Centre for Economic and Financial Research at New Economic School

August 2011

Are Bureaucrats Really Paid Like Bureaucrats?

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Working Paper No 165

CEFIR / NES Working Paper series

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August 28, 2011

Abstract

Traditionally, bureaucrats have been viewed as a stereotypical example of employees with flat pay schedules and low-powered incentive schemes. This paper challenges that view by providing evidence that the wages of a particular group of senior bureaucrats - city managers - are tightly connected to their performance as measured by city growth. Additional tests indicate that these results reflect reward for performance, rather than rent extraction, as exogenous shocks to city growth do not affect city managers' wage. First, I show that the salaries of city managers do not react to observable exogenous shocks to city performance. Next, I demonstrate that performance affects city managers' wages not only in the city in which they are currently employed, but also in the city in which they work afterwards. Finally, I find that in cities with council-manager forms of government, the wages of mayors - who do not play important roles in running the cities with council-manager form of government - are not sensitive to city performance. JEL codes: J3, H7

*I would like to thank the Taubman Center for State and Local Government at Harvard University for generous financial support. I am grateful to Alberto Alesina, Edward Glaeser, Maria Petrova, James Robinson, Andrei Shleifer and seminar participants at Harvard University, the New Economic School, and hte American Economic Association meeting in Denver.

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1 Introduction

When economists want to emphasize that employees face low-powered incentives and their monetary compensation does not correspond to their effort they often say that these employees are "paid like bureaucrats." This comparison is so popular that it has made it into the titles of two well known papers studying the compensation of such distinct groups as CEOs of the large U.S. companies and state governors.[1] However, whether all public officials actually have flat compensation schemes is an open question. The evidence on the compensation of bureaucrats is limited to rank and file public employees who can not be compared with politicians or higher-ranking managers in corporations (Gregory and Borland, 1999). A more adequate comparison is with bureaucrats who also occupy senior positions within the hierarchy and play an important role in determining public policy. In this paper I challenge the traditional point of view and show that at least some bureaucrats in fact have high-powered incentives.

To study how monetary remuneration of bureaucrats depends on their performance I use data on the salaries of city managers in the U.S. municipalities with council-manager forms of government. Within these types of municipalities, city managers serve as the chief executives. They are appointed by city councils and have full responsibility over the day-to-day operation of local government. Thus, these city managers can be considered as an example of senior bureaucrats who are appointed by elected public officials and have considerable authority and independence in running the organizations they are heading.

I construct a city manager-community matched panel data set to track the career paths of city managers across different communities over time. I collect information on the salaries and individual characteristics of the city managers, as well as basic socioeconomic charac-

[1] "Are CEOs Really Paid Like Bureaucrats?" by Brian Hall and Jeffrey Liebman (1998) and "Are Politicians Really Paid Like Bureaucrats?" by Rafael Di Tella and Raymond Fisman (2004).

teristics of the cities. The data set covers 1224 municipalities and 651 city managers over the period between 1992 and 2003.

Using this data set I analyze how performance of city managers affects their wage. Performance of city managers is reflected in city growth, since better performance makes the respective cities more attractive and results in faster city growth. To measure city growth I use changes in population size and tax revenues. I distinguish between increases in tax revenue that come from an expanding tax base and those that come from increases in tax rate. Empirical results indicate that regardless of the exact measures used, city growth leads to higher wages of city managers, controlling for time and city manager-municipality fixed effects.

There are four alternative theories that can explain positive relationship between city growth and wages of city managers.[2] First, wage can be increased as a reward for good performance to induce higher level of effort in promoting good policies and to make the pay consistent with revealed abilities of city managers. Second, increases in wages can reflect higher rent extraction by public officials. As long as the size of rents is proportional to the size of the city, this will induce a positive correlation between city growth and the wages of city managers. Third, the wages of city managers can be increased to keep their positions constant within each city's distribution of income. As long as city growth is associated with a shift to the right in the distribution of income of city employees this will produce a positive correlation between city growth and wages of city managers. Finally, it might be harder to run bigger cities, so the wages of city managers may be increased to compensate for higher workload.

Overall, the results indicate that the strong correlation between the wages of city managers and city growth is consistent with the reward for performance explanation, while it is

[2]The first three of them are similar to the ones described in Di Tella and Fisman (2004) for performance elasticity of pay of governors.

difficult to reconcile this result with rent extraction, constant relative income, or compensating differential explanations.

To distinguish between these alternative explanations I provide several empirical tests. First, I show that the salaries of city managers do not react to exogenous shocks to city performance as measured using the "Bartik instrument" (Bartik, 1991). Next, I demonstrate that performance affects city managers' wages not only in the city in which they are initially employed, but also in the city in which they work afterwards. Finally, I find that the wages of mayors, who do not play important role in running cities with council-manager form of government, are *not* sensitive to city performance. Thus, the empirical results imply that city managers have strong monetary incentives that encourage them to foster city growth.

The literature mentions two major reasons why bureaucrats are face low-powered incentives (Tirole, 1994). The first problem is that it is hard to measure the performance of public officials precisely. One of the reasons for that is the monopoly position that government agencies usually have, which makes it hard to provide relevant comparisons for the work of bureaucrats. The second challenge is the multiplicity of goals that public officials have, not all of which are easily measured. Both of these problems are significantly alleviated in the case of local governments. As was noted in a seminal paper by Tiebout (1956), competition between local governments may help to overcome many problems inherent in the public sector. In particular, it helps to provide a relevant comparison for assessing the performance of public officials. Also, intense competition between local governments can help city managers to monetize their reputations, since local governments have to increase wages of competent city managers to prevent them from moving to a different city. Finally, high mobility of the population provides a good measure for the performance of public officials, as citizens can signal their satisfaction with a local government by voting with their feet. Thus, changes in city population can serve as a metric for assessing the work of city

managers.

The theoretical literature on the incentives of bureaucrats considers several important motivating factors including willingness to stay in office (Maskin and Tirole, 2004), career concerns (Wilson, 1989; Alesina and Tabellini, 2007, 2008), or desire to guarantee autonomy and independence (Carpenter, 2001), but almost never mentions monetary reward for performance as an important factor. Ther is little empirical literature that studies the determinants of monetary income of bureaucrats or bureaucratic incentives more generally, although there is a considerable body of closely related research that studies the determinants of payoffs of elected public officials. Di Tella and Fisman (2004) provide evidence that gubernatorial wages in the U.S. respond to changes in state income per capita and taxes. Besley and Case (1996) show that state economic performance has an important effect on the re-election probabilities of U.S. governors, and that voters take into account information from the neighboring states to filter signal from the noise, although Wolfers (2007) shows that voters still react to noise. In addition, there is a growing body of literature that provides an empirical comparison of the behavior of elected politicians and bureaucrats (e.g. Besley and Coate, 2003; Enikolopov, 2011; Coate and Knight, 2011).

The remainder of the paper is organized as follows: The next section provides basic information on council-manager form of government. Section 3 describes the data. Section 4 provides the results of the analyses of performance elasticity of city managers' compensation. Section 5 concludes.

2 Background Information

The city manager is the chief executive in a local government with a council-manager form of government. The council-manager form of government is one of the two main forms of municipal government in the U.S. (along with the mayor-council form of government). In

cities with this type of government, an elected city council appoints a city manager as the chief executive. The city manager has full responsibility for the day-to-day operation of the local government, and has the authority to oversee department heads, hire and fire local governments' staff (often including department heads), recommend policy to the council, and prepare the budget. The wage of the city manager is determined by the city council, which is also responsible for setting policy, adopting legislation and creating the budget.

The council-manager form of government is used in the majority of U.S. cities with population above 12,000, but it is much less popular than the mayor-council form of government in smaller cities, since it is a more expensive form of government. City managers are professionals, who have either an advanced degree in public administration or public management, or sufficient experience working in local government. For most of the city managers this is a life-long career. Approximately 80% of city managers who change jobs become city managers elsewhere (Enikolopov, 2010). The market for city managers is very mobile, with city managers usually coming from a different city and often from a different state. In the sample of city managers used in this paper, more than 40% eventually become city managers in a different state.

3 Data

3.1 Sample Construction

I start with the data from the Salaries of Municipal Officials survey for the years 1992-2003 (excluding 1994). This is an annual survey conducted by the International City/County Management Association (ICMA), which reports the form of municipal government, and the names and salaries of main city officials. For municipalities with council-manager form of government this includes city manager. From this data set I identify the names of the city

managers that appear in more than one city. Using the Who's Who in Local Government Management database provided by ICMA I check whether these names correspond to the same person and collect information on personal characteristics and the exact dates that this person worked as a city manager in each of the municipalities.

For each municipality that has at least one observation in the sample outlined above I collect information on tax revenues and population statistics for the years 1990-2003. Budget information comes from the Finance Statistics part of the Censuses and Annual Surveys of Governments by the U.S. Bureau of Census. Information on the population of the municipalities was collected from the annual population estimates provided by the U.S. Bureau of Census. The definition, sources and construction of variables is described in the greater detail in Appendix.

3.2 Sample Description

In the analysis I focus on the subsample of city managers that were observed in more than one municipality. For this subsample I collect information on the personal characteristics of city managers (age, gender, race, education) and the exact dates at which a particular city manager worked in a given community, which allows me to control for city manager-municipality fixed effects. In addition, the information on the form of government was re-checked manually during the collection of data on city managers, which eliminates possible concerns about miscoding.[3] For the specifications without city manager-municipality fixed effects I check that the results are robust to using all the available information from the salary survey.

[3]If a municipality with mayor-council form of government is miscoded as having a council-manager form of government, the salary of the chief administrative officer will be coded as the salary of city manager. The role of CAOs in cities with mayor-council forms of government is very different from city managers, which is likely to be reflected in their wage structure. Thus, adding them to the sample can bias the results downward due to attenuation bias.

The data set contains information on 651 city managers that were observed in more than one municipality. Of these city managers 560 are observed in two different municipalities, 76 in three, 13 in four, and 2 in five different municipalities. Table 1 presents summary statistics for the personal characteristics of these city managers. 85 percent of them have a graduate degree, with almost 60 percent having a graduate degree in public administration or closely related field. Only 4.6 percent of city managers in the sample are women. The percentages of black or Hispanic city managers is 1.7 and 1.9 respectively. The average length of stay in office in the sample is 5.5 years if we count city managers that are currently in office and 5.0 if we exclude them. The average age of a city manager at the time they start working in a given position is 43 years.

Table 2 presents summary statistics for the main socioeconomic characteristics of municipalities. The first three columns report summary statistics for the final sample that includes only those municipalities in which at least one city manager was observed working in another municipality. By construction, this sample includes only municipalities with a council-manager form of government. Compared to the subsample of municipalities covered by the salary survey (columns (4)-(6)), these municipalities have slightly higher populations and lower tax revenues and public employment, but in all other respects they appear to be very similar. Thus, there is no evidence that this subsample is systematically biased in coverage compared to the salary information sample.

The salary survey is sent to all municipalities with populations above 2,500 as well as those under 2,500 that have council-manager form of government. As a result, the sample is biased toward larger municipalities and municipalities with a council-manager form of government, as compared with the population of U.S. municipalities (columns (7)-(9)). Comparison of the summary statistics confirms this bias. Municipalities covered by the salary survey are larger, more urbanized, have higher income per capita and higher tax

revenues than the average municipality in Censuses of Governments.

3.3 Wages of City Managers

Panel A of Table 3 presents information on how real wages of city managers (measured in 2000 dollars) changed between 1992 and 2003. During this period the real median wage of city managers increased by 20 percent, which was roughly in line with the increase in the average wage of full-time local public employees (see Figure 1). The variance of city managers' wages across municipalities remains constant during the whole period. The ratio of standard deviation to mean is approximately 36% for all the years in the sample. Wages of city managers that were observed in at least two municipalities are only slightly higher than wages of city managers in the full sample and increase at the same rate.[4] The difference disappears completely in the second half of the period under consideration.

Panel B of Table 3 presents information on the changes in nominal wages of the city managers that are observed in more than one city. One of the important features of the data is that nominal wages of city managers exhibit noticeable variation over time. The nominal wage of a city manager who stays in the same city remains constant in only 10 percent of the cases and almost never stays the same if a manager moves to another city. Although in most of the cases the wages of city managers increase regardless of whether they stay in the same city or move to a different city, there is a noticeable number of cases in which city managers experience a decrease in their nominal wage. This happens in almost 10 percent of cases if they stay in the same city and in more than 20 percent of cases if they move to a different city.

[4]The fact that wages of these city managers are somewhat higher may be driven by the fact that more successful city managers have higher wages and are more likely to be hired as city managers in other municipalities.

3.4 Measures of City Growth

As measures of performance I use city population and tax revenue. Unfortunately, more direct measures of city's economic development, such as income per capita, are measured only during decennial censuses and, thus, are not suitable for this analysis.[5] The use of the population measure is justified by high population mobility among different cities in the U.S. With people moving to places that offer them better standards of living, which reflect the work of city managers, changes in the size of population can be used as an indicator of city development. The exact measure that I use is the estimate of the size of population in a municipality as computed by the Census Bureau. It uses data from decennial census as a base and calculates yearly changes in population using a variety of inputs including the number of building permits issued, administrative records, mobile home shipments, etc. The main drawback of this measure is that it relies on estimation, rather than direct measure of city population. This makes it a very noisy measure of actual city development, so that the results are likely to be biased downwards as a result of the measurement error. Another potential drawback of this measure is that changes in population are likely to respond to changes in city conditions only slowly, so that annual variation might not adequately reflect the results of the work of city managers.

The second measure of city growth is the size of tax revenue. An advantage of this measure is that it relies on real data, rather than estimates. The main drawback of this measure is that it cannot be unambiguously interpreted as evidence of city growth for which city managers should be rewarded. An increase in tax revenue can occur either as a result of an increase in the tax base, or as a result of an increase in the tax rate. While an increase in the tax base can be interpreted as resulting from improvements to the city that should be rewarded, an increase in the tax rate is usually treated as an undesirable policy for which

[5]Another potential measure would be property value, which, unfortunately, is also not available as a panel for the municipalities and years in the sample.

elected public officials are punished by the voters (Peltzman, 1992; Di Tella and Fisman, 2004). Unfortunately, the data on changes in tax rates in the municipalities in the sample is not available, so I can not directly separate these two effects. To get around this problem I look at only the component of tax revenues resulting from changes in population size.

4 Empirical Analysis

In the empirical part I begin by documenting the relationship between measures of city growth and city managers' salary. Then I perform several tests to distinguish between reward for performance, rent seeking, constant relative income, and compensating differential explanations of this relationship.

4.1 Salary in the same city

To see whether city managers are rewarded with higher wages for city growth, I estimate the following regression:

$$ln(Wage_{ijt}) = \alpha \times Performance_{ijt} + Controls_{ij} + \delta_t + \epsilon_{ijt} \quad (1)$$

where $ln(Wage_{ijt})$ is the log of city manager i wage in city j and year t, $Performance_{ijt}$ is a measure of performance such as the log of population or log of tax revenues,[6] δ is a year fixed effect, and $Controls_{ij}$ is a set of controls that in different specifications includes municipality fixed effect, individual characteristics of city managers, and city manager-municipality fixed effects.

Results of the estimation are reported in Table 4. First, I estimate specification with municipal fixed effects and several individual-level control variables that include city man-

[6]To smooth the measures of performance I take the average of the corresponding measures over the last two years.

ager's age and age squared, the log of tenure in office, dummy variables for female, black and Hispanic. Next, I estimate specification that controls for city manager-municipality fixed effect instead of municipality fixed effect. In both cases there is strong evidence that the wages of city managers is not flat and responds to the measures of performance. Both increase in population and increase in tax revenues lead to an increase in city managers' wages. A 10 percent increase in a city's population leads an increase in the wages of city manager of between 1.6 and 1.9 percent. A 10 percent increase in tax revenue leads to a 0.4 percent increase in the wages of city managers. The effect of a change in tax revenues due to changing size of population (i.e. when tax revenues are instrumented with population size) is significant in both specifications, and the magnitude of the effect is larger than for the overall increase in tax revenues. Controlling for municipality fixed-effects a 10 percent increase in tax revenue caused by an increase in population leads to a 1.9 percent increase in the wages of city managers. Controlling for city manager-municipality fixed effects this coefficient goes up, so that a 10 percent increase in tax revenue caused by an increase in population leads to a 2.9 percent increase in the wages of city managers.

Between the two measures, population appears to be the more important determinant of a city manager's wage, as the effect of tax revenue becomes insignificant if both measures of city growth are included in the same regression. These results, however, must be treated with extreme caution, as both measures are highly correlated.

To make sure that the results are not sample-specific, I estimate the same regressions using the sample of all city managers for whom salary information is available, including city managers that were observed in only one municipality. The magnitudes and statistical significance of the coefficients (see Table 5) are very similar to the ones reported in Table 4. Thus, there is no evidence that restricting the sample affects the results.

Comparing quantitative estimates of elasticities above with similar estimates for per-

formance elasticity of pay for state governors and CEOs is not straightforward, since they are based on different measures of performance. However, we can make some back-of-the-envelope calculations to compare the size of the effects. Di Tella and Fisman (2004) show that a 10 percent increase in income per capita in a state is associated with a 4.5 percent increase in the governor's wage, which is almost twice the estimates of CEO compensation increases with respect to firm returns (Murphy, 1999; Hall and Liebman, 1998). Since annual information on income per capita for municipalities run by city managers is not available, I can not estimate directly the elasticity of a city manager's wage with respect to income per capita. However, I can assess this elasticity by combining the estimates from Tables 4 and 5 with estimates for the elasticity of population with respect to income per capita estimated for the same cities. The elasticity of population with respect to income per capita in the sample of municipalities under consideration (controlling for municipality and year fixed effects) is approximately 0.33. Thus, the implied elasticity of a city manager's wage with respect to income per capita is approximately 0.06, which is notably smaller than the similar estimate for the governors and is closer to the estimates of the elasticity of CEO compensation with respect to firm returns for the beginning of the 1980's. At the same time, the results for city managers are more likely to suffer from attenuation bias due to measurement error, which would lead to a downward bias in the estimates of elasticity.

4.2 The Effect of Observable Shocks

According to the reward for performance explanation, wages of city managers should not respond to the changes in measures of city performance that come as a result of observable shocks beyond city managers' control. To identify exogenous shocks to local economy I construct a "Bartik instrument" following the approach developed by Bartik (1991) and employed by Blanchard and Katz (1991), Bound and Holzer (2000), Autor and Dugger

(2003). To construct the instrument I interact community-level industry composition of employment with national-level changes in employment across industries. The intuition behind the instrument is that a nationwide shock to a particular industry will have an especially strong effect on the communities in which the share of people employed in this industry is high. Industry-specific nationwide shocks are plausibly exogenous to conditions across local communities as long as an industry is not concentrated in a single community. At a high level of industry aggregation this condition is very likely to hold, so that this instrument satisfies the exclusion restriction.

The instrument was constructed using the following formula:

$$\varepsilon_{it} = \sum_j \left(\frac{e_{ij,1990}}{e_{i,1990}} \right) \left(\frac{e_{jt} - e_{jt-1}}{e_{jt-1}} \right) \tag{2}$$

where $e_{ij,1990}$ is employment in community i in industry j in the year 1990 and e_{it} is a national industry employment in year t. Information on the community-level employment comes from the Census of Population and Housing 1990. Information on national employment comes from BLS statistics. Since shocks can have a lasting effect, I take six-year average of the shocks calculated using (2) .[7]

I estimate the same regressions as in (1) with all the measures of performance instrumented by the Bartik instrument. The results presented in Table 6 indicate that there is no evidence that the wage of city managers responds to observable shocks. Compared to the results of the OLS regressions (see Table 4), elasticity of pay with respect to population looses its statistical significance and in the regression with city fixed effects it even changes its sign. A similar pattern holds for tax revenues, although these results can not be meaningfully interpreted because of the poor predictive power of the instrument.

The instrument turns out to be a good predictor of the population of a city, but a

[7]The number of years was chosen to maximize the predictive power in the first-stage regression.

poor predictor of the tax revenues of a local government. F-statistics from the first-stage regression (see Table 6) indicate that the coefficient for the Bartik instrument in the first two columns is highly significant, so that the results are not affected by the weak instrument problem. In the last two columns, however, the predictive power of the instrument is so small, that the results of the IV estimation can not be meaningfully interpreted.

Overall, the evidence suggests that the salary of city managers does not respond to observable shocks, which is consistent with the reward for performance model, and can not be explained by the other three theories.

4.3 Salary in the next city

Next, I look at the effect of city growth on the wages of city managers in the next city in which the managers work. If measures of city growth reflect a city manager's ability to run local government and this ability is not specific to a particular city, such measures should affect not only the current wage, but also the wage in the next city in which the city manager works. In contrast, if the association between measures of city growth and wages is driven by rent extraction, constant relative income considerations, or compensation for a more challenging job, there is no immediate reason for these measures to affect city managers' wages in the next city, controlling for the size of the next city.

To assess how performance of a city manager affects his/her wage in the next city I estimate the following regression

$$ln(Wage\_next_{ijt}) = \alpha \times Performance_{ijt} + \beta \times Controls_{ijt} + \delta_t + \epsilon_{ijt} \qquad (3)$$

where $ln(Wage\_next_{ijt})$ is the log of the starting wage in the next city for city manager i that was working for the last year in city j at year t, $Performance_{ijt}$ is the same measure of performance as in regression (1) measured at the last year before city manager moved

to another city, δ_t is a year fixed effect, and $Controls_{ijt}$ is the set of control variables that includes city manager's age and age squared, and initial level of the corresponding measure of performance in city j. Since tenure in office is likely to depend on the performance of the city manager, including it as a control variable might bias the results of estimation. For this reason I report the results both with and without the logarithm of tenure in office as a control variable.

Table 7 presents the results of the estimation of regression (3). The results indicate that an increase in the population while a city manager was in office in one city has a significant positive effect on the wage that city manager gets in the next city in which the manager works. The magnitude of the effect is quantitatively close to the effect of population growth on the wage in the same city estimated above – a 10 percent increase in population leads to about 2 percent increase in wages. The results are robust to controlling for the length of tenure in office and inclusion of the size of tax revenues. The effect of the size of tax revenues on the wage in the next city is not significant, although there is some evidence of a positive effect of increasing tax revenue due to growth of population on a city manager's wage in next city. Without controlling for tenure the effect is slightly higher than the effect on wage in the same city, but it becomes insignificant once we control for the length of tenure in office.

Thus, there is evidence that good performance of city managers is rewarded not only with a higher wage in the same city, but also with a higher wage in the city in which the city manager works afterwards. The magnitude of the effect of performance on the wage in the current city and in the next city turns out to be very similar. This evidence is in line with the reward based explanation, since in this case the wage reflects the city manager's ability to run local government.

4.4 The Salaries of Mayors

To see whether the wages of all city officials automatically responds to city growth or if it reflects the contribution of a particular officials, I examine performance elasticity of pay for mayors in cities with council-manager forms of government. In these cities the mayor usually serves as a member and presiding officer of the city council and does not have executive power. Thus, mayors in cities with council-manager form of government have a very limited effect on city growth. According to the reward for performance explanation, measures of city growth should not affect the salaries of the mayors.

Table 8 reports the results of the regressions with the same specification as in (1), but using the wages of mayors instead of the wages of city managers as a dependent variable. Controlling for city fixed effects, all the coefficients are noticeably smaller than the corresponding estimates for city managers, and are not statistical significant. Including city manager-city fixed effects reduces the magnitude of the coefficients even further, making them an order of magnitude smaller than the corresponding results for city managers from Table 4.

Thus, there is no evidence that wages of city officials are automatically increased as the size of the city and its tax revenues increases, since for the officials that have limited effect on city development we do not observe any association between wages and measures of performance. This evidence is also in line with the reward based explanation of the performance elasticity of pay, but is inconsistent with the constant relative pay model. It can be reconciled with the rent extraction explanation as long as mayors are limited not only in their ability to influence city development, but in their ability to extract rents as well.

5 Conclusions

Despite the important role that bureaucrats play in determining and implementing public policies, empirical research on the incentives of bureaucrats remains extremely limited. This paper studies the monetary incentives that senior bureaucrats face. In particular, I use information on salaries of city managers in U.S. municipalities between 1992 and 2003 to study performance elasticity of bureaucratic pay. The results challenge the standard assumption that bureaucrats always face low-powered incentives. I find that the salaries of city managers are tightly linked to such measures of city growth as population and tax revenues. The estimates suggest that the wages of city managers go up by about 2 percent for every 10 percent increase in population or for every 10 percent increase in tax revenue caused by an increase in population.

Most importantly, wages of city managers do not respond to exogenous shocks to city growth. This provides evidence that the link between city managers' salaries and growth of the city reflects a reward for performance, rather than rent extraction, constant relative income or a compensating differential approach to wage setting. Thus, at least for some senior bureaucrats, the monetary rewards are more closely linked to their performance than for CEOs in private firms, who do get compensated for luck (Bertrand and Mullainathan, 2001).

The paper demonstrates that some bureaucrats face high-powered incentives. Clearly, this does not indicate that bureaucrats in general face strong monetary incentives. City managers are senior bureaucrats who have considerable authority and independence in their work and are likely to face very different incentives than rank and file bureaucrats. Even in comparison with other senior bureaucrats, city managers are likely to have stronger incentives, because of competition between local governments.

Competition between local governments seems to be the main reason that explains why

city managers face high-powered incentive schemes. For most public officials, the monopoly position of the government agencies in which they work and the lack of proper comparison make career concerns and monitoring the main sources of incentives (Tirole, 1994). Local governments do not enjoy such a monopoly position and have to constantly compete with each other, since citizens can always vote with their feet to show their dissatisfaction with local government. Such competition provides a proper comparison of the performance of city managers. In addition, the high mobility of city managers between different municipalities forces city councils to increase the wages of successful city managers to prevent them from moving to a different city. Thus, introducing competition between different government agencies can not only limit rent extraction (Shleifer and Vishny, 1993), but provide public officials with monetary rewards for performance.

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Table 1. Individual Characteristics of City Managers.

	Observations	Mean	Median	Std.Dev.
Graduate degree (%)	631	0.85	1	0.36
Graduate degree in public administration (%)	631	0.60	1	0.49
Female (%)	651	0.05	0	0.21
Black (%)	474	0.02	0	0.13
Hispanic (%)	475	0.02	0	0.14
Age at the Start of Current Work	1308	42.64	43	8.53
Tenure in office (including current position)	1411	5.48	5	3.41

Table 2. Descriptive Statistics.

	Moving city managers subsample			Salary information sample			Whole sample of municipalities		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)
	Obs.	Mean	Std. Dev.	Obs.	Mean	Std. Dev.	Obs.	Mean	Std. Dev.
Population	13408	25666	51413	101512	22903	86530	17197	23611	48713
Income Per Capita	1803	18830	11022	14248	18199	10435	71762	15244	7996
Urban population (%)	1803	0.89	0.29	14246	0.85	0.33	71667	0.26	0.42
Population over 65 (%)	1803	0.14	0.07	14246	0.15	0.06	71667	0.16	0.08
Inequality	1803	1.26	0.15	14246	1.26	0.16	71667	1.22	0.25
Population with high school degree (%)	1803	0.73	0.13	14246	0.72	0.13	71661	0.72	0.14
Unemployment (%)	1803	0.06	0.03	14246	0.06	0.04	71581	0.06	0.05
Ethnolinguistic Fractionalization	1803	0.26	0.19	14246	0.23	0.19	71667	0.12	0.15
Tax Revenue	7487	15513	33814	54505	19035	90775	151424	12583	197265
Expenditure	7487	42973	89673	54505	54363	261642	151424	35164	507314
Full time employees	5512	356	747	39951	460	1961	133313	183	3721
Number of municipalities		932			7349			39161	

Notes: The first subsample includes only municipalities in which at least one city manager was observed in another municipality. The second subsample includes all municipalities for which the information on the salary of city officials is available. The last sample includes all the municipalities that appear in Government Censuses of 1992, 1997 or 2002.

Table 3. City managers' Wages.

Panel A. Average Wages in 1992-2003 (in 2000 dollars)

	Moving city managers sample			Salary information sample		
Year	Mean	Median	Obs.	Mean	Median	Obs.
1992	75338	70311	630	73104	68495	2382
1993	75526	71523	625	72882	68387	2406
1995	75117	72301	604	73745	70608	2370
1996	77432	73970	620	75055	71662	2429
1997	76928	73888	636	75520	72172	2436
1998	79413	75446	650	77066	73942	2486
1999	80039	75667	648	78095	74424	2366
2000	80730	75142	622	78890	74984	2319
2001	84400	80059	480	82969	79153	1754
2002	84917	80414	501	84811	80854	1782
2003	87886	82443	566	86500	81667	2087

Panel B. Changes in Wages of Individual City Mangers (in nominal dollars)

	Observations	Mean	Median	Std.Dev.	Share of Zeros	Share of Negative Values
Yearly Change in Wage, Same City	2190	3280	2746	6168	10.6%	9.7%
Change in Wage, Move to New City	353	11291	9500	18828	0.6%	21.0%

Notes:. In Panel A the first subsample includes only municipalities in which at least one city manager was observed in another municipality. The second subsample includes all municipalities for which the information on the salary of city officials is available.

Table 4. Effect of City Development on City Manager's Wage.

	ln(Wage of City Manager)							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	OLS	OLS	OLS	OLS	OLS	OLS	IV	IV
ln (Population)	0.1628	0.1864			0.1766	0.2125		
	[0.051]***	[0.055]***			[0.064]***	[0.069]***		
ln(Tax Revenue)			0.0405	0.0365	0.0212	0.0171	0.1863	0.2887
			[0.015]***	[0.016]**	[0.013]	[0.013]	[0.073]**	[0.112]**
ln (Tenure)	0.02		0.0217		0.0208		0.0253	
	[0.007]***		[0.007]***		[0.007]***		[0.009]***	
Age	0.0203		0.0173		0.0165		0.0166	
	[0.006]***		[0.007]**		[0.007]**		[0.009]*	
Age squared	-0.0002		-0.0002		-0.0001		-0.0002	
	[0.000]***		[0.000]**		[0.000]*		[0.000]	
Female	-0.0506		-0.0581		-0.0608		-0.0658	
	[0.025]**		[0.027]**		[0.029]**		[0.033]**	
Black	-0.0328		-0.026		-0.026		-0.0207	
	[0.051]		[0.051]		[0.051]		[0.062]	
City fixed effect	Yes	No	Yes	No	Yes	No	Yes	No
City manager-city fixed effects	No	Yes	No	Yes	No	Yes	No	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,227	2,819	2,017	2,563	1,822	2,304	1,822	2,304
Number of cities	607	946	634	969	576	883	576	883
R-squared	0.86	0.82	0.88	0.81	0.87	0.82	0.98	0.98

Notes: The sample includes only observations for city managers that are observed in more than one municipality. Standard errors clustered at the city level in parenthesis. In specification (4) logarithm of tax revenues is instrumented with logarithm of population. In specifications (7)-(8) logarithm of tax revenues is instrumented with logarithm of population.

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

Table 5. Effect of City Development on City Manager's Wage (whole sample).

	ln(Wage of City Manager)			
	(1)	(2)	(3)	(4)
	OLS	OLS	OLS	IV
ln (Population)	0.201		0.187	
	[0.016]***		[0.019]***	
ln(Tax Revenue)		0.030	0.012	0.223
		[0.008]***	[0.007]*	[0.025]***
City fixed effects	Yes	Yes	Yes	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Observations	22050	19751	17721	17721
Number of cities	3258	3614	3215	3215
R-squared	0.95	0.96	0.96	0.95

Notes: The sample includes all observations for which the information on city managers' salary is available. Standard error clustered at the city level in parenthesis. In specification (4) logarithm of tax revenues is instrumented with logarithm of population.

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

Table 6. Effect of Observable Shocks in Measures of City Development on City Manager's Wage.

	ln(Wage of City Manager)			
	(1)	(2)	(3)	(4)
	IV	IV	IV	IV
ln (Population)	-0.180	0.270		
	[0.340]	[0.372]		
ln(Tax Revenue)			-0.143	0.279
			[0.323]	[0.304]
ln (Tenure)	0.023		0.019	
	[0.007]***		[0.011]*	
Age	0.023		0.020	
	[0.007]***		[0.009]**	
Age squared	0.000		0.000	
	[0.000]***		[0.000]*	
Female	-0.065		-0.069	
	[0.029]**		[0.034]**	
Black	-0.027		-0.025	
	[0.051]		[0.051]	
City fixed effect	Yes	No	Yes	No
City manager-city fixed effects	No	Yes	No	Yes
Year fixed effects	Yes	Yes	Yes	Yes
Observations	2,107	2,571	1,674	2,021
Number of cities	491	616	432	539
F-test for exclusion of instruments (clustered standard errors)	8.54	9.341	1.433	2.822
F-test for exclusion of instruments (standard errors not clustered)	22.13	24.23	2.698	6.067

t-statistics clustered at the city level in parenthesis. In all regressions reported depended variables are instrumented using Bartik instrument.

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

Table 7. Effect of City Development on City Manager's Wage in the Next City.

	ln(Wage in Next City)							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	OLS	OLS	OLS	OLS	OLS	OLS	IV	IV
ln (Population)	0.2454	0.1741			0.2304	0.2039		
	[0.091]***	[0.087]**			[0.129]*	[0.121]*		
ln(Tax Revenue)			0.0585	0.0115	0.0245	-0.0183	0.2412	0.1988
			[0.038]	[0.038]	[0.045]	[0.046]	[0.113]**	[0.124]
Initial ln(Population)	-0.0861	-0.0164			-0.1661	-0.1392	0.0423	0.0441
	[0.091]	[0.086]			[0.129]	[0.121]	[0.023]*	[0.022]**
Initial ln(Tax Revenue)			0.075	0.12	0.0703	0.1108	-0.1247	-0.0853
			[0.036]**	[0.036]***	[0.044]	[0.044]**	[0.106]	[0.117]
Age	0.0295	0.0258	0.0186	0.0165	0.0181	0.0159	0.0176	0.0163
	[0.013]**	[0.013]**	[0.016]	[0.016]	[0.016]	[0.016]	[0.015]	[0.015]
Age squared	-0.0003	-0.0003	-0.0002	-0.0002	-0.0002	-0.0002	-0.0002	-0.0002
	[0.000]**	[0.000]*	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]	[0.000]
ln(Tenure)		0.0549		0.0604		0.0595		0.0373
		[0.017]***		[0.018]***		[0.019]***		[0.025]
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	570	570	496	496	445	445	445	445
R-squared	0.49	0.50	0.53	0.54	0.55	0.56	0.53	0.54

Notes: The sample includes only observations for city managers that are observed in more than one municipality. Standard errors clustered at the city level in parenthesis. In specification (4) logarithm of tax revenues is instrumented with logarithm of population. In specifications (7)-(8) logarithm of tax revenues is instrumented with logarithm of population.

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

Table 8. Effect of City Development on Wage of Mayors in cities with Council-Manager form of government.

	ln(Wage of Mayor)							
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
	OLS	OLS	OLS	OLS	OLS	OLS	IV	IV
ln (Population)	0.068	0.027			0.120	0.033		
	[0.190]	[0.188]			[0.218]	[0.236]		
ln(Revenue)			0.040	-0.017	0.023	-0.034	0.176	0.016
			[0.063]	[0.066]	[0.062]	[0.066]	[0.344]	[0.474]
City fixed effect	Yes	No	Yes	No	Yes	No	Yes	No
City manager-city fixed effects	No	Yes	No	Yes	No	Yes	No	Yes
Year fixed effects	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	2,015	2,015	1,811	1,811	1,657	1,657	1,657	1,657
Number of cities	632	730	646	734	592	672	592	672
R-squared	0.14	0.10	0.13	0.09	0.15	0.11	0.93	0.94

Notes: Standard errors clustered at the city level in parenthesis. In specifications (7) and (8) logarithm of tax revenues is instrumented with logarithm of population.
* significant at 10%; ** significant at 5%; *** significant at 1%.

Table 9. Effect of Voter Initiative.

	ln(Wage of City Manager)			
	(1)	(2)	(3)	(4)
	OLS	OLS	OLS	IV
ln (Population)	0.1937		0.2093	
	[0.051]***		[0.060]***	
ln(Revenue)		0.0486	0.0193	0.2769
		[0.020]**	[0.017]	[0.105]***
ln(Population) × Voter Initiative in City	-0.0117		-0.0187	
	[0.009]		[0.018]	
ln(Revenue) × Voter Initiative in City		-0.0111	0.0032	-0.0155
		[0.007]	[0.014]	[0.011]
Voter Initiative in City	0.0935	0.0861	0.1497	0.1259
	[0.081]	[0.059]	[0.089]*	[0.091]
Year fixed effects	Yes	Yes	Yes	Yes
City fixed effects	Yes	Yes	Yes	Yes
Observations	2,420	2,178	1,985	1,985
Number of cities	688	709	649	649
R-squared	0.85	0.84	0.85	0.97

Notes: Standard errors clustered at the city level in parenthesis. In specification (4) logarithm of budget revenues is instrumented with logarithm of population.

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

Figure 1. Median Wages of City Managers and Local Public Employees