a city as also argued by (Fuchs 1992, p. 30) and (Clark 1994). Ultimately long lasting fiscal distress can lead to a fiscal crisis. Thus, fiscal crises can be identified empirically by looking for cities with very high debt burdens.

Following the period of fiscal crises in the mid-1970s, numerous papers have investigated the determinants of fiscal crises. Most of these papers are case studies of single cities. For example Gramlich (1976) and Shefter (1992) study the crisis of New York in 1975, Inman (1995) studies the case of Philadelphia in 1990. The case studies usually emphasize a combination of factors to be responsible for the crisis. On the one hand, changes in socio-economic conditions are mentioned. On the other hand, specific political actors (e.g., a mayor) are seen to be at the root of the problem. In a series of articles, Bradbury (1982, 1983a, and 1983b) investigates fiscal distress and its causes in a number of major American cities. Bradbury (1982) distinguishes two types of fiscal distress. The first relates to the city government's short-run difficulty in balancing its budget. The second is labelled "Citizens's fiscal distress" and measures bad performance in providing adequate services. It is mostly determined by structural factors outside of the control of city officials. Bradbury (1983a) calls this structural fiscal distress. Besides these structural factors, city management and unmeasured costs determine fiscal difficulties of a city. Fuchs (1992) compares the fiscal policies of New York City and Chicago. Chicago avoided

fiscal instability in 1975[4] while NYC did not. This difference, in the view of Fuchs (1992), can be attributed to the role of politics, especially the role of local party organization. "New York mayors were unable to centralize authority over the budget process(...). Without a strong party organization New York mayors relied on interest group support to create winning electoral coalitions;" (p.6). This result is in line with Poterba (1994), who shows that political and institutional factors matter for adjustments to fiscal shocks. A State with a governor of one party and a congress with opposing political party majority is slower to react to shocks. Poterba further shows that U.S. States react to unexpected expenditure and revenue shocks already within the fiscal year.[5] The First National Bank of Boston (1981) points out that, while socio-economic indicators cause fiscal conditions, they are not the main cause for fiscal distress. Fiscal distress is not inevitable but within the "grasp of management control of most cities". Their analysis thus supports the view that structural factors are important for fiscal performance, but it also highlights the role of political and management factors for crises. Honadle (2003) summarizes the answers of state government officials on the causes of fiscal crises. Similarly, officials mention structural (economic, demographic and institutional) factors, and non-structural factors (management and politics) as reasons. However, the relative importance of these factors is not assessed. The survey of the literature thus shows that there is little systematic evidence on the main determinants of fiscal crises in a large sample of U.S. cities.

The present paper contributes to the literature by presenting a coherent theoretical framework for the determinants of public spending and debt in cities and testing it with a recent, large data set of U.S. cities. We show that a large percentage of cross-city variation in spending and debt can be explained by this model. In addition the estimation results present systematic evidence on the importance of structural factors and non-structural factors as determinants of crises. An analysis of the identified distressed cities shows that extreme fiscal outcomes of distress can not be explained by this common pool model based on measurable socio-economic factors. It is therefore argued, that extreme fiscal outcomes are the result of non-structural factors such as mismanagement, union-power in public administrations and weak mayors.

The remainder of the paper is organized as follows. The next section presents the common pool model and develops the empirical strategy. We then discuss the available data. Section 4 presents the estimation results for the determinants of

[4]Cohen (1989) points out that municipal defaults are strongly correlated with the business cycle. While it is true that fiscal distress becomes most obvious in recession years such as 1975, the question remains unanswered why some cities then do have such problems and others do not.

[5]Ex-post budget data therefore only report part of the true crisis.

public spending and debt. Section 5 discusses the cluster of fiscally distressed cities and compares them with the non-distressed cities. The last section concludes.

2 Framework: the common pool resource problem

Consider a city with several population groups, which differ in their preferences for local public goods. The members of each group mainly benefit from the specific good provided for them. The goods are financed by the general budget of the city, which is a common pool. An example are swimming pools which are typically financed out of the common budget, while their benefits accrue exclusively to those who go swimming. Similarly, social services for the poor benefit a restricted group of people, while the related costs are paid out of the common budget. The common pool resource literature shows that these constellations lead to an inefficient over-provision of the public good, if individual groups manage to influence the government in their interest. The intuition for this result is the following. The cost of each municipal good is spread to all tax-payers, while the benefit accrues to the individual only. Thus the individual will demand more of the municipal good, since the benefit from the good in the view of the beneficiary is larger than it is for the general public.[6]

In the following we present a model of municipal demand for public goods, in which there is no heterogeneity of preferences. Then, we introduce heterogeneity and calculate the resulting allocation when a benevolent planner maximizes joint utility given a joint resource constraint. It is shown that preference heterogeneity will lead to higher demand for municipal goods if these goods are public goods. A public good is defined as a good with limited rivalry in consumption. The normative benchmark of a benevolent planner maximizing the joint utility of all individuals living in the city is compared with the allocation resulting from individual maximization of each interest group. In this case, the common pool problem arises and leads to higher spending and higher debt levels than optimal. In section 2.3 we derive our estimation equation from the model.

Our model is based on a two-period economy with a municipal and a private

[6]This intuition follows the model by von Hagen and Harden (1994, 1995).

good.[7] An individual consumer i receives the fraction

$$g_i^* = n^{-\gamma} g, \tag{1}$$

of the municipal good g, where n is population size and g is the total amount of the municipal good provided. Thus g_i^* characterizes the actual quantity received by an individual consumer. If $\gamma = 0$, the municipal facility is a pure Samuelson (1954)-type public good, there is no rivalry in consumption. 10 people can consume as much as 100 people of the good. If $0 < \gamma \leq 1$, there is a limited degree of rivalry in the use of the good, $\gamma > 1$ indicates considerable crowding out in the use of the good. In the latter case a city with a larger population needs to provide over-proportionally of the municipal good in order for the individual consumer to enjoy the same level of municipal good consumption as she would in a small city.

The utility of an individual i is given by

$$V_i = U(c_{i,1}, c_{i,2}) + H(g_{i,1}^*) + H(g_{i,2}^*), \tag{2}$$

where c_i denotes private consumption and the subscript period 1 and 2 respectively. H is a usual strictly concave utility function for the municipal good. Further it is assumed that first period municipal consumption is financed by issuing debt $b = \sum b_i$. Furthermore the public sector cannot default.[8] The city raises a tax rate τ on second period income in order to repay the debt and to cover second period public consumption. Every individual pays a fraction $0 < \zeta_i < 1$ of the public good, which has a relative price q. Given that r is the interest rate the budget constraint of individual i can be specified as follows:

$$c_{i,1} = y_{i,1} - b_i \tag{3}$$

$$c_{i,2} = (1-\tau) y_{i,2} + (1+r) b_i \tag{4}$$

where $y_{i,t}$ denotes the income of person i in period t. Thus, first period income of an individual is used to consume and to buy city debt, in the second period, private consumption equals the sum of after tax income and the repaid debt.

[7] It is similar to the model by Persson and Tabellini (2000, pp.345). A model with infinite periods is presented in Velasco (2000), the main insights, however, remain the same. In the present paper the model by Persson and Tabellini is augmented in such a way, that we can derive demand functions for municipal goods, as done in Bergstrom and Goodman (1973) and similarly in Borcherding and Deacon (1972).

[8] The last assumption is not as strict as it might appear as pointed out by Inman (2001). In fact, the number of American cities going bankrupt in recent years was very limited. In the last years, the main defaults were incurred by NYC, Camden, Philadelphia, Bridgeport, Miami and Orange County and Washington D.C. (p.60). Of these cities, only Camden and Washington D.C. received bail-outs.

The tax income received from the individual i is thus equivalent to the share of the municipal good in period 1 and period 2 paid by individual i:

$$\tau y_{i,2} = q_1 \zeta_i g_1 + q_2 \zeta_i g_2 \tag{5}$$

and we assume that first period bonds bought by individual i correspond to her paid share of the municipal good in period 1.

$$b_i = q_1 \zeta_i g_1 \tag{6}$$

The consolidated budget constraint is, assuming for simplicity an interest rate of zero ($r = 0$) and no discounting, then given by:

$$c_{i,1} + c_{i,2} = y_{i,1} + (1 - \tau) y_{i,2} = y_{i,1} + y_{i,2} - q_1 \zeta_i g^*_{i,1} n^\gamma - q_2 \zeta_i g^*_{i,2} n^\gamma \tag{7}$$

The maximization problem for the optimal level of $c_{i,2}$, $g^*_{i,1}$, and $g^*_{i,2}$ can then be expressed as

$$\max U(y_{i,1} + y_{i,2} - q_1 \zeta_i g^*_{i,1} n^\gamma - q_2 \zeta_i g^*_{i,2} n^\gamma - c_{i,2}, c_{i,2}) + H(g^*_{i,1}) + H(g^*_{i,2}) \tag{8}$$

2.1 A benchmark: the benevolent planner's allocation

2.1.1 One municipal good

Suppose that all individuals $i = 1...n$ have the same preferences. The benevolent planner maximizes welfare defined as the sum of all the individual utilities. Thus, as a normative benchmark, we calculate the utilitarian optimum, which is obtained by maximizing the Benthamite welfare function, subject to the resource constraint. The first order conditions are given by:

$$\begin{aligned} -n q_1 \zeta_i n^\gamma U_1(c_{i,1}, c_{i,2}) + n H'(g^*_{i,1}) &= 0 & (9) \\ -n q_2 \zeta_i n^\gamma U_1(c_{i,1}, c_{i,2}) + n H'(g^*_{i,2}) &= 0 & (10) \\ -n U_1(c_{i,1}, c_{i,2}) + n U_2(c_{i,1}, c_{i,2}) &= 0 & (11) \end{aligned}$$

where U_t is the first derivative of U with respect to $c_{i,t}$ at time $t = 1, 2$ and H' is the first derivative of H with respect to its argument. If the price of the public good is constant over time $q_1 = q_2$, then optimal municipal consumption of individual i is flat over time $g^*_{i,1} = g^*_{i,2}$, and given constant population size, $g_1 = g_2$. This directly results from the strict concavity of the utility function. Private consumption will also be equal in both periods. This benchmark thus characterizes the case of a homogenous population, that has a common preference for one public good, such as a public swimming pool.

2.1.2 Two municipal goods

Now assume that the population is split into two groups $j = A, B$ with differences in their preferences regarding the public good. Group j prefers public good g^j, where $j = A, B$ and $\gamma^A = \gamma^B = \gamma$. Thus, one group would like to have only a swimming pool, while the other group derives utility only from public parks. The two groups are of equal size. The joint maximization problem is then:

$$\max 2 \cdot \frac{n}{2} U\left(X - c_{i,2}, c_{i,2}\right) + \frac{n}{2} H(g_{i,1}^{A*}) + \frac{n}{2} H(g_{i,1}^{B*}) + \frac{n}{2} H(g_{i,2}^{A*}) + \frac{n}{2} H(g_{i,2}^{B*}) \quad (12)$$

where

$$X = y_{i,1} + y_{i,2} - q_1 \zeta_i \left(g_{i,1}^{A*} \left(\frac{n}{2}\right)^{\gamma} + g_{i,1}^{B*} \left(\frac{n}{2}\right)^{\gamma} \right) - q_2 \zeta_i \left(g_{i,2}^{A*} \left(\frac{n}{2}\right)^{\gamma} + g_{i,2}^{B*} \left(\frac{n}{2}\right)^{\gamma} \right) \quad (13)$$

which gives the following five first order conditions:

$$-n q_1 \zeta_i \left(\frac{n}{2}\right)^{\gamma} U_1(c_{i,1}, c_{i,2}) + \frac{n}{2} H'(g_{i,1}^{A*}) = 0 \quad (14)$$

$$-n q_1 \zeta_i \left(\frac{n}{2}\right)^{\gamma} U_1(c_{i,1}, c_{i,2}) + \frac{n}{2} H'(g_{i,1}^{B*}) = 0 \quad (15)$$

$$-n q_2 \zeta_i \left(\frac{n}{2}\right)^{\gamma} U_1(c_{i,1}, c_{i,2}) + \frac{n}{2} H'(g_{i,2}^{A*}) = 0 \quad (16)$$

$$-n q_2 \zeta_i \left(\frac{n}{2}\right)^{\gamma} U_1(c_{i,1}, c_{i,2}) + \frac{n}{2} H'(g_{i,2}^{B*}) = 0 \quad (17)$$

and

$$-n U_1(c_{i,1}, c_{i,2}) + n U_2(c_{i,1}, c_{i,2}) = 0 \quad (18)$$

Proposition 1. *The benevolent planner equalizes public good provision across time and across goods.*

Proof: This follows from Equations 14-17, as the levels of $g_{i,t}^{j*}$ have to be equal so that the functions H' are equal to the same term $-n q_2 \zeta_i \left(\frac{n}{2}\right)^{\gamma} U_1(c_{i,1}, c_{i,2})$.

2.1.3 One municipal good vs. two municipal goods

In addition we can compare the amount of public good provided if there is only one public good as opposed to two different goods. Does heterogeneity in preferences for different goods increase total spending or decrease it? If we compare the first order condition of Equation 14 with the first order conditions of Equation 9 (the case with no heterogeneity), then one can show that

$$\frac{H'(g_{i,1}^{A^*})}{H'(g_{i,1}^{*})} = \frac{2(n/2)^{\gamma}}{n^{\gamma}} = \frac{2}{2^{\gamma}}$$

If $\gamma < 1$ then the term above is larger than 1, and therefore $g_{i,1}^{A^*} < g_{i,1}^*$. The intuition to this result is quite simple. If the good provided by the city has some public good character in the sense that there is limited rivalry in consumption, then the city which only provides one good has a size advantage. Since n instead of $n/2$ individuals pay for the municipal good, the enjoyed level of the public good by an individual is larger. If however there is considerable crowding out, $\gamma > 1$, then the smaller size of the group benefitting from good A contributes to a higher level of received good. This means on the other hand, that comparing the absolute quantities provided, that if $\gamma < 1$, $g_1^A + g_1^B = g_1 > g_1^{nh}$, where g_1^{nh} is the level of municipal good provided if there is no heterogeneity (nh) of preferences. Thus, if the consumption of the municipal goods is non-rival, an increase in the diversity of preferences will increase the total amount of spending for municipal goods. For example, if everybody living in a city has a strong preference for swimming pools, and if swimming pools are of limited rivalry, then less has to be spent for the public good than if one half of the population wants swimming pools and the other half only wants public parks. Population heterogeneity thus requires higher public spending if the public goods are non-rival ($\gamma < 1$). This result picks up the point made by Oates (1988), who commented on the debate whether municipal goods are rival or non-rival. The empirical studies performed with aggregate expenditure data usually found that municipal goods are rival, thus quasi-private. Oates argued that this measured effect could just reflect that larger cities offer a greater variety of goods, which are each non-rival in nature.

2.2 Common pool resource problem, individual maximization

After deriving the optimal allocation for the case of a benevolent planner who maximizes the sum of individual utilities, we now consider a society divided into two interest groups, each of which maximizes their utility. Each of these groups derives utility only from the municipal good provided specifically for them, taking as a budget constraint the common pool of resources of both groups. It is assumed that the results of the individual maximization, the actual individual demand functions will actually be realized by the city government. Thus, we disregard the role institutions might play to reduce the common pool problem. One could suppose that each group has its own representatives in the city council and is thereby able to achieve its interest. These representatives then try to get as many resources for their constituency as possible.[9] To figure out the solution to this problem, we start from the second

[9]Hallerberg and von Hagen (1997), von Hagen and Harden (1995) and von Hagen (1992) investigate the importance of the common pool problem in the context of budget processes and show

period maximization problem.

$$\max \frac{n}{2} U\left[X - c_{i,2}, c_{i,2}\right] + \frac{n}{2} H(g_{i,2}^{j*}) \tag{19}$$

where X is defined as above and $j = A, B$. The two resulting first order conditions are:

$$-\frac{n}{2} q_2 \zeta_i \left(\frac{n}{2}\right)^{\gamma} U_1(c_{i,1}, c_{i,2}) + \frac{n}{2} H'(g_{i,2}^{A*}) = 0 \tag{20}$$

$$-\frac{n}{2} q_2 \zeta_i \left(\frac{n}{2}\right)^{\gamma} U_1(c_{i,1}, c_{i,2}) + \frac{n}{2} H'(g_{i,2}^{B*}) = 0 \tag{21}$$

Proposition 2. *Public spending in the second period is higher, if each group individually maximizes its utility, than if a benevolent planner maximizes joint utility.*

Proof: In the common pool model with two goods and individual maximization, the optimal quantity provided of each good is defined by equation 21 or dividing by $n/2$

$$q_2 \zeta_i \left(\frac{n}{2}\right)^{\gamma} U_1(c_{i,1}, c_{i,2}) = H'(g_{i,2}^{j*}) \tag{22}$$

while in the case of a benevolent planner and two goods it is defined

$$2 q_2 \zeta_i \left(\frac{n}{2}\right)^{\gamma} U_1(c_{i,1}, c_{i,2}) = H'(g_{i,2}^{j*}). \tag{23}$$

The proposition directly follows from the strict concavity of the H utility function.

Turning to first period demand for municipal goods, we must account for the fact that agents in their maximization problem know that second period consumption depends on the consumption in the first period. With the help of the implicit function theorem it is easy to verify that $g_2^{j*} = g_2^{j*}(g_1^{A*}, g_1^{B*})$, where the first derivative of $g_2^{j*'}$ with respect to first period consumption is negative. Second period consumption will be lower, the higher the inherited debt from the first period. Higher debt levels increase the marginal cost of second period spending, since a tax on income needs to be raised to pay pack the debt and cover the spending of municipal goods in the second period. In the first period, the individuals take into account that second period public consumption is influenced by first period consumption. The first period maximization problem is:

$$\max \frac{n}{2} U\left[X^{cp} - c_2, c_2\right] + \frac{n}{2} H(g_1^{j*}) + \frac{n}{2} H(g_{i,2}^{j*}(g_1^{A*}, g_1^{B*})) \tag{24}$$

for $j = A, B$ where

$$X^{cp} = y_1 + y_2 - q_1 \zeta_i \left(g_1^{A*} \left(\frac{n}{2}\right)^{\gamma} + g_1^{B*} \left(\frac{n}{2}\right)^{\gamma}\right) - q_2 \zeta_i \left(g_2^{A*}(g_1^{A*}, g_1^{B*}) \left(\frac{n}{2}\right)^{\gamma} + g_2^{B*}(g_1^{A*}, g_1^{B*}) \left(\frac{n}{2}\right)^{\gamma}\right). \tag{25}$$

---

that budget institutions are a way to reduce this problem.

The resulting optimality condition, using the results of 21, is

$$-q_1\zeta_i\left(\frac{n}{2}\right)^{\gamma}U_1(c_1,c_2)+H'(g_{i,1}^{A*})(1-g_{i,2}^{A*\prime})=0 \tag{26}$$

Comparing this optimality condition with the one of the benevolent planner shows that public consumption in the first period is higher. As this public consumption is financed by issuing debt, also the debt level will be higher. Since the first derivative of second period consumption, $g_{i,2}^{A*\prime}$, is negative, the term in brackets is larger 1. Thus, while in the case of a benevolent planner the optimal quantity of $g_{i,1}^{A*}$ is given by

$$q_1\zeta_i\left(\frac{n}{2}\right)^{\gamma}U_1(c_{i,1},c_{i,2})=\frac{1}{2}H'(g_{i,1}^{A*}) \tag{27}$$

in the case of individual maximization

$$q_1\zeta_i\left(\frac{n}{2}\right)^{\gamma}U_1(c_1,c_2)=H'(g_{i,1}^{A*})(1-g_{i,2}^{A*\prime}) \tag{28}$$

First period public consumption is higher than in the case of the benevolent planner for two reasons: First of all, in the case of individual maximization more funds are spent than optimally because individuals maximizers only have to pay half of the additional costs. The second effect stems from the fact that second period consumption is negatively influenced by first period consumption. As both groups decrease their municipal spending demands for inherited debt of the first period, the cost of first period municipal consumption appears lower since all individuals share the cost in the second period. Both groups reduce future spending because of current debt accumulation. From the point of view of group A, the cost of borrowing is reduced since group B also reduces spending in the second period. Comparing this result with the resulting level of municipal good in the second period, it can be seen that first period consumption of municipal goods is higher than second period consumption. Thus, the common pool problem not only increases municipal spending, but also leads to an intertemporal common pool problem. Thus, $g_{i,1}^{j*} > g_{i,2}^{j*}$ and therefore $g_1 > g_2$, because of the intertemporal common pool problem. Velasco (2000) shows that this result also holds in a model with infinite horizon. Debt is accumulated up to the level at which the present discounted value of all available future taxes equals the debt level. Thus, the common pool problem leads to a higher accumulation of public debt than socially desirable.

The introduction of a common pool resource problem increases spending and debt accumulation. Decentralized spending in a common pool of tax revenues entails that more is spent than optimal. The same common pool factors, leading to higher spending will also increase the accumulation of debt.

2.3 Estimation strategy

To derive an equation, which we can estimate, we have to make some assumptions concerning the utility function V. For ease of exposition we chose the function

$$V_i = \ln c_{i,1} + \ln c_{i,2} + \ln g^*_{i,1} + \ln g^*_{i,2} \tag{29}$$

Maximizing this function subject to the budget constraint (Equation 7), it follows immediately, that $c_1 = c_2$ and $g^*_1 = g^*_2$. Let δ be the constant price elasticity and ϵ the constant income elasticity and abstract from the common pool problem, using the first order conditions from the above maximization problem yields

$$g_1 = n^\gamma g^*_{i,1} = k(y_1 + y_2)^\epsilon (q_1 \zeta_i n^\gamma)^\delta$$

where k is a constant. It simplifies to

$$g_1 = n^{\gamma(1+\delta)}(y_1 + y_2)^\epsilon (q_1\zeta)^\delta \cdot k. \tag{30}$$

Taking logs, the following equation can be estimated:

$$\ln(g) = c + \alpha \ln(n) + \epsilon \ln(y) + \delta \ln(q_1\zeta_i) + \beta CP \ldots \tag{31}$$

where

$$\alpha = \gamma(1 + \delta). \tag{32}$$

from which the degree of crowding out γ can be calculated.[10]

Demand for municipal goods thus depends on the population size, income, the price of the municipal good in terms of taxes and CP, which is a vector of variables capturing the importance of the common pool problem. In addition, the common pool resource model predicts that those factors that increase spending will also lead to higher debt accumulation. Thus, we also regress the debt level on the common pool factors.

$$\ln(debt) = c + \alpha \ln(n) + \epsilon \ln(y) + \delta \ln(q_1\zeta_i) + \beta CP \ldots \tag{33}$$

However, we do not assume that income and the tax rate should determine the debt level, since they do not constitute factors of the common pool problem. Differences across cities in the debt level should be explained by the scale variable population size and the degree of common pool problem, CP.

[10]Oates (1988) argues that the estimated coefficient of 1 (the quasi-private nature of public goods) can be the result of the so-called "zoo-effect". Larger communities offer a greater variety of goods and services. Therefore, there is no congestion but rather a greater range of services. However, most expenditure categories, like social services, policing, fire, sewerage, and highways do not appear to be subject to Oates' point.

In the following we will briefly discuss the variables $q_1\zeta_i, n, y$ and ways to operationalize the common pool problem CP.

$q_1\zeta_i$ represents the share of the municipal good paid by individual i. It corresponds to the taxes paid by the individual. The median house value is the tax base, on which the most important municipal tax, the property tax, is levied.[11] The property tax represents a substantial part of municipal revenues (48.1% in 1984/85 of municipal tax revenues and 20.8 % of total municipal revenues in the whole of the sample of cities), increases in the demand for municipal spending therefore will probably lead to higher taxes on property. The median house value might be an endogenous variable, since increased spending might positively affect the median house value through better security, nicer parks etc. Since appropriate instruments for IV regressions are not available, we performed robustness checks by dropping the median house value. All the other coefficients stay stable. In addition, one can calculate the direction of the bias and show that given some assumptions, the reported coefficient on the median house value is an upper bound of the true price elasticity of demand.[12] If the house value of the decisive voter increases, his demand for public goods falls because he will have to pay a higher tax for this good. In addition to the median house value we control for the percentage of people living in their own houses. We suppose that people renting an apartment will expect that changes in the property tax will not be immediately reflected in the rent paid. Thus a higher percentage of people living in their own houses (a lower percentage of people renting a flat) will lead to lower demand for municipal services.

The income y is measured as mean income per capita. Higher income moves the budget constraint and should in general result in higher demand. Population size n increases the demand for public goods and public debt. It can also be a measure for

[11] Ideally one would want to have the property tax payment, however it is very difficult to get data on tax rates and the tax base. In the state of California, for example, there are two property tax rates, an ad valorem rate and a yearly rate. Furthermore the rates differ across counties. In addition for most real property, the tax base is the adjusted base year value or the propertys current market value, whichever is lower. Since property taxes are usually linear taxes, the estimated coefficient should be a linear transformation of the coefficient we would get if we took the property tax as a regressor. See also: http://www.boe.ca.gov/proptaxes/faqs/generalinfo.htm

[12] Suppose that $E = \beta MH + \epsilon_1$ and $MH = \gamma E + \epsilon_2$. $\epsilon_{1,2}$ are uncorrelated error terms with the usual properties. Under these assumptions the bias is given by $E(b) = \beta + \frac{cov(x,\epsilon_1)}{var(X)} = \beta + \frac{\frac{1}{1-\beta\gamma}\sigma^2_{\epsilon_1}}{\left(\frac{\gamma}{1-\beta\gamma}\right)^2\sigma^2_{\epsilon_1}+\left(\frac{1}{1-\beta\gamma}\right)^2\sigma^2_{\epsilon_2}}$. The bias is positive, if the nominator is positive. The nominator is positive if $(1-\beta\gamma) > 0$. Suppose that the true price elasticity is negative, while the influence of spending on the median house value is unambiguously positive (for example Barrow and Rouse (2002) find that additional school spending leads to increased property values.), so $\beta < 0$ and $\gamma > 0$, then the bias is positive. If the bias is positive, the estimated coefficient represents an upper bound. Thus the price elasticity is b or lower.

the common pool problem since larger cities possibly have a larger set of interest groups with diverse preferences.[13] Intergovernmental general city revenue per capita (grantpc) will increase the available pool. Therefore consumption of public goods will increase since it will be costless for all interest groups accessing this pool.

As we have shown in subsection 2.2, the introducing of the common pool model (CP) increases spending and debt. If more interest groups with diverse preferences try to access the common pool of tax resources, the resulting demand will be higher. In order to operationalize the degree of the common pool problem, we include social and demographic variables (Ladd and Yinger 1989).

Higher employment per capita will increase the demand for roads, public transport, policing, etc., because higher employment will generate more driving and other activity.[14]

The percentage of Hispanics[15] is added as an independent variable in our regression, since Hispanics represent a specific interest group. Alesina, Baqir, and Easterly (1999) develop a model to show that the level of spending on municipal goods is lower, the larger the median distance of preferences from the median voter's preferences. The more diverse preferences, the less likely voters will be satisfied with the actual provision of public goods. Thus, voters will prefer private consumption and thus a lower level of public spending. Alesina, Baqir, and Easterly (1999) find that more ethnically diverse cities (representing diversity of preferences) have significantly lower share of spending on public goods. Their empirical result, however, has to be interpreted with caution. As pointed out in their paper, more ethnically diverse cities receive more intergovernmental grants. These grants are very often

[13]Beyond this effect, larger populations will increase the demand for debt, as larger cities have a higher creditworthiness, because they are "too big to fail".The fiscal crisis in NYC has shown, that it is just impossible to leave a city like NYC completely alone. The federal government provided a credit of $2.3 billion in short term loans at 1 percent above the treasury rate of 6 percent as compared to the borrowing rate of the city at the time of 13.2 percent. Nevertheless bondholders incurred significant losses (Morris 1980, p.234). Therefore, their interest rates for bonds should be lower, making deficit-financing cheaper. However, the evidence on the interest rate effect is rather weak. Asefa, Adams, and Starleaf (1981) argue that the variance of interest rates is too low to explain differences in deficits.

[14]There might be an endogeneity problem. Higher public spending might also positively affect employment. To account for this problem we performed separate regressions without this variable. In addition we believe that current employment does not depend on current expenditure for highways but rather on past expenditure for highways, since only finished highways are productive and generate employment.

[15]We measure the variables hispanic, seniors, birth, crime, poverty, ownerhouse and public employment in percent as data between $0 < x < 1$. Thus a 1 percentage point increase of Hispanics in a city will have the impact of decreasing spending by $\beta * 0.01 * 100\%$ percent. The coefficient can thus be interpreted as semi-elasticities.

tied to specific programs like social assistance and thereby necessarily reduce the share of spending on public goods like roads. In addition, many public goods like spending on roads can be targeted by the median decision maker to benefit areas dominated by the median. A different interpretation appears to be plausible. Ethnic minorities, that do not participate in the political decision process, do not receive any benefits. However they do pay taxes. Therefore the disposable funds for the majority increase. Given usual assumptions on the income elasticity and cross elasticity of private and public goods, we expect part of the funds to be used for public goods and part of it to reduce taxes. Thus, we would expect cities with a larger "minority" of non-voters to spend less per capita. Therefore, we control for the percentage of Hispanics, since the voting participation rates of Hispanics differs substantially from those of Whites and African Americans. We suppose that the difference in voting behavior should be reflected in the spending of the city government, with cities spending less if they have many Hispanics. At the presidential elections in 1988, 59.1 and 51.5 percent of the eligible white and black voters voted, whereas only 28.8 of the eligible Hispanic voters did so (U.S. Census Bureau 1989).[16] Shaw, de la Garza, and Lee (2000) show that in the 1996 presidential election the Latino turnout was much lower than the aggregate turnout. Miranda and Walzer (1994) find that the percentage of African American significantly increases spending in the 1970s, it is however of no significance in the 1980s. This might reflect the fact that during the 1970s the black "sector" (Clark and Ferguson 1983) had been more active. The percentage of blacks is also insignificant in our regressions reflecting missing differences in voting participation, while the percentage of Hispanics is significant.

Furthermore we include variables on demographic characteristics. The percentage of seniors living in a community will influence spending and debt. Seniors are quite active in demanding specific services for themselves. Therefore we will expect higher spending in a city with more seniors. On the other hand, seniors are less likely to leave the city and will therefore probably prefer lower debt levels. Voters and taxpayers are mobile and have the option to escape cities with high debt. Inman (1982) argues that mobility of workers plays indeed a role.[17] We can therefore

[16] In 1994, the current population survey gives the following: whites 47.3, black 37.1, hispanic 20.2 (http://www.census.gov/population/socdemo/voting/profile/ptable1.txt) 1998: 46.5, 40, 20.

[17] He analyzes the funding decisions for public employee pensions in the framework of two models. In one model, taxpayers are immobile and try to shift tax burden on the future by under-funding pensions. Given the assumptions of perfect information Inman shows that implausible parameter values would be necessary for this model. His favored model, on the other hand, depends on the assumption of mobility. Taxpayers have an incentive to under-fund public pensions in order to save taxes. The debt burden will be paid back by inhabitants of the city later, when the taxpayer who benefited from the under-funding, moves. The only market mechanism which would prevent

suppose that cities with a younger population are more likely to have higher debt levels, since young people are more likely to leave the city, or alternatively the more old people live in a city, the less likely they are to leave, the lower the debt level.

The birth rate per capita will positively affect the demand for municipal goods and services like kindergarten and thereby increase overall spending. Also debt levels will increase with the birth rates, reflecting voiced demand by young families. Poverty will increase the demand for service programs for poor people. Similarly, the debt level will increase with the poor trying to access the common pool.[18] Higher crime rates will increase the price for the provision of public security and thereby increase demand for policing.[19]

A city with high population growth will have to spend a lot on infrastructure. This spending is an investment, from which the whole population in the future will benefit. Thus, fast growing cities rationally finance these additional expenditures through debt issuing. We would therefore expect that voters will favor higher debt, since they want the immigrants to the city to participate in the financing of municipal spending. Public employment will increase debt levels and spending. The more public employees, the stronger are public employee unions, which represent a very strong interest group with very specific preferences. Unions will successfully negotiate for higher salaries and other benefits for their members. In addition we include a dummy for those cities that are involved in providing school services. Obviously, we expect those cities that provide schooling to have a substantially larger budget. An additional dummy is used for those cities providing health services from their

---

this from happening are functioning house markets, in which the current debt level of a city is incorporated in the price of the house. However there are no studies showing that house markets are efficient.

[18]Cukierman and Meltzer (1989) propose a different model of intergenerational redistribution. In their model the poor would like to leave a negative bequest, while the rich leave a positive bequest, and thus for the rich Ricardian equivalence holds. It is not possible to leave a negative enforceable debt, therefore the poor will vote for a public debt in order to borrow from future generations. Thus, in a voting model, one group is indifferent while the other favors debt, thereby leading to debt accumulation. The debt level is thus expected to positively correlate with poverty in a city.

[19]There is a body of literature investigating whether crime rates and policing are linked. It is difficult to estimate whether higher police spending reduces crime rates, since police spending also depends on crime rates. To solve the endogeneity problem, Levitt (1997) proposed to instrument police spending by electoral cycles in police spending. He finds that police substantially reduces violent crime, however it has little effect on property crime. McCrary (2002) however points to a mistake in Levitt's estimation procedure. A corrected estimation shows that it is impossible with this data set to learn about the causal effect of police on crime. We are aware of the problem of endogeneity, therefore we performed the same regressions without including the crime rate, the other results stay the same.

budget.

States have created tax and expenditure limits (TEL) (Advisory Commission on Intergovernmental Relations and Center for Urban Policy and The Environment, Indiana University 1995). TELs have gained some popularity in the late 1970s and 1980s. Their purpose is to limit the size of governments. However, their effectiveness is frequently questioned. Joyce and Mullins (1991) study the effects of TELs on budget outcomes. They point out that TELs have limited effects on aggregate spending and tax burdens. Knight and Levinson (2000) discuss the difficulties in estimating the effect of TELs, most notably the endogeneity problem. After accounting for this problem, the evidence on the effects of TELs is mixed. TELs lead to increased dependence on state aid and on fees and worsened fiscal conditions for larger cities. von Hagen (1991) finds little evidence for the effectiveness of formal fiscal restraints in reducing the likelihood of extreme outcomes in fiscal performance in US states.[20] Our empirical results do not find any significant effect of TELs on city spending. States have also tried to limit debt accumulation of cities. Some states have imposed debt limits. In addition, the separation of a current account budget and a capital account budget is supposed to ensure that the deficit does not exceed the investment of a city.[21] Sbragia (1996) discusses in depth, how cities have tried to avoid limits on their fiscal freedom by creating public authorities or public special districts and by creating new bonds (revenue bonds) not subject to the law. Chicoine and Walzer (1985) point out the complex relationship among several different layers of government, like special districts and authorities which sometimes fulfill similar functions. It is found that institutional limits on debt and taxes have lead to the creation of additional governments. In 1982 more than 82,000 local governments existed in the United States. Their study is restricted to the state of Illinois. Increased fragmentation is found to be positively associated with the level of property taxation and there is some evidence for increased spending as well. Overall the effect of TELs and debt limits appears to be unclear our regression analysis did not show any effect and we therefore do not report the results.

[20] von Hagen and Eichengreen (1996) investigate the effect of borrowing restrictions in the European Union, which are put down in the Excessive Deficit Procedure (EDP) of the Maastricht Treaty and argue that it should increase the demand for funds from upper level governments. Intergovernmental grants have increased substantially between 1960 and 1990 (Stotsky and Stunley 1997).

[21] The capital account budget is the budget for investment activities of a city. It is financed by issuing debt. The current account budget should be financed exclusively by revenues and not by deficits. New York is the most famous city, which over a 10 year period preceding the fiscal crisis in 1974/5, borrowed to finance current account deficits and thus broke this rule (Gramlich 1976).

3 Data

The data set is taken from the County and City data book (CCDB (U.S. Census Bureau 1988, 1994, 2000)) and includes data for 971 (CCDB 1988) incorporated cities, boroughs, towns, and villages (short: cities) in the United States that had 25,000 or more inhabitants in April 1980, 1070 (CCDB 1994, 2000) cities with more than 25,000 inhabitants as of April 1, 1990.[22] The data set consists of a compilation of different data, collected by the U.S. Bureau of the Census.[23] It includes data on the city budget (tax income, grants, expenditure, debt), the economic conditions of the inhabitants (income, employment, unemployment, poverty, employment in different industries), and socio-demographic data (population, age, education, housing, races and ethnic composition, birth rates, crime rates).

Since the data are taken from different censuses, the dating of the variables is not uniform. The precise dates are given in Table 1. The slightly differing dating, however, poses only minor problems, since the variables measured for example in 1980 instead of 1985 are highly autocorrelated in time. The percentage of, e.g., seniors in a city only slightly changes within 5 years. The correlation between the number of seniors in a city in 1990 and 1980 is for the sample of 947 cities 0.91. The cross sectional information therefore is rather stable.

The county and city data books for 1994 and 2000 do not report debt levels. However, the County and City Extra book (1994, 2002) provides the debt level and the percentage of expenditure on interest payments.

Table 1 presents summary statistics of the most important variables in the data set. The average municipality spent 584 US dollars per year per inhabitant in 1985, in 1997 this figure increased to 1040, representing an increase of 78 percent in nominal terms and a real increase of 29 percent. The minimum spending in one community increased from 107 dollars to 177, while the maximum increased from 2835 dollars to 5612, thus the spread increased. Of the 943 cities in our data set in 1985 (1990, 1997), only 116 (113, 103) engage in education spending. All other cities spend virtually nothing on education. In these cities, schooling services are provided through special school districts, which raise their own taxes. The mean expenditure per capita in cities providing school services is 1132$ (1801, 2313), while it is only 507 (744, 933) dollars in cities having separate school districts for the year 1985 (1991, 1997). In our regression analysis we control for this "school"

[22] 44 cities were meeting the criterion of 25,000 inhabitants in 1980 but not in 1990. On the other hand, 143 cities had increased in population to be included in the later sample.

[23] Fuchs (1992) recommends the use of census data since they create a uniform classification scheme for the purpose of reliable comparative study between cities. Official city budgets are not recommended since they essentially represent "political documents" (p.298).

effect by including a dummy for all cities spending more than 10 percent of their budget on education.[24] The mean (un-weighted) general revenues slightly exceed the mean expenditures. Tax revenue represent less than 50 percent of the general revenue. A significant amount (around 25%, 24,7% and 29%) of the general revenue is intergovernmental revenue.

Variation in general expenditure between cities stayed constant in the investigated period (coefficient of variation: 0.59, 0.59, 0.60) and is slightly smaller than inter-city variation in tax revenue (0.66, 0.70, 0.64). This probably reflects the equalizing role played by intergovernmental grants.

The average debt per capita is 850 (1197, 1490) dollars. Debt includes all long-term debt obligations of the government and its agencies (exclusive of utility debt) and all interest-bearing short-term (repayable within one year) debt obligations. The data set does not differentiate between general obligation and revenue bonds. The city with the largest debt burden (Farmington, NM)[25] has more than 30,000 dollars debt per capita, the largest debt level dropped to 25,599 dollars in 1991 (Farmington, NM) and decreased further to 24,682 dollars in 1999 (Farmington, NM). The average interest payments as a percent of general expenditure amount to more than 7 percent in 1990/91 and more than 6 percent in 1999.

The average income per capita was 11,267 (14,799) dollars in 1985 (1989). For the last cross section, no income data are presently available. The variation is substantial, ranging between 4,600 (Prichard, AL) and almost 34,000 dollars (Beverly Hills, CA) in 1985. For the unweighed average, real income growth in the period 1979-1985 was slightly negative.[26] However some cities gained more than 20 percent real income, while others lost almost 20 percent. During 1985-1989, real income per capita increased on average by 13 percent. The city size varies between 23,000[27] and more than 7 million inhabitants. Population increased in the cities by 6 percent from 1980 to 1986, in the second half of the 1980s it increased by 7.8 percent and in the whole decade of the 1990s by 11.5 percent.[28]

On average, 43 percent of the inhabitants were employed in 1980 increasing to around 47 percent in 1990.[29] The average civilian labor force increased from 50

[24]If we take as a threshold 1 percent, the number of cities increases by less than 5.

[25]For the abbreviations see appendix, table 11.

[26]The USA was in a recession in 1981 and 1982.

[27]The data set includes cities with more than 25,000 inhabitants in 1980, the population data are for the year 1986, therefore the city with 23 thousand.

[28]For an extensive study on urban population growth in the U.S., see Glaeser and Shapiro (2001).

[29]The data on employment are for persons 16 years old and over in the year 1980 and refer to employment in the calendar last week of March 1980. People, who worked more

to 53 percent. Unemployment varies considerably across cities ranging between 0 and 22 percent of the labor force, with a mean of 6.8 percent (6.6 in 1991; 4.1 in 2000). Employment in the manufacturing sector represents around 9 percent of the population. Around 1 out of 100 inhabitants is employed by the city, the figure raises in some cases to almost 8 out of 100.

In 1980, the percentage of Hispanics in the investigated cities varies greatly between less than 1 percent and 93 percent. The mean percentage of Hispanics in the population increased from 7.2 to almost 15 percent. Similarly there is considerable cross city variation in the percentage of African Americans. 11.6 percent of the average population was 65 years and older (seniors) in 1985 increasing only slightly to 12.7, also with substantial variation across cities. Birth rates vary between 3 and 53 per 1000 inhabitants increasing from 16.9 (1984) to 18 (1988) new born per 1000 inhabitants. The average number of serious crimes per 100,000 inhabitants amounts to almost 6000 in 1985, (1991:6375; 1999:5246).[30] 12 percent of the population are poor in 1979 and 13 percent in 1989. Poverty is defined by an absolute dollar income threshold adapted to family size.[31] On average 60 percent of the population live in a house which they own, a figure changing only little over the years.

842 of the 943 cities used in our analysis are in a metropolitan statistical area (MSA). The general concept underlying metropolitan areas is that of a core area containing a large population nucleus together with adjacent communities having a high degree of economic and social integration with that core. This data set contains 33 MSAs, which have more than 3 cities, of which some are classified as central and some are not central.[32] In almost all 33 MSAs, the central city/cities

---

than 1 hour in that week, are considered employed. People are also asked for their place of work, however the census data refer to the place of residence of people working. see http://www.census.gov/prod/cen2000/doc/sf3.pdf page 1017. This can introduce a problem, since many people commute to different places for work. However, usually people are taxed on the residence principle. We divided the total number of employed by the population size.

[30]Crime refers to murder, non-negligent manslaughter, forcible rape, robbery, aggravated assault, burglary, theft, and motor vehicle theft. Some cities report 0 crimes, a very unlikely outcome. We therefore performed the same analysis, dropping the few cities reporting "0" crime. The results do not change.

[31]For details on the historical development of poverty thresholds, see: http://www.census.gov/hhes/poverty/povmeas/papers/orshansky.html An important issue is the revision of prices in calculating this threshold and the counting of non-cash benefits. For our analysis, however, these issues are of minor importance since we are interested in a relative measure across states. It is important to know that this measure is not a measure relative to an income distribution. Jared Bernstein discusses the short comings of this poverty measure in a recent article in the New York Times, September 26, 2003 (http://www.nytimes.com/2003/09/26/opinion/26BERN.html?th).

[32]In some cases, the data set only has the nucleus city, since the surrounding cities are all smaller

spend considerably more and also have a higher debt burden per capita.

25,000.

mid 1980s	Unit	year	Obs	Mean	Std. Dev.	Min	Max
expenditure	$ per capita	1984/85	943	584.52	347.61	107.0	2835.0
general revenue	$ per capita	1984/85	943	607.50	372.45	59.9	4012.8
tax revenue	$ per capita	1984/85	943	253.69	167.69	0.0	1894.0
debt	$ per capita	1984/85	943	853.98	1386.48	0.0	30594.1
interest on debt	percent expenditure						
intergovernmental grant	$ per capita	1984/85	943	156.28	152.55	0.0	1274.2
income	$ per capita	1985	943	11266.87	3022.87	4674.0	33839.0
population	persons	1986	943	102288.30	304806.20	23070.0	7262750.0
income growth	real	1979-85	943	-0.01	0.07	-0.2	0.2
population growth		1980-86	943	6.09	12.59	-13.2	129.9
employment	per capita	1980	943	0.43	0.07	0.2	0.6
civilian employment	per capita		NA				
civilian labor force	per capita	1986	943	0.50	0.09	0.0	0.7
unemployment	percent	1986	943	6.84	3.17	0.0	22.5
manufacturing employment	per capita	1982	943	9.26	9.48	0.0	85.3
manufacturing employment	growth	1977-82	943	8.41	41.32	-71.0	300.0
public employment	per 10000	1985	943	130.96	92.90	0.0	797.1
hispanic	percent	1980	943	7.21	12.29	0.3	93.0
seniors	percent	1980	943	11.57	5.29	1.7	51.8
birth	per 1000	1984	943	16.87	5.16	2.8	53.9
crime	per 100000	1985	943	5946.98	3212.61	0.0	38379.0
poverty	percent	1979	943	11.92	6.76	1.4	43.3
own house	percent	1980	943	59.57	13.30	13.4	92.6
early 1990s							
expenditure	$ per capita	1990/91	1009	862.97	514.40	161.0	4587.0
general revenue	$ per capita	1990/91	1009	826.04	500.90	156.1	4694.9
tax revenue	$ per capita	1990/91	1009	358.55	250.14	36.8	2363.0
debt	$ per capita	1990/91	1003	1197.07	1607.08	0.0	25599.4
interest on debt	percent expenditure	1990/91	1003	7.51	7.83	0.00	77.70
intergovernmental grant	$ per capita	1990/91	1009	201.36	232.52	1.1	1838.9
income	$ per capita	1989	1009	14779.75	4897.91	5561.0	55463.0
population	persons	1990	1009	101139.50	296020.50	20716.0	7311966.0
income growth	real	1985-89	866	0.13	0.11	-0.2	0.9
population growth		1986-92	866	7.81	15.77	-22.3	117.4
employment	per capita		NA				
civilian employment	per capita	1990	1009	0.46	0.06	0.2	0.6
civilian labor force	per capita	1991	1009	0.49	0.06	0.2	0.7
unemployment	percent	1991	1009	6.59	2.94	0.0	17.9
manufacturing employment	per capita	1987	1009	8.20	8.91	0.0	68.5
manufacturing employment	growth	1982-87	666	7.57	44.5	-69.6	446.1538
public employment	per 10000	1991	1008	122.72	88.20	0.0	869.0
hispanic	percent	1990	1009	10.49	15.31	0.2	93.9
seniors	percent	1990	1009	12.57	5.13	2.0	48.5
birth	per 1000	1988	988	18.03	5.76	1.1	49.5
crime	per 100000	1991	1009	6375.52	3776.27	0.0	37903.0
poverty	percent	1989	1009	13.35	8.04	1.1	46.1
own house	percent	1990	1009	58.00	12.60	21.6	91.5
late 1990s							
expenditure	$ per capita	1996/97	983	1040.88	631.00	177.0	5612.0
general revenue	$ per capita	1996/97	984	1019.61	609.67	202.5	5463.87
tax revenue	$ per capita	1996/97	984	440.0855	282.45	53.7	2418.52
debt	$ per capita	1999	889	1489.99	1485.88	0.0	24682.9
interest on debt	percent expenditure	1999	888	6.05	5.28	0.0	50.8
intergovernmental grant	$ per capita	1999	882	318.64	383.65	0.0	2929.0
income	$ per capita		NA				
income manufacturing	$ per employee	1997	857	33874.53	8019.27	15229.6	93565.1
population	persons	2000	1057	107379.10	314612.60	20681.0	8008278.0
income growth	real		NA				
population	growth	1990-2000	1056	11.54	19.51	-24.6	265.6
employment	per capita		NA				
civilian employment	per capita		NA				
civilian labor force	per capita	2000	1055	0.53	0.39	0.2	11.6
unemployment	percent	2000	1055	4.09	2.38	0.9	25.5
manufacturing employment	per capita	1997	874	8.10	7.65	0.0	95.0
manufacturing employment	growth	1987-97	756	1.61	81.29	-100.3	1102.1
public employment	per 10000		NA				
hispanic	percent	2000	1057	14.92	18.13	0.5	96.3
seniors	percent	2000	1057	12.69	6.27	3.2	130.8
birth	per 1000		NA				
crime	per 100000	1999	887	5246.80	2582.60	105.8	22322
own house	percent	2000	1057	59.21	13.16	10.9	92.7

Table 1: Summary statistics of variables in the mid 1980s, early 1990s and late 1990s.

4 Regression analysis

4.1 Municipal expenditure

Table 2 presents estimation results of equation 31. For reasons of comparison we limited the sample to those cities for which we had observations in all three years. Regression results only slightly change if all available cities are included as observations (Appendix Tables 12+13). More than 90 percent of the variance can be explained by the independent variables.[33] Municipal spending is thus largely determined by price, income, population size and additional demographic and control variables reflecting common pool problems. The income elasticity of demand is 0.9, the price elasticity is negative, however not always significant. Remarkable is the coefficient for the population size. It is significantly different from 1 in those regression, that do not include the tax base. This indicates that to obtain the same level of service, larger cities need to spend over-proportionally more. There are thus diseconomies of scale to the production or consumption of local municipal goods. This result is confirmed, if we compute the coefficient γ of crowding out according to Equation (32). In all regressions it is larger than 1.[34] Thus, the advantages of sharing costs are overcompensated by increased costs of either production or the sharing of these goods. There are no economies of scale to larger municipalities. The first two regressions present the results for all variables available in 1985 and 1991. Spending reacts to employment. Cities with 1 percentage point more employment per capita spend around 0.85 percent more. Poverty and birth rates are also factors increasing spending as predicted by the common pool model.

Coefficients of the variables are relatively stable over time. We tested formally for equivalence of coefficient and had to reject the H_0 that the difference of coefficients is zero. The Chow (1960) test on all variables except intergovernmental grants, however, did not allow to reject the hypothesis of constant coefficients in time. We therefore present results of pooled regressions allowing for flexibility of the coefficient intergovernmental grant in time (last column).

House ownership significantly reduces spending of cities. Cities taking care of

[33]To account for possible heteroscedasticity problems, we performed robust estimation (White 1980). The results did not change. We also controlled for those cities performing county functions, since they do not have an overlying county government. However, the coefficient for this dummy is insignificant and therefore we do not report this result.

[34]We do not present the specific values because the coefficient of median house value is not equal to the theoretical δ. To receive the correct coefficient one would have to multiply the reported coefficient with the applicable tax rate. This would considerably reduce the absolute size of the coefficient, however γ will remain larger than 1, since the price elasticity is always negative.

schools (education) on average spend 28 percent more than those that do not. Health spending is a strong factor of city spending. Cities engaged in the provision of health services, spend 50 percent more than cities which do not. Each additional 100 dollars per capita intergovernmental grants will significantly increase spending by 0.07 percent, the effect of intergovernmental transfers on spending is thus negligibly low, they are apparently used to reduce tax burdens. The difference in voting participation of Hispanics is indeed reflected in lower spending the higher the percentage of Hispanics. The percentage of seniors increases the demand for municipal spending. Crime rates significantly increases the spending of municipalities. Central cities also have higher spending needs, since probably they have to provide a lot of infrastructure for neighboring communities.

The system of municipal organization in form of a council-manager (CM)[35] system or a mayor-council (MC)[36] had no influence on spending. We therefore do not report the regression results. However, the system of MC is more common in larger cities, which also have higher spending per capita.

The high degree of explained variance can be taken as an indication of the low importance of political factors like the degree of organization of municipal employees, the "fiscal liberalism" of the mayor or the party membership of the mayor, factors not included in the regression. In fact, Miranda and Walzer (1994) find that these variables are insignificant in regressions explaining the level spending of common functions and also the change in this spending for a limited set of cities.

[35]The council-manager form is similar in structure to a private corporation, with the voters, council, and a manager being organizationally similar to the stockholders, board of directors, and corporate general manger. There are few elective officers – usually only a council – with the mayor generally selected by and from the council to serve as a titular and ceremonial leader and to preside at council meetings. The policy-making legislative body is the council. The manager is a full-time professional executive charged with the administration of municipal affairs, appointed by, responsible to, and subject to dismissal by the council. The manager's tenure is based solely on performance.

[36]The mayor-council form of government is characterized by a directly elected mayor, who in many cases has the right to veto legislation. She/He is a strong political leader, who can be held accountable for political decisions.

	1985	1991	1985	1991	1997	pooled
log(income per capita)	**0.92**	**0.95**				
	0.16	0.14				
log(population)	**1.00**	**1.03**	**1.04**	**1.07**	**1.07**	**1.06**
	0.02	0.02	0.02	0.02	0.02	0.01
log(median house value)	**-0.10**	**-0.16**				
	0.09	0.08				
own house	**0.00**	**-0.18**	**-0.43**	**-0.43**	**-0.60**	**-0.49**
	0.18	0.18	0.14	0.14	0.14	0.08
school	**0.22**	**0.23**	**0.30**	**0.32**	**0.27**	**0.28**
	0.11	0.12	0.12	0.13	0.12	0.07
health	**0.44**	**0.56**	**0.41**	**0.56**	**0.57**	**0.50**
	0.05	0.06	0.06	0.06	0.08	0.04
grant per capita	**0.11**	**0.06**	**0.09**	**0.05**	**0.03**	**0.07**
	0.02	0.01	0.02	0.01	0.01	0.01
employment per capita	**1.08**	**0.58**				
	0.28	0.38				
income growth	**-0.04**	**0.14**				
	0.34	0.18				
hispanic	**-0.31**	**-0.05**	**-0.78**	**-0.57**	**-0.64**	**-0.63**
	0.13	0.13	0.12	0.11	0.09	0.06
seniors	**0.84**	**0.72**	**1.22**	**1.17**	**0.67**	**0.91**
	0.34	0.37	0.32	0.34	0.26	0.17
birth	**11.51**	**8.42**				
	3.50	3.03				
crime	**2.16**	**1.75**	**2.99**	**2.05**	**3.17**	**2.37**
	0.66	0.51	0.65	0.54	0.75	0.33
poverty	**1.98**	**1.78**				
	0.45	0.36				
central	**0.09**	**0.09**	**0.07**	**0.07**	**0.07**	**0.08**
	0.03	0.03	0.03	0.03	0.03	0.02
t2*grant per capita						**-0.01**
						0.01
t3*grant per capita						**-0.03**
						0.01
t2						**0.35**
						0.02
t3						**0.61**
						0.03
constant	yes	yes	yes	yes	yes	yes
state dummies	yes	yes	yes	yes	yes	yes
obs	606	606	606	606	606	1818
adj. R^2	0.93	0.93	0.91	0.9	0.91	0.92

Table 2: Determinants of general municipal expenditure, comparison of the different years for the same set of cities and if possible the same set of regressors. Standard errors are reported below the coefficient.

Table 3 reports the results for the estimation of the demand for specific municipal goods. The income elasticities for the different goods differ substantially. The point estimate for parks and recreation areas is larger than 1, indicating that they are luxury goods.[37] The crowding parameter γ (see Equation 32) is larger than 1 for the demand of police services and sewerage and sanitation services, there are thus no economies of scale for these two goods. For parks and recreation areas γ is 1. The price elasticities are negative, except for the luxury good, for which the elasticity is statistically not different from zero. Interestingly, the percentage of people living in their own house has a negative impact on demand for police services, but not on sewerage services. This probably reflects the fact, that usually the fees for sewerage services are directly imposed on the tenant, increased taxes (e.g. for police spending) however are not directly added to the rent. Cities engaged in

	police			sewerage			highways			parks
	1985	1991	2000	1985	1991	2000	1985	1991	2000	1985
log(income per capita)	**0.48**	**0.68**		**0.54**	**0.45**		**0.85**	**0.96**		**1.073**
	0.09	0.09		0.28	0.29		0.17	0.17		0.288
log(population)	**1.03**	**1.06**	**1.15**	**0.86**	**0.87**	**1.01**	**0.82**	**0.84**	**0.90**	**1.084**
	0.02	0.02	0.03	0.06	0.07	0.08	0.04	0.04	0.05	0.037
log(median house value)	**-0.08**	**-0.11**		**-0.09**	**-0.11**		**-0.28**	**-0.41**		**0.085**
	0.06	0.06		0.17	0.18		0.11	0.11		0.158
own house	**-0.39**	**-0.47**	**-0.38**	**-0.33**	**-0.07**	**-1.26**	**-0.18**	**-0.37**	**0.29**	**-0.005**
	0.11	0.13	0.13	0.34	0.40	0.40	0.21	0.24	0.26	0.003
log(area)	**0.01**	**-0.02**	**-0.08**	**0.18**	**0.15**	**0.03**	**0.19**	**0.17**	**0.11**	
	0.02	0.02	0.03	0.05	0.06	0.07	0.03	0.04	0.05	
school	**-0.17**	**-0.20**	**-0.18**	**-0.41**	**-0.19**	**-0.05**	**-0.04**	**-0.20**	**0.12**	**-0.162**
	0.06	0.08	0.10	0.18	0.23	0.29	0.12	0.14	0.20	0.166
health	**-0.02**	**0.02**	**0.00**	**0.18**	**0.01**	**-0.33**	**-0.06**	**0.03**	**-0.05**	**-0.005**
	0.04	0.05	0.07	0.12	0.14	0.20	0.07	0.09	0.14	0.105
grant per capita	**0.07**	**0.03**	**0.02**	**0.13**	**0.05**	**0.01**	**0.05**	**0.05**	**0.01**	**0.001**
	0.01	0.01	0.01	0.03	0.02	0.01	0.02	0.01	0.01	0.000
employment per capita	**1.04**	**0.59**		**1.01**	**2.40**		**0.60**	**1.41**		**1.519**
	0.19	0.27		0.57	0.83		0.35	0.51		0.526
income growth										**-0.710**
										0.663
hispanic	**0.20**	**0.14**	**-0.41**	**-0.77**	**-0.25**	**-0.89**	**-0.42**	**0.14**	**-0.69**	**0.000**
	0.10	0.10	0.09	0.31	0.32	0.26	0.19	0.19	0.17	0.003
seniors	**0.93**	**0.96**	**0.92**	**1.16**	**2.62**	**1.48**	**-0.72**	**0.02**	**0.15**	**0.017**
	0.23	0.26	0.24	0.68	0.83	0.69	0.41	0.50	0.46	0.006
birth	**-0.47**	**4.74**		**6.25**	**12.35**		**6.63**	**2.34**		**0.098**
	2.34	2.21		6.89	6.83		4.21	4.16		0.063
crime	**4.51**	**4.38**	**5.50**	**-0.28**	**0.89**	**2.56**	**1.55**	**2.13**	**1.67**	**0.002**
	0.40	0.36	0.67	1.16	1.09	1.95	0.72	0.67	1.31	0.001
poverty	**0.47**	**0.86**		**1.93**	**2.13**		**0.72**	**0.41**		**0.013**
	0.28	0.24		0.83	0.75		0.51	0.46		0.008
central	**0.00**	**-0.04**	**-0.05**	**0.20**	**0.25**	**0.14**	**0.04**	**0.02**	**0.03**	**0.201**
	0.02	0.02	0.03	0.07	0.07	0.09	0.04	0.04	0.06	0.058
constant	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
state dummies	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
obs	941	864	612	910	824	595	942	866	612	909
adj. R^2	0.929	0.93	0.928	0.65	0.598	0.58	0.786	0.78	0.74	0.739

Table 3: Determinants of specific municipal expenditure, different years. Standard errors are reported below the coefficient.

providing school services spend significantly less on police. This can be interpreted as evidence that in cities with broad responsibilities, the opportunity-costs of spending for police vs. spending for schools are taken into account, see also Bradbury (1983a,

[37]However, the coefficient is not statistically different from 1.

p.40). The result is valid if there are no efficiency differences in the provision of schooling between city governments and school districts, since then given the same expenditure for schooling less is spent on other services. Intergovernmental grants increase spending for all four goods, though for highways it is only significant at a 10 percent level. Higher employment per capita increases police spending and park spending, but has no effect on sewerage spending. The percentage of Hispanics has no impact on police and park demand, although it is associated with a lower demand for sewerage services. Seniors want more police and more parks, but their demand of sewerage services is not different from the rest of the population. Birth rates are insignificant. Crime and poverty rates have a significant effect on police spending[38], however, crime rates leave the demand for sewerage and parks unchanged and poverty increases the demand for sewerage, but not for parks. Central cities spend more for sewerage and parks, but the police spending is the same. The size of the city in terms of square miles (area) matters for spending on sewerage and highways, but is irrelevant for the police provision.

Central cities spend significantly more on highways. In addition, the crowding parameter γ is clearly and significantly larger than 1 for highways, but not for police and sewerage. The price-elasticity is significantly negative, income elasticity is close to 1. Schooling and health provision have no influence on the provision of highways, nor do employment per capita and income growth in the last 5 years. Cities with higher Hispanic population and with higher percentages of elderly spend less on highways. Cities with greater poverty demand more highways.

To summarize the section on municipal spending: A great part of the overall variation in spending can be explained by economic and socio-demographic factors. There is a considerable degree of congestion in the use or provision of municipal goods. Central cities spend around 10 percent more than cities outside of the center (which in most cases belong to a Metropolitan area). Central cities thus appear to provide goods and services for surrounding areas. However the demand equations do not reveal, whether central cities can export taxes to the degree of their increased cost. In the next section, we will see that central cities appear to finance their increased spending burden partly through higher deficit accumulation. Responsi-

[38]There is a body of literature investigating whether crime rates and policing are linked. It is difficult to estimate whether higher police spending reduces crime rates, since police spending also depends on crime rates. To solve the endogeneity problem, Levitt (1997) proposed to instrument police spending by electoral cycles in police spending. He finds that police substantially reduces violent crime, however it has little effect on property crime. McCrary (2002) however points to a mistake in Levitt's estimation procedure. A corrected estimation shows that it is impossible with this data set to learn about the causal effect of police on crime. We are aware of the problem of endogeneity, therefore we performed the same regressions without including the crime rate, the other results stay the same.

bility of a city government for schooling implies that general spending increases by around 28 percent. However, spending for specific purposes like police and sewerage is reduced. Thus the opportunity costs of schooling are internalized in the decision process and some other spending is cut in favor of the schools. Cautiously, we can draw the conclusions, that consolidation of services in one hand will make the decision making process more transparent and improve the spending outcome, see also Chicoine and Walzer (1985, pp.225-229.).

4.2 Municipal debt

There are only few articles on the determinants of municipal debt. Sharp (1986) studies the politics and economics of new city debt. She differentiates between general obligation as opposed to revenue bonds. The findings indicate that while general obligation bonds and taxation are largely influenced by longer-term factors, such as population, functional scope and regional location, the revenue bonds decision is a strategic arena, in which city officials maneuver to adapt to immediate fiscal strain. In our analysis we focus on total debt.[39] Farnham (1988) estimates reduced form regressions of a model of local debt choice and the impact of State regulatory activity on the use of local government debt in a large cross section of 2000 American cities. He finds that state imposed local debt limits significantly reduce debt levels of local governments.

We run OLS regressions of the log of debt on a number of independent variables as given in Equation 33. Table 4 presents the determinants of debt in 629 U.S. cities available with this set of regressors in all three years. The first remarkable result of our regression analysis is the high degree of explained variance. 63 percent of the cross city variation in debt is explained by our model in all three years. The driving factor behind debt is the population size. Larger cities have significantly higher debt. In addition, the coefficient for the log of population is significantly larger than 1 as it was for spending. Cities, that have experienced higher population growth in the years before the cross section also have accumulated more debt. Income per capita does not explain the observed debt levels. The median house value is also insignificant in the regressions as can be seen in Table 14 in the appendix. The coefficient on population density is significantly negative, thus more densely populated cities have lower debt levels. McGuire and Sjoquist (2003) also stress that

[39]Woo (2003) reviews the literature on the determinants of national deficits and presents some new results. He finds that sociopolitical instability, income inequality, a large size of the cabinet and lack of central authority determine deficits. In addition, budgetary institutions and government institutions matter for deficits. Thereby he confirms earlier results in the literature (von Hagen 1992).

	1985	1991	1999	pooled
log(population)	**1.06**	**1.20**	**1.17**	**1.15**
	0.06	0.06	0.05	0.03
population growth	**0.01**	**0.01**	**0.00**	**0.00**
	0.00	0.00	0.00	0.00
population density	**-0.06**	**-0.04**	**-0.02**	**-0.04**
	0.02	0.02	0.01	0.01
own house	**-0.90**	**-0.37**	**0.04**	**-0.51**
	0.41	0.45	0.40	0.23
school	**-0.12**	**-0.26**	**0.05**	**-0.08**
	0.27	0.31	0.28	0.15
health	**0.34**	**0.34**	**0.19**	**0.34**
	0.16	0.19	0.20	0.10
grant per capita	**0.16**	**0.08**	**0.04**	**0.06**
	0.04	0.03	0.01	0.01
hispanic	**-0.47**	**-0.06**	**-0.20**	**-0.21**
	0.37	0.35	0.26	0.18
seniors	**-1.63**	**-1.92**	**-1.84**	**-1.63**
	0.93	1.06	1.09	0.56
crime	**2.60**	**3.42**	**3.38**	**2.70**
	1.53	1.42	1.79	0.81
central	**0.23**	**0.03**	**0.23**	**0.23**
	0.10	0.10	0.08	0.08
t2*central				**-0.08**
				0.10
t3*central				**-0.09**
				0.10
t2				**0.32**
				0.08
t3				**0.62**
				0.08
constant	yes	yes	yes	yes
state dummies	yes	yes	yes	yes
obs	629	629	629	1887
adj. R^2	0.63	0.615	0.669	0.667

Table 4: Determinants of municipal debt for a constant set of cities. Standard errors are reported below the coefficient.

urban sprawl will increase the cost of municipal good provision. The percentage of people living in their own house significantly reduces accumulation of public debt. Again it can be argued that house-owners know about the future cost of debt. Increased intergovernmental grants increase the debt level. However, they are probably an endogenous variable and therefore we performed the regressions without them and found no considerable changes for the other variables. The higher the percentage of seniors in a city, the lower will be the debt level of a city. This probably reflects the fact that seniors are less likely to leave a city and thereby escape the debt burden of the city, as young people might intend to do. Higher crime rates are associated with higher debt levels.

Poverty significantly explains debt levels (Table 14). Its significance increases after dropping the insignificant variable income. The higher debt levels can be the result of the common pool problem since poor people might successfully lobby for

additional spending and debt. Central cities all have clearly higher debt burdens in 1985 and 1999, the coefficient is however not significant in 1991. Cities with a larger public labor force per capita also have chosen significantly higher debt levels. A city with 1 additional city employee per 100 inhabitants will have a 37 percent higher debt burden in 1985, which dropped to 27 percent in 1991. The level of formal education of the population has no significant influence on the debt level.[40]

The estimated coefficients look very stable in time. We performed Chow test for stability of coefficients and had to reject the H_0 of equal coefficients.[41] However, if we test for equality of coefficients omitting the coefficient of "central", the H_0 of coefficient equality could not be rejected with an $F(20, 1805) = 1.15$, giving a p-value of 0.29. Therefore, we present the results for the balanced pooled regressions allowing for different coefficients of the dummy central in 1992 and 1999.

In the pooled regression debt over-proportionally increases with population size, the coefficient is significantly different from 1. More densely populated cities have a comparatively lower debt level. If population density increases by 1000/square mile, the debt level will decrease by 0.04 percent. An increase of 1 percentage point of house owner will decrease the debt level by -0.5 percent. Cities providing health services have higher debt levels. A city with 1 percentage point additional seniors will have a -1.6 percent lower level of debt. Cities with higher crimes rates have significantly higher debt burdens. This captures in part the effect of poverty, a variable which we expected to be associated with higher debt levels. Central cities have a 17 percent higher debt level. The debt levels increased in time by 27 and 56 percent as indicated by the time dummies. This captures exactly the change of the price level, which was 26.6 and 54.8 percent in the period 1985-91 respectively 1985-99.

To summarize the section on determinants of municipal debt: We find that a large percentage of debt variation across cities is explained by our structural common pool model. Central cities have significantly higher debt burdens (around 23 percent higher after controlling for population size). However, in 1991 central cities do not have a different debt level from the non-central cities. Apparently, some of their higher spending as compared to the surrounding cities is not financed through higher taxes or tax exports, but by issuing debt. Cities with a higher percentage of seniors have significantly lower debt levels, house ownership also reduces debt levels. Crime rates and poverty rates lead to higher debt levels.

[40] We do not report this regression result. Results are available from the author.

[41] This result holds in the case of constraining the residual variance to be the same each year and in the case of not constraining the variance to be equal.

5 Fiscal crises

5.1 Cluster analysis

The previous section has shown that economic and socio-demographic factors explain almost the entire variance of municipal spending and a large percentage of the variance of debt. This section is intended to identify cities in fiscal crises. We then want to investigate whether these cities are in a crisis-situation because of the identified economic, social and demographic factors, or whether the causes of crises must be sought in non-structural factors. There is no data set available reporting the occurrence of crises in American cities. Therefore we must employ indicators of crises. In all reviewed case studies of municipal fiscal crises, a high debt level was mentioned as a symptom of a fiscal crisis. High debt implies that the financial independence of a city is limited. Resources must be used to pay the interest, the credit worthiness is reduced. Thus, cities with a high debt burden can only to a limited extent react to financial challenges.

Cluster analysis allows to partition observations in subgroups, which are very homogenous within and heterogenous relative to the other groups. We cluster cities in two groups according to the minimal distance to the group mean. The distance is measured by Euclidian (Minkowski) distance, which is characterized by the root of the sum of squared distances. The relevant variable of the budget for clustering is a high accumulated debt burden per capita.[42] Applying the described method to our data set results in the cluster characterized in Tables 5 to 7. We limit our analysis to the same set of cities for all three years, for which we were able to run both regressions in the previous section, in total 592 cities.

The cluster of crises/distress cities is characterized by an average debt burden 10 times as high as the average debt burden in the rest of the cities in the sample, in later years the ratio is still 4 to 1. 14 cities have a very high debt burden in 1985, in 1991 the cluster analysis calculates a lower threshold and the distressed cluster has 37 cities. Finally, in 1999 the threshold is even lower and 75 cities are clustered to be high debt cities. Over the 15 years considered, the average debt level increased with inflation. The distribution of debt levels stayed roughly constant in the sense that the standard deviation did not change. However, the extreme cases of high debt levels went down. Farmington, NM, reduced its nominal debt level from more

[42]We also performed the clustering with debt as percent of income. The resulting cluster is almost the same. Another possible way to cluster the cities is to take the debt level per house per median house value. The higher this ratio, the lower the possibility to raise funds to pay back the debt. Using this variable as a cluster variable, however, gives very similar results (available from the author).

Variable	Obs	Mean	Std. Dev.	Min	Max
distressed cities					
debt per capita	14	7472.4	6803.1	4090.8	30594.1
mean income	14	10646.4	1638.3	8574.0	14840.0
income growth	14	-0.01	0.05	-0.13	0.09
population growth	14	12.3	11.4	-3.8	30.6
population	14	104940.7	98420.3	39050.0	356840.0
expenditure per capita	14	1117.8	526.1	533.0	2452.0
police exp. per capita	14	83.4	24.2	53.1	143.1
highway exp. per capita	14	17.1	10.3	1.5	38.0
sewerage expenditure per capita	14	110.9	81.1	7.4	275.7
residuals spending	14	0.52	0.35	0.02	1.18
residuals debt	14	1.40	0.77	0.26	2.78
tax per capita	14	225.8	64.6	113.0	330.0
intergov't grants per capita	14	140.8	92.7	78.2	407.7
non-distressed cities					
debt per capita	578	830.9	643.7	10.8	3693.8
mean income	578	11189.4	2755.5	5275.0	33839.0
income growth	578	0.00	0.07	-0.18	0.22
population growth	578	7.7	12.8	-13.2	65.0
population	578	130483.4	380310.6	24180.0	7262750.0
expenditure per capita	578	625.7	339.7	152.0	2835.0
police exp. per capita	578	79.3	32.3	27.7	346.6
highway exp. per capita	578	15.8	11.5	-28.1	64.4
sewerage expenditure per capita	568	78.0	64.0	0.6	664.5
residuals spending	578	0.21	0.18	0.00	1.35
residuals debt	578	0.59	0.55	0.00	3.52
tax per capita	578	270.2	171.0	35.0	1464.0
intergov't grants per capita	578	173.1	165.8	9.0	1274.2

Table 5: Summary statistics of cities in the crises and the non-crises cluster in 1985.

than 30,000 US$ to less than 25,000 US$ per capita. Public expenditure per capita is twice as high at 1100 dollars and statistically significant in 1985, and roughly 50 percent higher in the later years.

Income per capita is almost the same in the two clusters. Income growth in the last 5 years was somewhat lower in 1985 but not in 1991, population growth in the preceding 5 years was more than 11 percentage points higher in 1985 and 5.7 percentage points higher in 1991. The ten year population growth in the 1999 cluster does not differ. Distressed cities also have larger population in 1991 and 1999, the difference is however not statistically significant. Nevertheless, in 1991 the population size is three times as high and in 1999 almost four times as high. A possible explanation might be, as indicated by Buettner and Wildasin (2003), soft budget constraints for larger cities. Taxes raised by the city government per capita are the same except for 1999, so are intergovernmental general revenue and federal grant awards and procurement contract awards.

Although the structural factors seem to be different in the crises cluster, the difference is statistically not significant. Are the debt levels respectively spending decisions of the crises-cities well predicted by the regression model? A closer look at the data shows, that all 14 cities in 1985 have a positive residual in the spending

Variable	Obs	Mean	Std. Dev.	Min	Max
distressed cities					
debtpc	37	5624.9	3783.2	3369.2	25599.4
debt per capita growth	37	6.4	29.5	-0.3	180.7
mean income	37	14613.4	3919.9	7238.0	24812.0
income growth	37	0.13	0.11	-0.06	0.44
population growth	37	13.6	26.9	-9.1	117.4
population	37	336049.8	1193024.0	31793.0	7311966.0
expenditure per capita	37	1368.1	861.7	599.0	4587.0
police exp. per capita	37	137.1	61.7	53.4	343.7
highway exp. per capita	37	21.9	13.5	0.9	70.3
sewerage expenditure per capita	34	147.2	102.4	11.5	460.2
residuals spending	37	0.35	0.31	0.00	1.38
residuals debt	37	1.30	0.81	0.03	2.89
tax per capita	37	449.4	388.7	107.0	2193.4
intergov't grants per capita	37	219.0	328.1	36.0	1838.9
interest as percent of expenditure	37	21.5	13.4	2.2	55.6
non-distressed cities					
debtpc	555	1038.7	716.4	3.6	3311.9
debt per capita growth	555	1.0	4.4	-1.0	76.7
mean income	555	14407.6	4462.7	6284.0	55463.0
income growth	555	0.13	0.11	-0.16	0.89
population growth	555	8.8	15.8	-18.9	107.8
population	555	122393.6	238713.2	24356.0	3489779.0
expenditure per capita	555	922.8	510.5	220.0	3751.0
police exp. per capita	555	116.8	49.8	31.4	611.6
highway exp. per capita	555	20.2	12.0	-20.7	78.0
sewerage expenditure per capita	536	110.3	76.2	0.3	604.9
residuals spending	555	0.20	0.17	0.00	1.20
residuals debt	555	0.57	0.59	0.00	5.06
tax per capita	555	385.9	244.6	36.8	1908.3
intergov't grants per capita	555	232.1	264.9	1.5	1770.6
interest as percent of expenditure	555	6.9	6.1	0.0	77.7

Table 6: Summary statistics of cities in the crises and the non-crises cluster in 1991.

and in the debt regressions. Their absolute mean error is 1.4 as compared to the mean absolute error of the remaining 578 cities of 0.59. The mean error is thus more than twice as high as the average standard deviation of the error in the sample. If we take as a threshold $2 * Std.Dev. = 2 * 0.56 = 1.12$ of the absolute residual error, 10 of the 14 cities in the "bad" cluster are outliers. This means, that in 70 percent of the cases, the model can not explain the overly high debt burden well. In 1991, the threshold is $2 * 0.63 = 1.26$ and even with a broader set of cities defined to be in distress, roughly 50 percent are outliers. The mean absolute residual is larger than in the non-distressed cluster. In 1999, the threshold is $2 * 0.50 = 1.00$ and also 50 percent of the distressed cities are outliers. The mean absolute residual is higher in the distressed cluster for all years. As concerns spending, the analysis of residuals yields similar results. The fit in the distressed cluster is much lower than in the non-distressed cluster.

Variable	Obs	Mean	Std. Dev.	Min	Max
distressed cities					
debtpc	75	4482.3	2827.5	2775.7	24682.9
debt per capita growth	75	1.6	4.9	-0.6	40.1
mean income	n.a.				
income growth	n.a.				
population growth	75	8.1	12.7	-11.1	55.8
population	75	425934.4	1077344.0	30273.0	8008278.0
expenditure per capita	75	1673.1	956.0	627.0	5612.0
police exp. per capita	75	190.3	97.0	63.7	644.2
highway exp. per capita	75	22.4	16.2	0.9	68.5
sewerage expenditure per capita	75	175.0	101.8	12.1	487.0
residuals spending	75	0.29	0.26	0.00	1.36
residuals debt	75	0.93	0.56	0.00	2.68
tax per capita	75	648.4	407.9	90.8	2418.5
intergov't grants per capita	75	464.0	543.8	67.6	2283.5
interest as percent of expenditure	75	11.8	8.6	2.0	50.8
non-distressed cities					
debtpc	517	1175.6	645.4	2.9	2714.1
debt per capita growth	517	1.4	8.2	-1.0	136.6
mean income	n.a.				
income growth	n.a.				
population growth	517	10.0	14.8	-21.4	140.8
population	517	107449.2	119288.9	25514.0	1321045.0
expenditure per capita	517	1091.2	601.9	301.0	4130.0
police exp. per capita	517	147.4	56.9	44.1	571.7
highway exp. per capita	517	22.9	12.8	-49.5	70.7
sewerage expenditure per capita	503	127.1	74.3	0.8	594.2
residuals spending	517	0.19	0.17	0.00	1.04
residuals debt	517	0.48	0.46	0.00	5.58
tax per capita	517	457.8	273.7	53.7	2070.2
intergov't grants per capita	517	321.8	399.8	9.5	2929.0
interest as percent of expenditure	516	5.2	3.8	0.0	26.0

Table 7: Summary statistics of cities in the crises and the non-crises cluster in 1999.

5.2 Robustness check

As a further robustness-check we identified distressed cities as the upper 2 percentile of the distribution of debt per capita (see Tables 8 - 10). This allows to compare the 13 cities with the highest per capita debt with all the other cities. Again the difference in average debt is roughly between 5 and 10 fold. In 1985, income per capita in the two groups is roughly the same, also income growth in the preceding years is similar.[43] Population growth in the high debt group is higher at 13 percent in the last 5 years, compared to 7.7 percent in the low debt cluster, while average population size is the same in the two groups. Expenditure per capita is higher in the distressed group. Of the 13 cities ten cities have an absolute mean error of the residuals of the debt regressions larger than the threshold of two standard deviations. Thus, the debt levels of these cities are not well explained by the regression analysis.

[43]The cities in 1985 are: Corona, CA; Pittsburg, CA; Pomona, CA; Gainesville, FL; Lakeland, FL; Orlando, FL; Bowling Green, KY; Lafayette, LA; Owensboro, KY; Burnsville, MN; Minneapolis, MN; Farmington, NM; Galveston, TX.

Similarly spending levels are not well explained for the distressed cities. Public employment in the two groups does not differ much, as a single factor it therefore can not explain the differences in fiscal outcomes. For the later years, a similar picture emerges, the regression fit is quite bad for the cities with high debt levels.[44] In 2000, the composition of cities changes quite dramatically, as New York and San Francisco now belong to the 2 percent of cities with the highest debt burden per capita.[45] As a result, the average population size jumps and distressed cities are now 6 times as large as the other cities. Looking at the five percent upper tail of

	2 percent		5 percent	
distressed cities	13 cities		32 cities	
Variable	Mean	Std. Dev.	Mean	Std. Dev.
debt per capita	7732.6	7008.1	4914.1	4975.7
mean income	10560.4	1672.0	11222.0	4583.4
income growth	0.0	0.1	0.0	0.1
population growth	13.0	11.6	12.3	13.8
population	90792.3	86358.3	134253.1	184434.9
expenditure per capita	1138.2	541.8	908.9	529.6
police exp. Per capita	85.6	23.7	81.7	53.8
highway exp. Per capita	70.5	53.7	73.0	47.7
sewerage expenditure per capita	114.9	83.0	101.8	69.9
tax per capita	226.5	67.2	244.9	186.8
intergov't grants per capita	142.5	96.3	135.3	82.2
residuals spending	0.6	0.3	0.4	0.4
residuals debt	1.5	0.7	1.3	0.7
public employment per capita	156.1	83.7	136.0	73.6
non-distressed cities	579 cities		560 cities	
debt per capita	836.5	657.3	763.6	526.2
mean income	11190.4	2753.2	11174.0	2596.5
income growth	0.0	0.1	0.0	0.1
population growth	7.7	12.8	7.5	12.7
population	130756.9	380038.5	129629.4	384248.8
expenditure per capita	626.1	339.5	621.8	333.8
police exp. Per capita	79.3	32.3	79.3	30.5
highway exp. Per capita	59.7	35.3	59.2	34.8
sewerage expenditure per capita	78.0	64.0	77.5	64.1
tax per capita	270.1	170.9	270.5	168.4
intergov't grants per capita	173.0	165.7	174.5	167.8
residuals spending	0.2	0.2	0.2	0.2
residuals debt	0.6	0.5	0.6	0.5
public employment per capita	140.8	93.0	141.4	93.8

Table 8: Summary statistics of cities in the crises and the non-crises group, 2 and 5 percent upper tail of the distribution in 1985.

the distribution, the results are confirmed. The predictive power of the structural

[44]The high debt cities in 1994 are: Fontana, CA; Paramount, CA; Pleasant Hill, CA; Pleasanton, CA; Lakeland, FL; Orlando, FL; Bowling Green, KY; Burnsville, MN; Minneapolis, MN; Farmington, NM; Hamilton, OH; Harrisburg, PA, Austin, TX.

[45]The high debt cities in 2000 are: Beverly Hills, CA; Brea, CA; Denver, CO; San Francisco, CA; Lakeland, FL; Owensboro, KY; Kalamazoo, MI; St. Louis Park, MN, Farmington, NM; New York, NY; Fairfield, OH; Hamilton, OH; Austin, TX.

	2 percent		5 percent	
distressed cities	13 cities		32 cities	
Variable	Mean	Std. Dev.	Mean	Std. Dev.
debt per capita	8495.5	5347.4	5970.2	3963.6
mean income	14538.2	4560.9	14902.3	4064.2
income growth	0.1	0.1	0.1	0.1
population growth	20.2	32.0	13.3	27.9
population	121976.8	142948.7	377726.0	1280458.0
expenditure per capita	1373.7	839.3	1426.4	896.3
police exp. Per capita	123.5	35.1	145.1	62.2
highway exp. Per capita	95.6	36.0	108.3	74.0
sewerage expenditure per capita	163.9	120.3	159.2	105.8
tax per capita	321.7	104.8	485.7	405.3
intergov't grants per capita	163.0	146.1	236.9	348.7
residuals spending	0.4	0.4	0.4	0.3
residuals debt	1.7	0.9	1.4	0.8
public employment per capita	129.3	75.6	148.7	112.7
interest as percent of expenditure	25.0	17.3	21.3	13.5
non-distressed cities	579 cities		560 cities	
debt per capita	1164.3	932.6	1059.9	747.5
mean income	14417.8	4429.1	14392.9	4449.7
income growth	0.1	0.1	0.1	0.1
population growth	8.8	16.2	8.8	15.8
population	136056.3	381546.4	121919.7	237699.3
expenditure per capita	941.2	537.7	923.5	510.0
police exp. Per capita	117.9	51.1	116.5	49.7
highway exp. Per capita	79.9	48.3	78.7	45.8
sewerage expenditure per capita	111.5	77.1	110.0	75.9
tax per capita	391.4	258.2	384.4	244.1
intergov't grants per capita	232.8	270.9	231.0	264.1
residuals spending	0.2	0.2	0.2	0.2
residuals debt	0.6	0.6	0.6	0.6
public employment per capita	134.6	88.1	133.7	86.2
interest as percent of expenditure	7.5	6.8	7.1	6.4

Table 9: Summary statistics of cities in the crises and the non-crises group, 2 and 5 percent upper tail of the distribution in 1991.

model is lower for the distressed cities. Differences in structural factors are of minor importance.[46]

Thus, while part of the high debt burden in the "crisis cluster" can be explained by structural factors, a considerable part of the outcome is left unexplained by structural factors. Similarly, the regression analysis explains the spending decisions of the distressed cluster far worse than the non-distressed cluster. There appears to be a large non-structural component to a crisis. The common pool model of municipal spending and debt does not explain extreme fiscal outcomes well.

Our results are in line with the result of case studies, which emphasize non-structural factors like negotiation power of public employees/unionization (the case of New York and also Philadelphia), excessively high social security programs be-

[46]Remarkably, New York belongs to the upper 5 percent high debt level cities already in 1991, which increases the average size of distressed cities

	2 percent		5 percent	
distressed cities	13 cities		32 cities	
Variable	Mean	Std. Dev.	Mean	Std. Dev.
debt per capita	8606.1	5002.2	6102.1	3772.3
mean income	na			
income growth	na			
population growth	8.0	9.5	7.2	10.1
population	804601.8	2181070.0	439825.8	1405980.0
expenditure per capita	2269.6	1641.0	1938.9	1252.4
police exp. Per capita	245.4	157.1	210.1	118.9
highway exp. Per capita	119.7	72.6	110.8	61.4
sewerage expenditure per capita	207.0	121.5	188.0	115.4
tax per capita	800.8	725.4	724.6	537.9
intergov't grants per capita	495.0	716.1	514.2	618.8
residuals spending	0.4	0.4	0.3	0.3
residuals debt	1.7	0.6	1.2	0.6
public employment per capita	na			
interest as percent of expenditure	17.1	14.1	13.5	11.0
non-distressed cities	579 cities		560 cities	
debt per capita	1437.1	992.2	1337.0	839.8
mean income	na			
income growth	na			
population growth	9.8	14.7	9.9	14.8
population	133051.0	253204.5	131110.5	252751.4
expenditure per capita	1140.1	628.3	1120.7	609.8
police exp. Per capita	150.7	59.9	149.5	58.8
highway exp. Per capita	93.9	52.3	93.5	52.2
sewerage expenditure per capita	131.6	78.1	130.1	76.3
tax per capita	474.8	281.2	468.1	275.4
intergov't grants per capita	336.3	414.3	329.8	407.4
residuals spending	0.2	0.2	0.2	0.2
residuals debt	0.5	0.5	0.5	0.5
public employment per capita	na			
interest as percent of expenditure	5.8	4.5	5.6	4.2

Table 10: Summary statistics of cities in the crises and the non-crises group, 2 and 5 percent upper tail of the distribution in 1999.

cause of political preferences of the mayor (New York: John Lindsay in the 1960s, for Philadelphia see Inman (1995)) as determinants of excessive spending, debt and ultimately crisis. Miranda (1994) for example investigates the importance of strong party organization (SPO) to impose fiscal discipline. SPO allows the mayor to be more independent of the influence of interest groups and thus ensure total fiscal discipline. Thus, fiscal distress and crisis has a large non-structural element.

6 Conclusions

Why do some US cities experience a fiscal crisis and others do not? This paper proposes an indirect approach in comparing and assessing the relevance of economic and socio-demographic (structural) factors on the one side and non-structural (management and political) factors on the other hand. We ask the question whether cities are in distress, and therefore likely to experience a crisis, because of measurable structural factors or because of other factors.

In a first step we present a common pool resource model. The model shows that municipal expenditure is caused by simple demand factors like income per capita, the population size and the value of the tax base and in addition by factors measuring the possible degree of the common pool problem, like employment per capita, poverty, birth rates, percentage of seniors, hispanics and crime rates. All these factors are measurable structural factors. The common pool model further predicts that debt levels are higher the worse the common pool problem is.

We test this model in a regression analysis explaining municipal expenditure. The model is able to explain more than 90 percent of the cross city variation in municipal spending. The coefficients are shown to change little from 1985 to 1991 and 1997. Thus, municipal spending is a result of measurable structural factors. Similarly, we show that municipal debt levels are determined by the same common pool factors. However, the explained variance is lower at around 67 percent.

Cities in fiscal distress are identified by means of a cluster analysis. The criterion for distress are high debt levels. It is shown that distressed cities can be characterized by debt levels 10 times as high as the average debt level. Spending is around twice as high. However, the socio-demographic and economic factors of distressed cities appear to have fairly average values. Spending and debt levels of distressed cities can not be well explained by the common pool model of spending and debt. They constitute outliers in the regression analysis. Thus, the structural, measured factors can only to a limited degree account for their specific debt and spending outcomes. We therefore conclude that distress and ultimately crisis is a result of non-structural factors. This is in line with political research on individual cities in distress. These studies often emphasize the role of strong party organization (Miranda 1994), dependence of the mayor on support from interest groups and the like. Fiscal crisis thus appears to have a large non-structural component, socio-demographic and economic factors can not account for extreme fiscal outcomes.

Future research should investigate the interactions between political factors and economic factors and their relevance for fiscal crisis. Glaeser and Shleifer (2003), e.g., study the effect of mayors appealing on feelings of strong minorities (in their

example the Irish) that a mayor of the minority can better represent their interest, with bad consequences for the local economy. How is fiscal outcome affected by these and other political factors?

An additional avenue for future research concerns intergovernmental relations and their effect on crises. Inman (2001) argues that the American system is rather successful in preventing cities from receiving bail-outs. The moral hazard issue thus seems to be solved. However, it remains to be investigated whether intergovernmental transfer rules can be improved in such a way as to prevent crisis and not to fall in the trap of moral hazard problems. A further extension of this line of research would look at the effects of an increased number of local authorities on fiscal outcomes. Our research suggest that consolidation of schooling and health services in the municipal budget leads to lower spending for other services. Are crises more likely to occur in smaller public authorities with a limited number of responsibilities? Or does, on the contrary, consolidation of all local responsibilities in one authority increase the likelihood of crises?

References

Advisory Commission on Intergovernmental Relations, and Center for Urban Policy and The Environment, Indiana University (1995): *Tax and Expenditure Limits on Local Governments*. ACIR; M-194, ACIR.

Alesina, A., R. Baqir, and W. Easterly (1999): "Public Goods and Ethnic Divisions," *Quarterly Journal of Economics*, 114, 1243–84.

Alesina, A., and R. Perotti (1995): "The Political Economy of Budget Deficits," *IMF Staff papers*, 42 (1).

Asefa, S., R. Adams, and D. Starleaf (1981): "Municipal Borrowing: Some Empirical Results," *Public Finance Quarterly*, 5, 175–202.

Barro, R. J. (1979): "On the Determination of Public Debt," *Journal of Political Economy*, 87 (5), 940 – 971.

Barrow, L., and C. Rouse (2002): "Using Market Valuation to Assess Public School Spending," *NBER Working Paper Series*, 9054.

Bayoumi, T., M. Goldstein, and G. Woglom (1995): "Do Credit Markets Discipline Sovereign Borrowers? Evidence from U.S. States," *Journal of Money, Credit, and Banking*, 27 (4), 1046–1059.

Bergstrom, T., and R. Goodman (1973): "Private Demands for Public Goods," *American Economic Review*, 63 (3), 280–296.

Bernan Press, K. A. DeBrandt, and D. A. Gaquin (1994): *1994, County and City Extra, Annual Metro, City and County Data Book*. Bernan Press, Lanham, MD.

——— (2002): *2002, County and City Extra, Annual Metro, City and County Data Book*. Bernan Press, Lanham, MD.

Borcherding, T. E., and R. T. Deacon (1972): "The Demand for the Services of Non-Federal Government," *American Economic Review*, 62, 891–901.

Bradbury, K. (1982): "Fiscal Distress in Large U.S. Cities," *New England Economic Review*, November/December, 33–44.

——— (1983a): "Structural Fiscal Distress in Cities - Causes andConsequences," *New England Economic Review*, January/February, 32–43.

——— (1983b): "Urban Decline and Distress: An Update," *New England Economic Review*, July/August, 39–55.

Buettner, T., and D. E. Wildasin (2003): "The Dynamics of Municipal Fiscal Adjustment," *WP*.

Capeci, J. (1991): "Credit Risk, Credit Ratings, and Municipal Bond Yields: A Panel Study," *National Tax Journal*, 44 (1), 41–56.

——— (1994): "Local Fiscal Policies, Default Risk, and Municipal Borrowing Costs," *Journal of Public Economics*, 53, 73–89.

Chicoine, D. L., and N. Walzer (1985): *Governmental Structure and Local Public Finance*. Oelgeschlager publishers, Boston, MA.

Chow, C. (1960): "Tests of Equality Between Sets of Coefficients in Two Linear Regressions," *Econometrica*, 28, 591–605.

Clark, T. N. (1994): "Innovations That Work; A Menu of Strategies," *in: Terry N. Clark, Urban innovation, creative strategies for turbulant times, Sage Publications, Thousand Oaks, California, USA*, pp. 213 – 240.

Clark, T. N., and L. Ferguson (1983): *City Money: Political Processes, Fiscal Strain and Retrenchment*. Columbia University Press, New York.

Cohen, N. R. (1989): "Municipal Default Patterns: An Historical Study," *Public Budgeting and Finance*, pp. 55–65.

Cooper, M. (May 7, 2003): "New York City May Get a Free Ride to 2034," *The New York Times*.

Cukierman, A., and A. Meltzer (1989): "A Political Theory of Government Debt and Deficits in a Neo-Ricardian Framework," *American Economic Review*, 79, 713 – 32.

Farnham, P. G. (1988): "The Impact of State Regulatory Activity on the Use of Local Government Debt," *Journal of Urban Affairs*, 10 (1), 63 – 76.

Fuchs, E. R. (1992): *Mayors and Money; Fiscal Policy in New York and Chicago*. The University of Chicago Press, Chicago.

Glaeser, E. L., and J. Shapiro (2001): "Is There a New Urbanism? The Growth of U.S. Cities in the 1990s," *NBER Working Paper*, 8357.

Glaeser, E. L., and A. Shleifer (2003): "The Curley Effect," *WP*.

Gramlich, E. (1976): "The New York City Fiscal Crisis: What Happened and What is to Be Done?," *American Economic Review, Papers and Proceedings*, 66 (2), 415 – 429.

Hallerberg, M., and J. von Hagen (1997): "Electoral Institutions, Cabinet Negotiations, and Budget Deficits Within the European Union," *CEPR*, 1555.

Herbert, B. (January 16, 2003): "An Appeal to Uncle Sam," *The New York Times*.

Honadle, B. W. (2003): "The States' Role in U.S. Local Government Fiscal Crises: A Theoretical Model and Results of a National Survey," *International Journal of Public Administration*, 26(13), 1431 – 1472.

Inman, R. P. (1982): "Public Employee Pensions and the Local Labor Budget," *Journal of Public Economics*, 19, 49–71.

——— (1995): "How to Have a Fiscal Crisis: Lessons from Philadelphia," *American Economic Review, Papers and Proceedings*, 85 (2), 378–383.

——— (2001): "Transfers and Bailouts: Enforcing Local Fiscal Discipline with Lessons from U.S. Federalism," *in: J. Rodden et al. (eds.), Fiscal Decentralization and the Challenge of Hard Budget Constraints*, pp. 35 – 83.

Joyce, P., and D. Mullins (1991): "The Changing Fiscal Structure of the State and Local Public Sector: The Impact of Tax and Expenditure Limitations," *Public Administration Review*, 51 (3), 240 – 253.

Knight, B., and A. Levinson (2000): "Fiscal Institutions in U.S. States," *in Rolf Strauch and Jürgen von Hagen, Institutions, Politics and Fiscal Policy, Kluwer Academic Publisher, Norwell, MA*, pp. 167 – 187.

Ladd, H., and J. Yinger (1989): *America's Ailing Cities, Fiscal Health and the Design of Urban Policy*. The John Hopkins University Press, Baltimore, Maryland.

Levitt, S. (1997): "Using Electoral Cycles in Police Hiring to Estimate the Effect of Police on Crime," *American Economic Review*, 87 (3), 270–290.

McConnel, M. W., and R. C. Picker (1993): "When Cities Go Broke: A Conceptual Introduction to Municipal Bankruptcy," *The University of Chicago Law Review*, 60:425, 425 – 470.

McCrary, J. (2002): "Using Electoral Cycles in Police Hiring to Estimate the Effect of Police on Crime: Comment," *American Economic Review*, 92 (4), 1236–1243.

McGuire, T. J., and D. L. Sjoquist (2003): "Urban Sprawl and the Finances of State and Local Government," *in: State and Local Finances under Pressure, David L. Sjoquist (ed.), Edward Elgar, Cheltenham, UK and Northhampton, MA, USA*, pp. 299–326.

Miranda, R. A. (1994): "Containing Cleavages; Parties and Other Hierarchies," *in: Terry N. Clark, Urban innovation, creative strategies for turbulant times, Sage Publications, Thousand Oaks, California, USA*, pp. 79 – 101.

Miranda, R. A., and N. Walzer (1994): "Growth and Decline of City Government," *in: Terry N. Clark, Urban innovation, creative strategies for turbulant times, Sage Publications, Thousand Oaks, California, USA*, pp. 146–166.

Morris, C. (1980): *The Costs of Good Intentions: New York City and the Liberal Experiment, 1960-1975*. McGraw Hill, New York.

Oates, W. (1988): "On the Measurement of Congestion in the Provision of Local Public Goods," *Journal of Urban Economics*, 24, 85–94.

Persson, T., and G. Tabellini (2000): *Political Economics, Explaining Economic Policy*. MIT Press, Cambridge, MA; London, England.

Poterba, J. M. (1994): "State Responses to Fiscal Crises: The Effects of Budgetary Institutions and Politics," *Journal of Political Economy*, 102 (4), 799 – 821.

Samuelson, P. A. (1954): "The Pure Theory of Public Expenditure," *Review of Economics and Statistics*, 36, 387–89.

Sbragia, A. (1996): *Debt Wish*. University of Pittsburgh Press, Pittsburgh.

Sharp, E. (1986): "The Politics and Economics of the New City Debt," *American Political Science Review*, 80 (4), 1271–1288.

Shaw, D., R. O. de la Garza, and J. Lee (2000): "Examining Latino Turnout in 1996: A Three-State, Validated Survey Approach," *American Journal of Political Science*, 44 (2), 338–346.

Shefter, M. (1992): *Political Crisis, Fiscal Crisis; The Collapse and Revival of New York City*. Columbia University Press, New York.

Stotsky, J., and E. Stunley (1997): "United States," *in Teresa Ter-Minassian, Fiscal Federalism in Theory and Practice, International Monetary Fund, Washington*, pp. 359–386.

The Economist (May 22nd, 2003): "The Head Ignores the Feet," *London*.

The First National Bank of Boston (1981): "Urban Fiscal Stress: A Comparative Analysis," *in: Robert W. Burchell and David Listokin (eds.); Cities under Stress, the fiscal crises of urban america, Center for Urban Policy Research, Rutgers university, Piscataway, New Jersey*, pp. 113 – 146.

U.S. Census Bureau (1988): *County and City Data Book*. U.S. Census Bureau, United States Department of Commerce, Washington.

——— (1989): *P-20 440*. U.S. Census Bureau, United States Department of Commerce, Washington.

——— (1994): *County and City Data Book*. U.S. Census Bureau, United States Department of Commerce, Washington.

——— (2000): *County and City Data Book*. U.S. Census Bureau, United States Department of Commerce, Washington.

Velasco, A. (2000): "Debt and Deficits with Fragmented Fiscal Policymaking," *Journal of Public Economics*, 76, 105–125.

von Hagen, J. (1991): "A Note on the Empirical Effectiveness of Formal Fiscal Restraints," *Journal of Public Economics*, 44, 199 – 210.

——— (1992): "Budgeting Procedures and Fiscal Performance in the European Communities," *Economic Papers*, 96.

von Hagen, J., and B. Eichengreen (1996): "Federalism, Fiscal Restraints, and European Monetary Union," *American Economic Review, Papers and Proceedings*, 86 (2), 134 – 138.

von Hagen, J., and I. J. Harden (1994): "National Budget Processes and Fiscal Performance," *European Economy Reports and Studies*, 3, 311 – 418.

——— (1995): "Budget Processes and Commitment to Fiscal Discipline," *European Economic Review*, 39, 771 – 779.

White, H. (1980): "A Heteroscedasticity-Consistent Covariance Matrix Estimator and a Direct Test for Heteroscedasticity," *Econometrica*, 48, 817 – 838.

Woo, J. (2003): "Economic, Political, and Institutional Determinants of Public Deficits," *Journal of Public Economics*, 87, 387–426.

Name	FIPS State Numeric Code	FIPS State Alpha Code	Name	FIPS State Numeric Code	FIPS State Alpha Code
Alabama	1	AL	Missouri	29	MO
Alaska	2	AK	Montana	30	MT
Arizona	4	AZ	Nebraska	31	NE
Arkansas	5	AR	Nevada	32	NV
California	6	CA	New Hampshire	33	NH
Colorado	8	CO	New Jersey	34	NJ
Connecticut	9	CT	New Mexico	35	NM
Delaware	10	DE	New York	36	NY
District of Columbia	11	DC	North Carolina	37	NC
			North Dakota	38	ND
Florida	12	FL	Ohio	39	OH
Georgia	13	GA	Oklahoma	40	OK
			Oregon	41	OR
Hawaii	15	HI	Pennsylvania	42	PA
Idaho	16	ID	Rhode Island	44	RI
Illinois	17	IL	South Carolina	45	SC
Indiana	18	IN	South Dakota	46	SD
Iowa	19	IA	Tennessee	47	TN
Kansas	20	KS	Texas	48	TX
Kentucky	21	KY	Utah	49	UT
Louisiana	22	LA	Vermont	50	VT
Maine	23	ME	Virginia	51	VA
Maryland	24	MD	Washington	53	WA
Massachusetts	25	MA	West Virginia	54	WV
Michigan	26	MI	Wisconsin	55	WI
Minnesota	27	MN	Wyoming	56	WY
Mississippi	28	MS			

Table 11: FIPS State codes for the States and the District of Columbia

	1	2	3	4	5
log (income per capita)	**0.77**	**0.62**	**0.73**	**0.85**	**0.58**
	0.12	0.11	0.11	0.11	0.08
log(population)	**1.01**	**1.01**	**1.01**	**1.01**	**1.01**
	0.02	0.02	0.02	0.02	0.02
log(median house value)	**-0.14**	**-0.11**	**-0.13**	**-0.15**	
	0.07	0.07	0.07	0.07	
own house	**-0.26**	**-0.25**	**-0.28**	**-0.45**	**-0.21**
	0.12	0.12	0.13	0.12	0.12
school	**0.05**	**0.05**	**0.33**	**0.33**	**0.33**
	0.08	0.08	0.07	0.08	0.07
health	**0.35**	**0.34**	**0.51**	**0.50**	**0.51**
	0.05	0.05	0.05	0.05	0.05
grant per capita	**0.09**	**0.10**	**0.13**	**0.13**	**0.13**
	0.01	0.01	0.01	0.01	0.01
employment per capita	**0.71**	**0.83**	**0.99**		**1.02**
	0.22	0.21	0.22		0.22
income growth	**-0.73**				
	0.28				
hispanic	**-0.22**	**-0.20**	**-0.23**	**-0.21**	**-0.29**
	0.11	0.11	0.12	0.12	0.12
seniors	**0.57**	**0.69**	**0.94**	**0.81**	**1.15**
	0.26	0.25	0.26	0.27	0.24
birth	**8.21**	**8.37**	**8.74**	**6.05**	**9.84**
	2.61	2.61	2.74	2.70	2.68
crime	**1.75**	**1.78**	**2.71**	**2.87**	**2.84**
	0.46	0.46	0.47	0.47	0.46
poverty	**1.18**	**0.99**	**1.30**	**1.04**	**1.33**
	0.33	0.32	0.33	0.33	0.33
central	**0.11**	**0.11**	**0.13**	**0.12**	**0.13**
	0.02	0.02	0.03	0.03	0.03
public employment per capita	**20.56**	**20.45**			
	2.19	2.20			
constant	**-14.42**	**-13.24**	**-14.04**	**-14.25**	**-14.27**
	0.89	0.77	0.80	0.81	0.80
state-dummies	yes	yes	yes	yes	yes
R^2 adjusted	0.93	0.93	0.92	0.92	0.92
Obs	943	943	943	943	943

Table 12: Determinants of general municipal expenditure, 1984-85. Standard errors are reported below the coefficient.

	1994 a	1994 b	1994 c	1994 d	2000 a	2000 b	pooled 1	pooled 2
log(income per capita)		**0.69**	**0.73**	**0.57**				
		0.13	0.12	0.12				
log(population)	**1.08**	**1.04**	**1.04**	**1.05**	**1.06**	**1.07**	**1.07**	**1.08**
	0.02	0.02	0.02	0.02	0.02	0.02	0.01	0.01
population growth	**0.000**	**0.000**				**-0.004**		**-0.002**
	0.001	0.001				0.001		0.001
population density		**-0.02**	**-0.01**	**-0.01**				**-0.01**
		0.01	0.01	0.01				**0.00**
log(median house value)		**-0.09**	**-0.08**	**-0.04**				
		0.07	0.07	0.07				
own house	**-0.35**	**-0.55**	**-0.53**	**-0.45**	**-0.53**	**-0.48**	**-0.49**	**-0.55**
	0.13	0.17	0.17	0.16	0.14	0.14	0.07	0.08
school	**0.31**	**0.30**	**0.30**	**0.01**	**0.42**	**0.44**	**0.46**	**0.48**
	0.11	0.10	0.10	0.10	0.11	0.11	0.05	0.05
health	**0.57**	**0.58**	**0.58**	**0.28**	**0.57**	**0.58**	**0.57**	**0.57**
	0.07	0.06	0.06	0.07	0.08	0.08	0.04	0.04
grant per capita	**0.07**	**0.08**	**0.08**	**0.06**	**0.03**	**0.03**	**0.04**	**0.04**
	0.01	0.01	0.01	0.01	0.01	0.01	0.00	0.00
employment per capita		**0.92**	**0.91**	**0.72**				
		0.36	0.35	0.33				
income growth		**0.17**						
		0.18						
hispanic	**-0.52**	**0.14**	**0.13**	**0.08**	**-0.64**	**-0.60**	**-0.56**	**-0.48**
	0.11	0.14	0.14	0.13	0.09	0.09	0.06	0.06
seniors	**0.97**	**1.16**	**1.10**	**0.81**	**0.71**	**0.46**	**1.02**	**0.91**
	0.33	0.36	0.34	0.33	0.27	0.27	0.16	0.16
birth		**8.73**	**8.52**	**7.59**				
		2.92	2.88	2.76				
crime	**2.69**	**2.49**	**2.52**	**1.71**	**3.34**	**2.94**	**2.92**	**2.75**
	0.49	0.47	0.47	0.46	0.75	0.76	0.28	0.28
poverty		**1.03**	**1.06**	**0.66**				
		0.32	0.32	0.31				
central	**0.05**	**0.07**	**0.07**	**0.05**	**0.08**	**0.08**	**0.09**	**0.07**
	0.03	0.03	0.03	0.03	0.03	0.03	0.02	0.02
public employment per capita				**22.36**				
				2.59				
constant	yes	yes	yes	yes	yes	yes	yes	yes
state dummies	yes	yes	yes	yes	yes	yes	yes	yes
time dummies	no	no	no	no	no	no	yes	yes
obs	867	867	867	867	612	611	2422	2421
R^2	0.89	0.9	0.9	0.91	0.91	0.92	0.91	0.91

Table 13: Determinants of general municipal expenditure, comparison of the different years for largest available number of cities. Standard errors are reported below the coefficient.

	1985				1991				1999
	a	b	c	d	a	b	c	d	a
log(income per capita)	**0.55**	**0.71**			**0.08**	**0.24**			
	0.41	0.41			0.37	0.37			
log(population)	**1.16**	**1.17**	**1.16**	**1.19**	**1.25**	**1.24**	**1.26**	**1.27**	**1.18**
	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
population growth	**0.02**	**0.02**	**0.02**	**0.01**	**0.01**	**0.01**	**0.01**	**0.01**	**0.00**
	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
population density	**-0.06**	**-0.07**	**-0.06**	**-0.07**	**-0.06**	**-0.06**	**-0.05**	**-0.06**	**-0.03**
	0.01	0.01	0.01	0.01	0.02	0.02	0.01	0.01	0.01
log(median house value)	**-0.17**	**-0.19**			**-0.18**	**-0.24**			
	0.23	0.23			0.21	0.21			
own house	**-0.53**	**-0.72**		**-0.96**	**-0.20**	**-0.24**		**-0.44**	**0.12**
	0.46	0.46		0.35	0.49	0.49		0.37	0.39
school	**-0.67**	**-0.18**	**-0.70**	**-0.15**	**-0.64**	**-0.30**	**-0.64**	**-0.23**	**0.21**
	0.26	0.24	0.26	0.24	0.30	0.29	0.30	0.29	0.26
health	**0.05**	**0.34**	**0.03**	**0.32**	**0.01**	**0.36**	**0.00**	**0.33**	**0.18**
	0.16	0.15	0.16	0.15	0.20	0.18	0.20	0.18	0.20
grant per capita	**0.13**	**0.18**	**0.13**	**0.17**	**0.07**	**0.09**	**0.07**	**0.09**	**0.04**
	0.04	0.04	0.04	0.04	0.03	0.03	0.03	0.03	0.01
employment per capita	**1.89**	**2.22**	**2.63**		**2.24**	**2.90**	**1.85**		
	1.03	1.04	0.84		1.01	1.00	0.78		
income growth	**-1.55**	**-1.47**	**-0.90**		**0.79**	**0.81**	**0.49**		
	0.94	0.95	0.76		0.50	0.51	0.42		
hispanic	**0.12**	**0.19**		**-0.09**	**0.34**	**0.41**		**-0.05**	**-0.22**
	0.41	0.42		0.36	0.39	0.39		0.32	0.26
seniors	**-0.53**	**0.02**		**-0.06**	**-0.96**	**-0.50**		**-1.43**	**-1.72**
	0.92	0.93		0.80	1.03	1.03		0.88	1.08
birth	**2.00**	**2.19**			**10.50**	**12.79**			
	9.15	9.26			8.56	8.60			
crime	**1.08**	**2.67**	**1.42**	**3.33**	**2.28**	**3.15**	**2.77**	**3.86**	**3.77**
	1.53	1.51	1.46	1.41	1.37	1.35	1.33	1.31	1.79
poverty	**1.69**	**2.12**	**1.68**		**0.92**	**1.50**	**1.38**		
	1.14	1.15	0.77		0.92	0.91	0.66		
central	**0.27**	**0.28**	**0.29**	**0.25**	**0.02**	**0.06**	**0.05**	**0.06**	**0.26**
	0.09	0.09	0.08	0.09	0.09	0.09	0.09	0.09	0.08
public employment per capita	**35.70**		**37.19**		**27.33**		**26.65**		
	7.50		7.31		7.78		7.57		
constant	yes	yes	yes	yes	yes	yes	yes	yes	yes
state dummies	yes	yes	yes	yes	yes	yes	yes	yes	yes
obs	930	930	930	930	859	859	859	860	646
R^2	0.64	0.63	0.64	0.63	0.63	0.62	0.63	0.62	0.67

Table 14: Determinants of municipal debt. Standard errors are reported below the coefficient.

2008

B01-08	**Euro-Diplomatie durch gemeinsame „Wirtschaftsregierung“**	*Martin Seidel*

2007

B03-07	**Löhne und Steuern im Systemwettbewerb der Mitgliedstaaten der Europäischen Union**	*Martin Seidel*
B02-07	**Konsolidierung und Reform der Europäischen Union**	*Martin Seidel*
B01-07	**The Ratification of European Treaties - Legal and Constitutional Basis of a European Referendum.**	*Martin Seidel*

2006

B03-06	**Financial Frictions, Capital Reallocation, and Aggregate Fluctuations**	*Jürgen von Hagen, Haiping Zhang*
B02-06	**Financial Openness and Macroeconomic Volatility**	*Jürgen von Hagen, Haiping Zhang*
B01-06	**A Welfare Analysis of Capital Account Liberalization**	*Jürgen von Hagen, Haiping Zhang*

2005

B11-05	**Das Kompetenz- und Entscheidungssystem des Vertrages von Rom im Wandel seiner Funktion und Verfassung**	*Martin Seidel*
B10-05	**Die Schutzklauseln der Beitrittsverträge**	*Martin Seidel*
B09-05	**Measuring Tax Burdens in Europe**	*Guntram B. Wolff*
B08-05	**Remittances as Investment in the Absence of Altruism**	*Gabriel González-König*
B07-05	**Economic Integration in a Multicone World?**	*Christian Volpe Martincus, Jennifer Pédussel Wu*
B06-05	**Banking Sector (Under?)Development in Central and Eastern Europe**	*Jürgen von Hagen, Valeriya Dinger*
B05-05	**Regulatory Standards Can Lead to Predation**	*Stefan Lutz*
B04-05	**Währungspolitik als Sozialpolitik**	*Martin Seidel*
B03-05	**Public Education in an Integrated Europe: Studying to Migrate and Teaching to Stay?**	*Panu Poutvaara*
B02-05	**Voice of the Diaspora: An Analysis of Migrant Voting Behavior**	*Jan Fidrmuc, Orla Doyle*
B01-05	**Macroeconomic Adjustment in the New EU Member States**	*Jürgen von Hagen, Iulia Traistaru*

2004

B33-04	**The Effects of Transition and Political Instability On Foreign Direct Investment Inflows: Central Europe and the Balkans**	*Josef C. Brada, Ali M. Kutan, Taner M. Yigit*
B32-04	**The Choice of Exchange Rate Regimes in Developing Countries: A Mulitnominal Panal Analysis**	*Jürgen von Hagen, Jizhong Zhou*
B31-04	**Fear of Floating and Fear of Pegging: An Empirical Anaysis of De Facto Exchange Rate Regimes in Developing Countries**	*Jürgen von Hagen, Jizhong Zhou*
B30-04	**Der Vollzug von Gemeinschaftsrecht über die Mitgliedstaaten und seine Rolle für die EU und den Beitrittsprozess**	*Martin Seidel*
B29-04	**Deutschlands Wirtschaft, seine Schulden und die Unzulänglichkeiten der einheitlichen Geldpolitik im Eurosystem**	*Dieter Spethmann, Otto Steiger*
B28-04	**Fiscal Crises in U.S. Cities: Structural and Non-structural Causes**	*Guntram B. Wolff*
B27-04	**Firm Performance and Privatization in Ukraine**	*Galyna Grygorenko, Stefan Lutz*
B26-04	**Analyzing Trade Opening in Ukraine: Effects of a Customs Union with the EU**	*Oksana Harbuzyuk, Stefan Lutz*
B25-04	**Exchange Rate Risk and Convergence to the Euro**	*Lucjan T. Orlowski*
B24-04	**The Endogeneity of Money and the Eurosystem**	*Otto Steiger*
B23-04	**Which Lender of Last Resort for the Eurosystem?**	*Otto Steiger*
B22-04	**Non-Discretonary Monetary Policy: The Answer for Transition Economies?**	*Elham-Mafi Kreft, Steven F. Kreft*
B21-04	**The Effectiveness of Subsidies Revisited: Accounting for Wage and Employment Effects in Business R+D**	*Volker Reinthaler, Guntram B. Wolff*
B20-04	**Money Market Pressure and the Determinants of Banking Crises**	*Jürgen von Hagen, Tai-kuang Ho*
B19-04	**Die Stellung der Europäischen Zentralbank nach dem Verfassungsvertrag**	*Martin Seidel*

B18-04	**Transmission Channels of Business Cycles Synchronization in an Enlarged EMU**	*Iulia Traistaru*
B17-04	**Foreign Exchange Regime, the Real Exchange Rate and Current Account Sustainability: The Case of Turkey**	*Sübidey Togan, Hasan Ersel*
B16-04	**Does It Matter Where Immigrants Work? Traded Goods, Non-traded Goods, and Sector Specific Employment**	*Harry P. Bowen, Jennifer Pédussel Wu*
B15-04	**Do Economic Integration and Fiscal Competition Help to Explain Local Patterns?**	*Christian Volpe Martincus*
B14-04	**Euro Adoption and Maastricht Criteria: Rules or Discretion?**	*Jiri Jonas*
B13-04	**The Role of Electoral and Party Systems in the Development of Fiscal Institutions in the Central and Eastern European Countries**	*Sami Yläoutinen*
B12-04	**Measuring and Explaining Levels of Regional Economic Integration**	*Jennifer Pédussel Wu*
B11-04	**Economic Integration and Location of Manufacturing Activities: Evidence from MERCOSUR**	*Pablo Sanguinetti, Iulia Traistaru, Christian Volpe Martincus*
B10-04	**Economic Integration and Industry Location in Transition Countries**	*Laura Resmini*
B09-04	**Testing Creditor Moral Hazard in Souvereign Bond Markets: A Unified Theoretical Approach and Empirical Evidence**	*Ayse Y. Evrensel, Ali M. Kutan*
B08-04	**European Integration, Productivity Growth and Real Convergence**	*Taner M. Yigit, Ali M. Kutan*
B07-04	**The Contribution of Income, Social Capital, and Institutions to Human Well-being in Africa**	*Mina Baliamoune-Lutz, Stefan H. Lutz*
B06-04	**Rural Urban Inequality in Africa: A Panel Study of the Effects of Trade Liberalization and Financial Deepening**	*Mina Baliamoune-Lutz, Stefan H. Lutz*
B05-04	**Money Rules for the Eurozone Candidate Countries**	*Lucjan T. Orlowski*
B04-04	**Who is in Favor of Enlargement? Determinants of Support for EU Membership in the Candidate Countries' Referenda**	*Orla Doyle, Jan Fidrmuc*
B03-04	**Over- and Underbidding in Central Bank Open Market Operations Conducted as Fixed Rate Tender**	*Ulrich Bindseil*
B02-04	**Total Factor Productivity and Economic Freedom Implications for EU Enlargement**	*Ronald L. Moomaw, Euy Seok Yang*
B01-04	**Die neuen Schutzklauseln der Artikel 38 und 39 des Beitrittsvertrages: Schutz der alten Mitgliedstaaten vor Störungen durch die neuen Mitgliedstaaten**	*Martin Seidel*
2003		
B29-03	**Macroeconomic Implications of Low Inflation in the Euro Area**	*Jürgen von Hagen, Boris Hofmann*
B28-03	**The Effects of Transition and Political Instability on Foreign Direct Investment: Central Europe and the Balkans**	*Josef C. Brada, Ali M. Kutan, Taner M. Yigit*
B27-03	**The Performance of the Euribor Futures Market: Efficiency and the Impact of ECB Policy Announcements (Electronic Version of International Finance)**	*Kerstin Bernoth, Juergen von Hagen*
B26-03	**Souvereign Risk Premia in the European Government Bond Market (überarbeitete Version zum Herunterladen)**	*Kerstin Bernoth, Juergen von Hagen, Ludger Schulknecht*
B25-03	**How Flexible are Wages in EU Accession Countries?**	*Anna Iara, Iulia Traistaru*
B24-03	**Monetary Policy Reaction Functions: ECB versus Bundesbank**	*Bernd Hayo, Boris Hofmann*
B23-03	**Economic Integration and Manufacturing Concentration Patterns: Evidence from Mercosur**	*Iulia Traistaru, Christian Volpe Martincus*
B22-03	**Reformzwänge innerhalb der EU angesichts der Osterweiterung**	*Martin Seidel*
B21-03	**Reputation Flows: Contractual Disputes and the Channels for Inter-Firm Communication**	*William Pyle*
B20-03	**Urban Primacy, Gigantism, and International Trade: Evidence from Asia and the Americas**	*Ronald L. Moomaw, Mohammed A. Alwosabi*
B19-03	**An Empirical Analysis of Competing Explanations of Urban Primacy Evidence from Asia and the Americas**	*Ronald L. Moomaw, Mohammed A. Alwosabi*

B18-03	**The Effects of Regional and Industry-Wide FDI Spillovers on Export of Ukrainian Firms**	*Stefan H. Lutz, Oleksandr Talavera, Sang-Min Park*
B17-03	**Determinants of Inter-Regional Migration in the Baltic States**	*Mihails Hazans*
B16-03	**South-East Europe: Economic Performance, Perspectives, and Policy Challenges**	*Iulia Traistaru, Jürgen von Hagen*
B15-03	**Employed and Unemployed Search: The Marginal Willingness to Pay for Attributes in Lithuania, the US and the Netherlands**	*Jos van Ommeren, Mihails Hazans*
B14-03	**FCIs and Economic Activity: Some International Evidence**	*Charles Goodhart, Boris Hofmann*
B13-03	**The IS Curve and the Transmission of Monetary Policy: Is there a Puzzle?**	*Charles Goodhart, Boris Hofmann*
B12-03	**What Makes Regions in Eastern Europe Catching Up? The Role of Foreign Investment, Human Resources, and Geography**	*Gabriele Tondl, Goran Vuksic*
B11-03	**Die Weisungs- und Herrschaftsmacht der Europäischen Zentralbank im europäischen System der Zentralbanken - eine rechtliche Analyse**	*Martin Seidel*
B10-03	**Foreign Direct Investment and Perceptions of Vulnerability to Foreign Exchange Crises: Evidence from Transition Economies**	*Josef C. Brada, Vladimír Tomsík*
B09-03	**The European Central Bank and the Eurosystem: An Analysis of the Missing Central Monetary Institution in European Monetary Union**	*Gunnar Heinsohn, Otto Steiger*
B08-03	**The Determination of Capital Controls: Which Role Do Exchange Rate Regimes Play?**	*Jürgen von Hagen, Jizhong Zhou*
B07-03	**Nach Nizza und Stockholm: Stand des Binnenmarktes und Prioritäten für die Zukunft**	*Martin Seidel*
B06-03	**Fiscal Discipline and Growth in Euroland. Experiences with the Stability and Growth Pact**	*Jürgen von Hagen*
B05-03	**Reconsidering the Evidence: Are Eurozone Business Cycles Converging?**	*Michael Massmann, James Mitchell*
B04-03	**Do Ukrainian Firms Benefit from FDI?**	*Stefan H. Lutz, Oleksandr Talavera*
B03-03	**Europäische Steuerkoordination und die Schweiz**	*Stefan H. Lutz*
B02-03	**Commuting in the Baltic States: Patterns, Determinants, and Gains**	*Mihails Hazans*
B01-03	**Die Wirtschafts- und Währungsunion im rechtlichen und politischen Gefüge der Europäischen Union**	*Martin Seidel*
2002		
B30-02	**An Adverse Selection Model of Optimal Unemployment Assurance**	*Marcus Hagedorn, Ashok Kaul, Tim Mennel*
B29B-02	**Trade Agreements as Self-protection**	*Jennifer Pédussel Wu*
B29A-02	**Growth and Business Cycles with Imperfect Credit Markets**	*Debajyoti Chakrabarty*
B28-02	**Inequality, Politics and Economic Growth**	*Debajyoti Chakrabarty*
B27-02	**Poverty Traps and Growth in a Model of Endogenous Time Preference**	*Debajyoti Chakrabarty*
B26-02	**Monetary Convergence and Risk Premiums in the EU Candidate Countries**	*Lucjan T. Orlowski*
B25-02	**Trade Policy: *Institutional* Vs. *Economic* Factors**	*Stefan Lutz*
B24-02	**The Effects of Quotas on Vertical Intra-industry Trade**	*Stefan Lutz*
B23-02	**Legal Aspects of European Economic and Monetary Union**	*Martin Seidel*
B22-02	**Der Staat als *Lender of Last Resort* - oder: Die Achillesverse des Eurosystems**	*Otto Steiger*
B21-02	**Nominal and Real Stochastic Convergence Within the Transition Economies and to the European Union: Evidence from Panel Data**	*Ali M. Kutan, Taner M. Yigit*
B20-02	**The Impact of News, Oil Prices, and International Spillovers on Russian Fincancial Markets**	*Bernd Hayo, Ali M. Kutan*

B19-02	**East Germany: Transition with Unification, Experiments and Experiences**	*Jürgen von Hagen, Rolf R. Strauch, Guntram B. Wolff*
B18-02	**Regional Specialization and Employment Dynamics in Transition Countries**	*Iulia Traistaru, Guntram B. Wolff*
B17-02	**Specialization and Growth Patterns in Border Regions of Accession Countries**	*Laura Resmini*
B16-02	**Regional Specialization and Concentration of Industrial Activity in Accession Countries**	*Iulia Traistaru, Peter Nijkamp, Simonetta Longhi*
B15-02	**Does Broad Money Matter for Interest Rate Policy?**	*Matthias Brückner, Andreas Schaber*
B14-02	**The Long and Short of It: Global Liberalization, Poverty and Inequality**	*Christian E. Weller, Adam Hersch*
B13-02	**De Facto and Official Exchange Rate Regimes in Transition Economies**	*Jürgen von Hagen, Jizhong Zhou*
B12-02	**Argentina: The Anatomy of A Crisis**	*Jiri Jonas*
B11-02	**The Eurosystem and the Art of Central Banking**	*Gunnar Heinsohn, Otto Steiger*
B10-02	**National Origins of European Law: Towards an Autonomous System of European Law?**	*Martin Seidel*
B09-02	**Monetary Policy in the Euro Area - Lessons from the First Years**	*Volker Clausen, Bernd Hayo*
B08-02	**Has the Link Between the Spot and Forward Exchange Rates Broken Down? Evidence From Rolling Cointegration Tests**	*Ali M. Kutan, Su Zhou*
B07-02	**Perspektiven der Erweiterung der Europäischen Union**	*Martin Seidel*
B06-02	**Is There Asymmetry in Forward Exchange Rate Bias? Multi-Country Evidence**	*Su Zhou, Ali M. Kutan*
B05-02	**Real and Monetary Convergence Within the European Union and Between the European Union and Candidate Countries: A Rolling Cointegration Approach**	*Josef C. Brada, Ali M. Kutan, Su Zhou*
B04-02	**Asymmetric Monetary Policy Effects in EMU**	*Volker Clausen, Bernd Hayo*
B03-02	**The Choice of Exchange Rate Regimes: An Empirical Analysis for Transition Economies**	*Jürgen von Hagen, Jizhong Zhou*
B02-02	**The Euro System and the Federal Reserve System Compared: Facts and Challenges**	*Karlheinz Ruckriegel, Franz Seitz*
B01-02	**Does Inflation Targeting Matter?**	*Manfred J. M. Neumann, Jürgen von Hagen*
2001		
B29-01	**Is Kazakhstan Vulnerable to the Dutch Disease?**	*Karlygash Kuralbayeva, Ali M. Kutan, Michael L. Wyzan*
B28-01	**Political Economy of the Nice Treaty: Rebalancing the EU Council. The Future of European Agricultural Policies**	*Deutsch-Französisches Wirtschaftspolitisches Forum*
B27-01	**Investor Panic, IMF Actions, and Emerging Stock Market Returns and Volatility: A Panel Investigation**	*Bernd Hayo, Ali M. Kutan*
B26-01	**Regional Effects of Terrorism on Tourism: Evidence from Three Mediterranean Countries**	*Konstantinos Drakos, Ali M. Kutan*
B25-01	**Monetary Convergence of the EU Candidates to the Euro: A Theoretical Framework and Policy Implications**	*Lucjan T. Orlowski*
B24-01	**Disintegration and Trade**	*Jarko and Jan Fidrmuc*
B23-01	**Migration and Adjustment to Shocks in Transition Economies**	*Jan Fidrmuc*
B22-01	**Strategic Delegation and International Capital Taxation**	*Matthias Brückner*
B21-01	**Balkan and Mediterranean Candidates for European Union Membership: The Convergence of Their Monetary Policy With That of the Europaen Central Bank**	*Josef C. Brada, Ali M. Kutan*
B20-01	**An Empirical Inquiry of the Efficiency of Intergovernmental Transfers for Water Projects Based on the WRDA Data**	*Anna Rubinchik-Pessach*
B19-01	**Detrending and the Money-Output Link: International Evidence**	*R.W. Hafer, Ali M. Kutan*

B18-01	**Monetary Policy in Unknown Territory. The European Central Bank in the Early Years**	*Jürgen von Hagen, Matthias Brückner*
B17-01	**Executive Authority, the Personal Vote, and Budget Discipline in Latin American and Carribean Countries**	*Mark Hallerberg, Patrick Marier*
B16-01	**Sources of Inflation and Output Fluctuations in Poland and Hungary: Implications for Full Membership in the European Union**	*Selahattin Dibooglu, Ali M. Kutan*
B15-01	**Programs Without Alternative: Public Pensions in the OECD**	*Christian E. Weller*
B14-01	**Formal Fiscal Restraints and Budget Processes As Solutions to a Deficit and Spending Bias in Public Finances - U.S. Experience and Possible Lessons for EMU**	*Rolf R. Strauch, Jürgen von Hagen*
B13-01	**German Public Finances: Recent Experiences and Future Challenges**	*Jürgen von Hagen, Rolf R. Strauch*
B12-01	**The Impact of Eastern Enlargement On EU-Labour Markets. Pensions Reform Between Economic and Political Problems**	*Deutsch-Französisches Wirtschaftspolitisches Forum*
B11-01	**Inflationary Performance in a Monetary Union With Large Wage Setters**	*Lilia Cavallar*
B10-01	**Integration of the Baltic States into the EU and Institutions of Fiscal Convergence: A Critical Evaluation of Key Issues and Empirical Evidence**	*Ali M. Kutan, Niina Pautola-Mol*
B09-01	**Democracy in Transition Economies: Grease or Sand in the Wheels of Growth?**	*Jan Fidrmuc*
B08-01	**The Functioning of Economic Policy Coordination**	*Jürgen von Hagen, Susanne Mundschenk*
B07-01	**The Convergence of Monetary Policy Between Candidate Countries and the European Union**	*Josef C. Brada, Ali M. Kutan*
B06-01	**Opposites Attract: The Case of Greek and Turkish Financial Markets**	*Konstantinos Drakos, Ali M. Kutan*
B05-01	**Trade Rules and Global Governance: A Long Term Agenda. The Future of Banking.**	*Deutsch-Französisches Wirtschaftspolitisches Forum*
B04-01	**The Determination of Unemployment Benefits**	*Rafael di Tella, Robert J. MacCulloch*
B03-01	**Preferences Over Inflation and Unemployment: Evidence from Surveys of Happiness**	*Rafael di Tella, Robert J. MacCulloch, Andrew J. Oswald*
B02-01	**The Konstanz Seminar on Monetary Theory and Policy at Thirty**	*Michele Fratianni, Jürgen von Hagen*
B01-01	**Divided Boards: Partisanship Through Delegated Monetary Policy**	*Etienne Farvaque, Gael Lagadec*

2000

B20-00	**Breakin-up a Nation, From the Inside**	*Etienne Farvaque*
B19-00	**Income Dynamics and Stability in the Transition Process, general Reflections applied to the Czech Republic**	*Jens Hölscher*
B18-00	**Budget Processes: Theory and Experimental Evidence**	*Karl-Martin Ehrhart, Roy Gardner, Jürgen von Hagen, Claudia Keser*
B17-00	**Rückführung der Landwirtschaftspolitik in die Verantwortung der Mitgliedsstaaten? - Rechts- und Verfassungsfragen des Gemeinschaftsrechts**	*Martin Seidel*
B16-00	**The European Central Bank: Independence and Accountability**	*Christa Randzio-Plath, Tomasso Padoa-Schioppa*
B15-00	**Regional Risk Sharing and Redistribution in the German Federation**	*Jürgen von Hagen, Ralf Hepp*
B14-00	**Sources of Real Exchange Rate Fluctuations in Transition Economies: The Case of Poland and Hungary**	*Selahattin Dibooglu, Ali M. Kutan*
B13-00	**Back to the Future: The Growth Prospects of Transition Economies Reconsidered**	*Nauro F. Campos*

B12-00	**Rechtsetzung und Rechtsangleichung als Folge der Einheitlichen Europäischen Währung**	*Martin Seidel*
B11-00	**A Dynamic Approach to Inflation Targeting in Transition Economies**	*Lucjan T. Orlowski*
B10-00	**The Importance of Domestic Political Institutions: Why and How Belgium Qualified for EMU**	*Marc Hallerberg*
B09-00	**Rational Institutions Yield Hysteresis**	*Rafael Di Tella, Robert MacCulloch*
B08-00	**The Effectiveness of Self-Protection Policies for Safeguarding Emerging Market Economies from Crises**	*Kenneth Kletzer*
B07-00	**Financial Supervision and Policy Coordination in The EMU**	*Deutsch-Französisches Wirtschaftspolitisches Forum*
B06-00	**The Demand for Money in Austria**	*Bernd Hayo*
B05-00	**Liberalization, Democracy and Economic Performance during Transition**	*Jan Fidrmuc*
B04-00	**A New Political Culture in The EU - Democratic Accountability of the ECB**	*Christa Randzio-Plath*
B03-00	**Integration, Disintegration and Trade in Europe: Evolution of Trade Relations during the 1990's**	*Jarko Fidrmuc, Jan Fidrmuc*
B02-00	**Inflation Bias and Productivity Shocks in Transition Economies: The Case of the Czech Republic**	*Josef C. Barda, Arthur E. King, Ali M. Kutan*
B01-00	**Monetary Union and Fiscal Federalism**	*Kenneth Kletzer, Jürgen von Hagen*
1999		
B26-99	**Skills, Labour Costs, and Vertically Differentiated Industries: A General Equilibrium Analysis**	*Stefan Lutz, Alessandro Turrini*
B25-99	**Micro and Macro Determinants of Public Support for Market Reforms in Eastern Europe**	*Bernd Hayo*
B24-99	**What Makes a Revolution?**	*Robert MacCulloch*
B23-99	**Informal Family Insurance and the Design of the Welfare State**	*Rafael Di Tella, Robert MacCulloch*
B22-99	**Partisan Social Happiness**	*Rafael Di Tella, Robert MacCulloch*
B21-99	**The End of Moderate Inflation in Three Transition Economies?**	*Josef C. Brada, Ali M. Kutan*
B20-99	**Subnational Government Bailouts in Germany**	*Helmut Seitz*
B19-99	**The Evolution of Monetary Policy in Transition Economies**	*Ali M. Kutan, Josef C. Brada*
B18-99	**Why are Eastern Europe's Banks not failing when everybody else's are?**	*Christian E. Weller, Bernard Morzuch*
B17-99	**Stability of Monetary Unions: Lessons from the Break-Up of Czechoslovakia**	*Jan Fidrmuc, Julius Horvath and Jarko Fidrmuc*
B16-99	**Multinational Banks and Development Finance**	*Christian E.Weller and Mark J. Scher*
B15-99	**Financial Crises after Financial Liberalization: Exceptional Circumstances or Structural Weakness?**	*Christian E. Weller*
B14-99	**Industry Effects of Monetary Policy in Germany**	*Bernd Hayo and Birgit Uhlenbrock*
B13-99	**Fiancial Fragility or What Went Right and What Could Go Wrong in Central European Banking?**	*Christian E. Weller and Jürgen von Hagen*
B12 -99	**Size Distortions of Tests of the Null Hypothesis of Stationarity: Evidence and Implications for Applied Work**	*Mehmet Caner and Lutz Kilian*
B11-99	**Financial Supervision and Policy Coordination in the EMU**	*Deutsch-Französisches Wirtschaftspolitisches Forum*
B10-99	**Financial Liberalization, Multinational Banks and Credit Supply: The Case of Poland**	*Christian Weller*
B09-99	**Monetary Policy, Parameter Uncertainty and Optimal Learning**	*Volker Wieland*
B08-99	**The Connection between more Multinational Banks and less Real Credit in Transition Economies**	*Christian Weller*

B07-99	**Comovement and Catch-up in Productivity across Sectors: Evidence from the OECD**	*Christopher M. Cornwell and Jens-Uwe Wächter*
B06-99	**Productivity Convergence and Economic Growth: A Frontier Production Function Approach**	*Christopher M. Cornwell and Jens-Uwe Wächter*
B05-99	**Tumbling Giant: Germany's Experience with the Maastricht Fiscal Criteria**	*Jürgen von Hagen and Rolf Strauch*
B04-99	**The Finance-Investment Link in a Transition Economy: Evidence for Poland from Panel Data**	*Christian Weller*
B03-99	**The Macroeconomics of Happiness**	*Rafael Di Tella, Robert MacCulloch and Andrew J. Oswald*
B02-99	**The Consequences of Labour Market Flexibility: Panel Evidence Based on Survey Data**	*Rafael Di Tella and Robert MacCulloch*
B01-99	**The Excess Volatility of Foreign Exchange Rates: Statistical Puzzle or Theoretical Artifact?**	*Robert B.H. Hauswald*
1998		
B16-98	**Labour Market + Tax Policy in the EMU**	*Deutsch-Französisches Wirtschaftspolitisches Forum*
B15-98	**Can Taxing Foreign Competition Harm the Domestic Industry?**	*Stefan Lutz*
B14-98	**Free Trade and Arms Races: Some Thoughts Regarding EU-Russian Trade**	*Rafael Reuveny and John Maxwell*
B13-98	**Fiscal Policy and Intranational Risk-Sharing**	*Jürgen von Hagen*
B12-98	**Price Stability and Monetary Policy Effectiveness when Nominal Interest Rates are Bounded at Zero**	*Athanasios Orphanides and Volker Wieland*
B11A-98	**Die Bewertung der "dauerhaft tragbaren öffentlichen Finanzlage"der EU Mitgliedstaaten beim Übergang zur dritten Stufe der EWWU**	*Rolf Strauch*
B11-98	**Exchange Rate Regimes in the Transition Economies: Case Study of the Czech Republic: 1990-1997**	*Julius Horvath and Jiri Jonas*
B10-98	**Der Wettbewerb der Rechts- und politischen Systeme in der Europäischen Union**	*Martin Seidel*
B09-98	**U.S. Monetary Policy and Monetary Policy and the ESCB**	*Robert L. Hetzel*
B08-98	**Money-Output Granger Causality Revisited: An Empirical Analysis of EU Countries (überarbeitete Version zum Herunterladen)**	*Bernd Hayo*
B07-98	**Designing Voluntary Environmental Agreements in Europe: Some Lessons from the U.S. EPA's 33/50 Program**	*John W. Maxwell*
B06-98	**Monetary Union, Asymmetric Productivity Shocks and Fiscal Insurance: an Analytical Discussion of Welfare Issues**	*Kenneth Kletzer*
B05-98	**Estimating a European Demand for Money (überarbeitete Version zum Herunterladen)**	*Bernd Hayo*
B04-98	**The EMU's Exchange Rate Policy**	*Deutsch-Französisches Wirtschaftspolitisches Forum*
B03-98	**Central Bank Policy in a More Perfect Financial System**	*Jürgen von Hagen / Ingo Fender*
B02-98	**Trade with Low-Wage Countries and Wage Inequality**	*Jaleel Ahmad*
B01-98	**Budgeting Institutions for Aggregate Fiscal Discipline**	*Jürgen von Hagen*
1997		
B04-97	**Macroeconomic Stabilization with a Common Currency: Does European Monetary Unification Create a Need for Fiscal Insurance or Federalism?**	*Kenneth Kletzer*
B-03-97	**Liberalising European Markets for Energy and Telecommunications: Some Lessons from the US Electric Utility Industry**	*Tom Lyon / John Mayo*
B02-97	**Employment and EMU**	*Deutsch-Französisches Wirtschaftspolitisches Forum*
B01-97	**A Stability Pact for Europe**	*(a Forum organized by ZEI)*

ISSN 1436 - 6053

Zentrum für Europäische Integrationsforschung
Center for European Integration Studies
Rheinische Friedrich-Wilhelms-Universität Bonn

Walter-Flex-Strasse 3
D-53113 Bonn
Germany

Tel.: +49-228-73-1732
Fax: +49-228-73-1809
www.zei.de