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# ABSTRACT

# Bureaucratic Rents and Life Satisfaction*

The monopoly position of the public bureaucracy in providing public services allows government employees to acquire rents. Those rents can involve higher wages, monetary and non-monetary fringe benefits (e.g. pensions and staffing), and/or bribes. We propose a direct measure to capture the total of these rents: the difference in reported subjective well-being between bureaucrats and people working in the private sector. In a sample of 38 countries, we find large variations in the extent of rents in the public bureaucracy. The extent of rents is determined by differences in institutional constraints and correlates with perceptions of corruption. We find judicial independence to be of major relevance for a tamed bureaucracy.

JEL Classification: D72, D73, I31, J30, J45, K42, H11, H83

Keywords: public sector, rents, life satisfaction, corruption, judicial independence

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# 1 Introduction

The monopoly position of the public bureaucracy in providing public services generates rents for government employees. In contrast to a model of benevolent bureaucracy, a political economics view predicts that bureaucrats will acquire those rents and protect them against dissipation.

In order to understand the checks and balances that restrict the rent-seeking of government sector employees, direct measures of rents are desirable. By a rent, we mean the utility premium of a worker in the government sector, relative to an equally qualified worker in the private sector. Those rents can consist, for example, of wage differentials, monetary fringe benefits (like generous pension schemes, higher job security), non-monetary job amenities (like larger offices, better staffing, offices with better public transportation facilities, day-care centers), and, in certain cases, possibilities for extracting bribes. Traditional approaches, based on wage differentials, cannot capture all those benefits, or are not applicable, because they start from a competitive equilibrium where no rents exist. In particular, analyses of wage differentials offer no guidance in interpreting any wage differential, either in terms of a rent or compensation. Job queues potentially capture the total compensation, but proxy the rent only for the marginal position. Further, job queues provide no information on bureaucratic rents, if government jobs are allocated by cronyism. Setting reported bureaucratic corruption equal to rents is not appropriate either, because it is not clear whether corruption leads to *extra* benefits for public employees, e.g. because there is the possibility of rent dissipation.

This paper pursues two goals: (1) As a direct measure to capture the rents involved in the government sector, we propose the difference in reported subjective well-being between public bureaucrats and people working in the private sector of a country; i.e. if bureaucrats report higher life satisfaction, this differential is interpreted as a utility premium, or simply a rent. It is argued that employees in the government sector benefit from a higher relative advantage or higher rents in countries where there is a larger positive gap in reported life satisfaction, *ceteris paribus*. In contrast to previous approaches for measuring rents in the government sector, our approach has the advantage of measuring the total net utility differential between people working in the public and the private sector. (2) We analyze the conditions determining the rents in the public bureaucracy. The life satisfaction differentials between privately and publicly employed people are related to political and institutional factors that are argued to facilitate rent extraction, as well as to institutional constraints that are proposed as effective controls, guaranteeing efficiency in the government sector.

Rent-seeking activities aim at getting transfers through state activities. As the engagement for rents involves the investment of valuable resources, there are less resources available for productive economic activity and a pareto-inferior situation is achieved. Rent-seeking of private and government actors is thus leading to a lower level of welfare overall. Opportunities for bureaucratic rent-seeking are manifold and often tied to the several tiers of principal-agent relationships which characterize bureaucracies, i.e. those between individual bureaucrats and managers of agencies, those between managers of agencies and the legislature, or those between officials and voters. First, there are

several characteristics of government bureaus which hamper the use of explicit incentives to align the interests of individual bureaucrats with the interests of their superiors. Second, informational asymmetries give bureaucrats considerable discretion vis-à-vis the legislature. This allows bureaucrats to pursue their own goals via budget and slack maximization. Finally, when interest groups succeed in legislating rents, bureaucrats are likely to share in these rents. Bureaus have a variety of policy-implementing instruments, making them a worthwhile target for rent-seeking activities. The policies enacted by the legislature also create property rights, which bureaucrats can sell.

Our empirical analysis explores rents in the government sector from three different angles. First, we emphasize the policies that create rents. These policies result from rent-seeking activities by interest groups, and protect firms from competition by erecting barriers to entry, restricting international trade and implementing price controls. Second, the extent to which principal-agent problems can be overcome crucially depends on basic government institutions. We concentrate on two aspects that are widely discussed in the literature, namely the vertical separation of powers, or fiscal federalism, and the horizontal separation of powers, or an independent judiciary. Third, the empirical analysis is supplemented by a test to determine whether rents are appropriated via corruption.

We study data on the life satisfaction of government and private sector employees from 21 European and 17 Latin American countries, based on the European Social Survey and the Latino Barometer respectively. For each country, we calculate the relative well-being differential of an average worker when employed by the government rather than

privately. This approach enables country specific response behavior to be taken into account.

We find a large variation in the life satisfaction of government employees, relative to private employees, ranging from a well-being premium for the former of plus 5 percent to a disadvantage of minus 3 percent. The variation of these differences across countries is robust to the control for selection based on observable characteristics. Relative advantages in life satisfaction in the public bureaucracy do, moreover, not simply reflect differences in economic development. Rather, taking the level of per capita income into account, the proxy for rents in the public bureaucracy is higher when internal competition is hampered by administrative obstacles and price controls. Rents are also higher when external competition is weakened by regulatory trade barriers. In contrast, rents are lower in countries with an affordable independent judicial system and a long democratic track record. We can also show that there is a sizeable positive correlation between the degree of corruption and the satisfaction gap in a country.

The remainder of the paper is organized as follows: Section 2 introduces our measure for capturing rents, based on data for people's reported subjective well-being. It is compared to previous proxy measures for rents, like wage differentials, queues and perceived corruption. Section 3 discusses various theories explaining the existence of rents in the government sector. These theories focus on the organizational structure within bureaucracies, the institutional structure around them and regulatory policies. The empirical analysis is presented in section 4. Rents are measured and then statistically

related to factors that are hypothesized to determine them. Section 5 offers concluding remarks.

# 2 Measurement of Rents in the Public Bureaucracy

## 2.1 Life satisfaction differences between employees in the government and private sector

The economic idea of a rent is a utility premium an individual can appropriate due to his or her monopolistic position or informational advantage. In order to directly test for rents in the public bureaucracy, utility thus has to be measured. We propose to approximate this utility premium by the relative difference in reported life satisfaction between workers employed by the government and privately employed workers. This approach takes advantage of the concept of subjective well-being for economic questions.

Following the economic tradition of relying on the judgment of the persons directly involved, people are considered to be the best judges of the overall quality of their life. With the help of representative surveys, it is possible to get indications of individuals' evaluation of their life satisfaction. People evaluate their level of subjective well-being with regard to circumstances and comparisons to other persons, past experience and expectations of the future. Therefore, behind the score indicated by respondents lies a cognitive assessment on the extent to which they judge the overall quality of their lives in a favorable way. The measures of reported subjective well-being are thus promising empirical approximations to individual utility. They passed a series of validation exercises and seem to significantly correlate with true positive inner feelings (see Frey

and Stutzer 2002a;b for introductions to the economics of happiness and references to the validation literature in psychology). Thus, measures of reported subjective well-being offer new opportunities for understanding the effects of employment conditions on individual well-being.

Focusing on life satisfaction allows us to capture the total net benefits of a position in the public bureaucracy. Thereby, benefits can go beyond the immediate job, e.g. due to advantages on the housing market, or utilization of public services, like education for one's children, pension benefits etc.[1] This 'all-inclusive' aspect differentiates our approach from previous research studying the job satisfaction of public and private sector employees (Blanchflower and Oswald 1999; Heywood, Siebert and Wei 2002; Clark and Senik 2004). The general idea of identifying (labor market) rents by individuals' self-evaluation of their situation is, however, implied in this literature and applied by Clark (2003), and Lalive (2002).

As the net benefits are calculated relative to employees in the private sector, they capture the *relative* advantage of working in the public bureaucracy. Thus if conditions are relatively more favorable in the private sector there might also be a negative life satisfaction differential.

Our empirical strategy to measure rents in the bureaucracy can be summarized as follows. The utility or life satisfaction increment or decrement from government sector employment is isolated in a multivariate regression. The $life\ satisfaction_{ij}$ of individual $i$ living in country $j$ is explained by a dummy variable that takes on the value 1 if he or she is a bureaucrat and 0 otherwise, and a vector of other personal characteristics $\boldsymbol{Z}_{ij}$. The

control variables $\boldsymbol{Z}_{ij}$ capture personal characteristics along which individuals in the government sector and individuals in the private sector might differ from one another, and which have an impact on reported life satisfaction, such as sex, age, education, marital status, place of residence/type of neighborhood and citizenship status. Income, working hours and occupation are not included as control variables, because these job characteristics may be important channels through which rents are appropriated. If these job characteristics were held constant, the pervasiveness of any rent in the government sector would be underestimated. All control variables are transformed into mean deviation form, $\mathbf{Z}_{ij} - \overline{\mathbf{Z}}_j$. The coefficient of the constant term, $\beta_{0j}$, can thus be interpreted as the life satisfaction of the average individual living in country *j*, if he or she were to work in the private sector. In order to allow for country specific effects of government sector employment, as well as for the control variables on life satisfaction, the regression summarized in the following equation (1) is run for each country *j* separately:

$$(1) \qquad \textit{Life satisfaction}_{ij} = \beta_{0j} + \beta_{1j}\textit{bureaucrat}_{ij} + \beta_{2j}\left(\mathbf{Z}_{ij} - \overline{\mathbf{Z}}_j\right) + \varepsilon_{ij}.$$

With the estimated coefficients of the micro-econometric well-being function, the percentage difference in life satisfaction due to public employment in country *j*, $\Delta_j$, can be calculated as follows:

$$(2) \qquad \hat{\Delta}_j = \frac{\hat{\beta}_{1j}}{\hat{\beta}_{0j}}.$$

Standard errors for the country specific relative differentials, $\hat{\sigma}_{\Delta_j}$, are computed using the delta method.

We propose the relative satisfaction differential $\hat{\Delta}_j$ as a proxy for rents in the government sector.

While measures of subjective well-being have the unique conceptual advantage of providing an overall evaluation of rents, there are some other conceptual issues which hamper a simple application as utility proxies.

First, people report their life satisfaction on an ordinal scale. In order to calculate a relative difference in subjective well-being, the satisfaction scores have, however, to be cardinally interpreted. There is evidence that a cardinal treatment of life satisfaction is much less of a problem practically than theoretically (Kahneman 1999). Furthermore, ordinal and cardinal treatments of satisfaction scores generate quantitatively very similar results in micro-econometric well-being functions (Ferrer-i-Carbonell and Frijters 2004).

Second, individuals' use of the response scale might vary, making interpersonal comparisons difficult. Individuals may use and evaluate some verbalized categories differently, may set anchors in numerical scales or may only use a certain range of the response scale to express their subjective well-being. However, for many applications within a country, individual specific reporting behavior can either be argued not to be correlated with the variable of interest, or can be controlled for in a panel setting. We do not see any reason for employees in the government sector to *report* their subjective well-being in a systematically different way from employees in the private sector.

Third, the reporting of life satisfaction is partly culturally influenced (Diener and Tov 2005), involving all three of the aspects just mentioned. For instance, Latin Americans

exhibit high desirability for life satisfaction (Diener 2000). Thus language and culture specific reporting behavior might bias any correlation in the cross-country context. Accordingly, we propose looking at the relative life satisfaction gap between publicly and privately employed people. Calculating a difference *within* countries cancels out any country or culture specific anchor effect, which shifts the average level of reported life satisfaction in a country up or down. Setting the difference in relation to the level, moreover, allows taking into account that some (language) cultures are reluctant to use the entire range of the life satisfaction scale to express their subjective well-being. Moreover, measuring relative differentials allows comparing life satisfaction differentials resulting from different response scales.

### 2.2 Previous approaches

Rents in the government sector have so far been addressed indirectly with various empirical approaches, most importantly wage differentials, queues and perceived corruption. While these approaches are interesting in their own right, we argue that life satisfaction differentials have important advantages.

(1) *Wage differentials*. Various studies compare the wages in the public and the private sector. The pattern of findings indicates wage premiums for employees in the central government, but not for workers in the non-central levels of the government sector (see the survey by Gregory and Borland 1999).

Monetary payoffs are a salient aspect of jobs and probably often related to rents. However, the identification of rents turns out to be rather difficult. According to the

theory of compensating wage differentials, differences in salaries reflect differences in workplace amenities and disamenities. Rents are absent by assumption of a competitive labor market. Any remaining wage differential in an empirical analysis between public and private employees is necessarily due to unobserved individual or unobserved job characteristics. In a context of incomplete competition, wage differentials, however, capture both unobserved characteristics and rents. Accordingly, empirical research tries to take into consideration as many individual and job differences as possible to explain differences in salaries. Most decomposition studies then attribute ex post the unexplained part of a wage equation (or the difference in the estimated coefficients) to economic rents captured by employees in the public or private sector. To incorporate all aspects of a job, the respective variety of job amenities between sectors and across countries, and hidden returns like bribes, is extremely difficult, if not impossible. Probably due to these difficulties, we are not aware of any cross-country/cross-regional study that analyzes predictions of wage differentials based on theories of rent-seeking.

Our approach, based on life satisfaction differentials, measures the total rents involved without the necessity of having information about every job specific aspect. It allows us to analyze empirically differences in rents across countries.

(2) *Job queues*. Queues indicate that people are willing to bear costs in exchange for expected future benefits (e.g. Krueger, A. B. 1988; Heywood and Mohanty 1995). The length of a queue, e.g. the number of applicants for a job in the government sector, might thus indicate rents. Results show that people queue for jobs in the federal bureaucracy. Job queues have the potential of measuring the total compensation, and not only the wage

differential. An application of this measure is, however, difficult, and not only for data reasons. In particular, queuing costs can only proxy the rent for the marginal employee. More importantly, jobs, which provide rents to their holders, are often assigned to people by patronage rather than by an open selection process. Life satisfaction differentials allow for the study of rents of intramarginal employees, independent of how they got their job.

(3) *Perceived corruption*. Instead of looking at public employees directly in order to measure rents, people who interact with public employees can be asked about their experiences with them. This is the approach applied with reported corruption. Business people, journalists and citizens report their perceived corruption in the government sector, i.e., the misuse of public positions for private gains. Perceived corruption is then argued to provide a proxy for rents applicable in empirical analyses (Persson, Tabellini and Trebbi 2003). It is, however, unclear whether corrupt behavior leads to any utility premium at all. First, corruption in the form of bribes might compensate for low salaries in certain positions compared to outside opportunities. Second, the benefits from corruption might be dissipated in the effort to get and keep a particular position or job. With measures of life satisfaction, it is possible to study whether any utility premium or rent to employees in the government sector remains when there is more corruption, or whether it is used up in the process of defending it. Moreover, bribery and corruption are only two of many sources of rents in the public bureaucracy.

# 3 Theories of Bureaucratic Rents

There are several theoretical reasons why rents in the public bureaucracy are to be expected. In the first part of this section, we outline the theoretical framework for why rents can exist.[2] In particular, the organizational structure of the public bureaus makes it difficult to align bureaucrats' interests with those of their principals, the public. In the second part, the framework is extended to provide empirically testable hypotheses for when rents are expected to be higher or lower. Two particular aspects are important: First, the more the state is engaged in regulatory policies, the more opportunities there are to acquire rents. And second, the more the bureaucracy has to act within a set of checks and balances, the lower the rents are expected to be. We also discuss why bureaucrats may enjoy higher utility for other reasons than the failure to align their interests with those of the principal, and why rents may be dissipated in the process of acquiring them.

## 3.1 Organizational Structure and Incentives Within Public Bureaus

The organizational structure of public bureaucracies can explain why, on the one hand, incentives are low powered and, on the other hand, legislative control is limited, leaving the bureaucracies leeway to maximize budget and slack.

Bureaucracies are characterized by several tiers of principal-agent relationships. At each level, there are many opportunities of bureaucratic rent-seeking. Within bureaucracies, there is the relationship between managers of agencies and individual bureaucrats. In this relationship, several characteristics of government bureaus hamper the use of explicit incentives to align the interests of individual bureaucrats with their superiors. Most

notably, there is a multiplicity of dimensions – of tasks, of principals and their often-conflicting interests about the ends and the means, and of the tiers of management and front-line workers (Dixit 2002). Moreover, output is difficult to measure in the government sector. After all, a key characteristic of a government bureau is the non-market nature of its output. These aspects of the organizational structure, in principal, allow subordinates in the government sector to withdraw work effort and to pursue their own goals, giving them higher utility than if they would pursue the goals set for the agency.

An important principal-agent relationship beyond the eminent bureaucracy involves the one between legislators and chief bureaucrats. Bureaucrats hold three pivotal advantages in the bargaining situation with their sponsors: (i) the bureau is a monopolistic supplier, (ii) this position gives it a monopoly over information, and (iii) it is institutionally allowed to make take-it-or-leave-it budget proposals. Bureaucrats use this power to obtain bigger budgets than those legislatures would want to grant in the absence of these distortions (Niskanen 1971). Large budgets make it easier for bureaucrats to pursue their goals: 'salary, perquisites of the office, public reputation, power, patronage, output of the bureau, ease of making changes, and ease of managing the bureau' (Niskanen 1971, p. 38). Alternatively, the bureaucrats can be assumed to maximize not the total budget, but rather discretionary budget or slack, i.e. the difference between the total budget and cost of production (Migué and Bélanger 1974).

However, while an agency may be a monopoly in the sense that no other agency is producing that particular output, the manager of the agency is not a monopolist but rather

subject to competition within the bureaucracy (Breton and Wintrobe 1982). This may limit the predominance of the bureaucracy over elected officials. Further, the legislature has authority over the bureau and can structure their bargaining in the way it wants (Miller and Moe 1983). Finally, administrative procedures can mitigate problems of asymmetric information. The legislature has a rich menu of control techniques at its disposal, including competition for budgets among bureaus, ex post sanctions and the possibility of enfranchising the politically relevant constituencies in the administrative process which monitor bureaus' behavior (Weingast and Moran 1983; McCubbins, Noll and Weingast 1987). However, these instruments are costly and bureaus' managers are not passive. Moreover, bureaucrats carry a considerable amount of political clout as a significant minority of the electorate and often the legislature, as well as a small, privileged and homogenous interest group (Tullock 1993).

### 3.2 Regulatory Policies Creating Possibilities for Rent-Seeking

Bureaucrats play an important role on the supply side of the political market for rent-creating government interventions. On the one hand, bureaus have substantial policy-implementing authority, making them a worthwhile target for rent-seeking activities. On the other hand, the policies resulting from the rent-seeking process, even if brokered by elected officials, create valuable property rights. Bureaucrats can extract part of the created rents, insofar as they have discretion over the provision of these property rights. For example, a government official allocating milk quotas to farmers receiving government-guaranteed prices, or a customs' officer, may collect bribes for assigning higher quotas or giving passage through customs. The provision of property rights can be

influenced by outright corruption or more subtle means, including hiring the relatives of officials, or employing the officials themselves upon retirement.

From the outset, the two main rent-creating government interventions analyzed in the rent-seeking literature have been (1) policies sheltering firms from *domestic competition* and (2) policies keeping out *foreign competitors* (Tullock 1967; Krueger, A. O. 1974). Strict regulations function as barriers to entry and, hence, increase incumbent firms' profits. Similarly, tariffs and various other forms of trade restrictions keep out foreign competitors. 'The monopoly rents that the government can help provide are a prize worth pursuing, and the pursuit of these rents has been given the name of rent-seeking' (Mueller 2003, p. 333). The rent-seeking theory comes in two variants, assigning the bureaucracy different roles in the process. The regulatory capture theory considers the creation of the regulatory agencies themselves as the prize in the bidding process by interest groups. Right from the start, the agencies are captured and promote the regulated interests (Stigler 1971). Another strand of the theory considers regulations to be pursued mainly for the benefits of politicians and bureaucrats (De Soto 1990; Shleifer and Vishny 1998). But even if regulatory agencies are designed to promote the interests of the regulated industry at the outset, there is a constant threat that the rents will be annihilated. Interest groups, therefore, have an incentive to strike bargains with the bureaucrats (McChesney 1987). Moreover, the higher the rents created by government intervention, the higher are the incentives for bureaucrats to engage in malfeasant behavior (Ades and Di Tella 1999). Empirical research has shown that both stricter regulation of entry for start-up firms

(Djankov et al. 2002), as well as protection from international trade (Ades and Di Tella 1999), are associated with higher levels of perceived corruption.

Accordingly, we expect the level of rents measured by life-satisfaction differentials to be the higher, (1) the more domestic competition is hampered by regulatory policies and (2) the more external competition is restricted by government policies.

### 3.3 Institutional Constraints

At each tier of the multiple principal-agent relationship identified above, the degree of informational asymmetries, sanctioning mechanisms and, more generally, the constraints on bureaucratic rent-seeking are essentially determined by the constitutional setting of a country. Two aspects are particularly important: (1) vertical separation of powers or *federalism* and (2) horizontal separation of powers in the form of *judicial independence*.

The degree of decentralization of a country affects various aspects of government bureaus. Competition for mobile resources is expected to improve governance by increasing the cost to officials who provide public services inefficiently (Brennan and Buchanan 1980). Sub-national jurisdictions are constrained by this competition for mobile resources in regulating economic activity. Federalism thus diminishes the level and pervasiveness of economic rent-seeking (Weingast 1995). Competition will also drive down bribes to be paid to sub-national bureaus dispersing scarce benefits (Rose-Ackerman 1978). Further, a closer association between expenditures and revenue mobilization, and lower information costs to citizens at the sub-national level, as well as more specific tasks particular to a single jurisdiction, may also lead to better

accountability of bureaucrats and elected officials (Oates 1999). However, this positive view of fiscal federalism has been challenged. Multiple tiers of government could weaken accountability, as voters have greater difficulty attributing blame and credit (Fisman and Gatti 2002). If decentralization is accompanied by a lack of coordination among bureaucrats in extracting bribes for complementary permits, excessive rent extraction or 'overgrazing' may result. Independent bureaus ignore the negative effects of raising their bribes on demand for complementary permits and, hence, the bribes to the other bureaus (Shleifer and Vishny 1993).

Independent courts are an important constraint for administrative decision-making. The separation of the creation of laws and regulations from the administration of justice prevents the abuse of the power by one branch of government (see e.g. Hayek 1960). Constitutional review limits the power of the executive and the legislature to pass laws and regulations that benefit themselves or allied interest groups (La Porta et al. 2004). Furthermore, an independent judiciary can examine whether a bureau has interpreted the law as intended by the enacting legislature, and whether bureaus follow the appropriate process in making their decisions (Hanssen 2000). Bureaus are thus constrained by the threat that an independent judiciary may reverse their decisions or impose other actions. The other branches react accordingly and attempt to undermine judicial independence. By regulating judicial procedures, for example, the legislature gains control over the outcome and ensures that disputes are resolved so as to favor itself and its clientele (Djankov et al. 2003). However, it can be argued that an independent judiciary also facilitates rent extraction by the other branches. By immunizing laws from short-run

political pressures, an independent judiciary increases the value of legislation sold to interest groups (Landes and Posner 1975).

There is also a time dimension to institutional constraints, influencing how binding they are de facto. A system of checks and balances needs time to develop and consolidate (Persson and Tabellini 2003). A transition from an autocratic to a more democratic government is often accompanied by an increase in corruption, which can be attributed to the underdeveloped institutions under the newly formed democracy (Huntington 1968). In contrast, rent-seeking activities may be less pervasive in countries recently subjected to revolutionary upheaval, as a pre-existing interest group structure is typically weakened or eliminated. Accordingly, long existing and stable democracies suffer from internal sclerosis, as well-established interest groups successfully defend their members (Olson 1982).

The empirical evidence regarding the influence of federalism and judicial independence on rents in the bureaucracy is indirect only and focuses on corruption. Moreover, evidence regarding federalism is mixed. Fisman and Gatti (2002) find decentralization in government expenditure to be strongly and statistically significantly associated with lower corruption. Using a dummy variable indicating countries with a federal constitution, Person, Tabellini and Trebbi (2003) find no relationship, and Treisman (2000) finds a positive one. For judicial independence, however, the results are unequivocal. Judicial independence is positively associated with different measures of economic freedom (La Porta et al. 2004) and higher procedural formalism predicts higher perceived corruption (Djankov et al. 2003). Finally, countries with a continuous

experience of democracy in their recent history *ceteris paribus* have lower levels of perceived corruption (Treisman 2000; Serra 2004).

Accordingly, we would expect (1) the relationship between rents and federalism to be ambiguous, (2) rents to be lower with higher judicial independence, and (3) longer democratic experience in a country to have an ambiguous influence on rents.

### 3.4 Alternative Causes for Utility Premiums in the Bureaucracy and Rent Dissipation

So far, the discussion of rents concentrated on situations that allow bureaucrats to capture rents because of a failure to align their interests to those of the citizens. However, adverse consequences are not necessarily a corollary of bureaucrats enjoying rents. Some utility premium for bureaucrats might even be intentional on the part of their principal. A principal might offer bureaucrats a wage above their opportunity costs in the private sector, in order to reduce the likelihood that bureaucrats sacrifice the public's interest for their own. The size of this wage increase is inversely related to the probability of detection, and directly related to the size of potential gains from misbehavior (Becker and Stigler 1974; Acemoglu and Verdier 2000). Especially in countries with underdeveloped institutions and large gains from misbehavior, a costly efficiency wage may be the lesser of two evils (Ades and Di Tella 1999).[3] In our empirical investigation, we will analyze to what extent rents can be accounted for by higher regular income.

There are two other reasons for higher utility in the public sector, for which there is no obvious argument that they depend on the institutional controls discussed above. First, in

many areas of the public sector, such as the military or academia, only a small fraction of aspirants get promoted to a permanent position. In these cases, the higher utility enjoyed by the regular officers and professors might just reflect the prize of the tournament set up by the principal (Prendergast 1999). Second, public bureaucrats may derive more utility from their job than their private sector counterparts, because they are intrinsically motivated and enjoy carrying out their task (Frey 1997), because of a better matching of principals' and agents' mission preferences in the government sector (Besley and Ghatak 2005), or because they are more likely to get utility from the distinction provided by non-material extrinsic rewards, like titles and orders (Frey 2005). As our interest is primarily in the variation of rents across countries, any general level effect does not interfere with the empirical analysis.

Despite the possibility of bureaucratic rent-seeking at each tier of the principal-agent relationship, it is not clear whether bureaucrats succeed in capturing any rents at all. The rents may be dissipated in the process of acquiring and defending them (Buchanan 1980). Similarly, intrinsically motivated agents, sharing the mission of the government bureau, are prepared to work for less than they could earn in the private sector. Therefore, whether bureaucrats are able to capture rents, and under what conditions they are able to do so, are ultimately empirical questions.

# 4 Empirical Analysis

We present the empirical analysis in four steps: First, we introduce the data. Second, the average levels of rents in our sample of countries are measured, based on our new

approach. Third, we analyze the determinants of rents by explaining the cross-country variation in rents, with differences in regulatory policies and institutional constraints. Fourth, our measure of rents is correlated with perceived corruption indices in order to validate the latter measure and to test whether bureaucrats are able to acquire a part of their rents through corrupt behavior.

### 4.1 Data

There are mainly two data sources containing information on people's life satisfaction, as well as their occupation, for a large number of countries: the European Social Survey (ESS) for 21 European countries[4] and the Latinobarometer (LB) for 17 Latin American countries. For robustness checks, we also use the Eurobarometer Survey Series (EB) with information for 13 European countries. In all three surveys, random cross-section samples in the respective countries are interviewed. The ESS was carried out for the first time in 2002/2003, and the surveys of the LB and EB are repeated annually. Data on people's life satisfaction, as well as their occupation, are included in the surveys of 1997, 2000, 2001 and 2003 of the LB and in fourteen surveys of the EB between 1989 and 1994.

Life satisfaction is reported in the ESS using the following question: 'All things considered, how satisfied are you with your life as a whole nowadays?' Individuals are asked to state their life satisfaction on a scale from 0 (extremely dissatisfied) to 10 (extremely satisfied). The questions asked in the other survey series are similar, though responses are elicited on a four-point scale. For the LB, the question reads as follows: 'In

general, would you say that you are satisfied with your life? Would your say that you are [4] very satisfied, [3] fairly satisfied, [2] satisfied, or [1] not satisfied?'

In the empirical analysis, the sample is restricted to employed and self-employed individuals. A dichotomous variable indicates whether an individual is working in the public bureaucracy. In the ESS, the variable is constructed on the basis of information about the respondents' industry (according to the EU industry classification, NACE Rev. 1). It includes people working in the public administration, defense, and compulsory social security. Other employed or self-employed people are in the reference category. There are 19,288 observations from the ESS.[5] 1,356 individuals are classified as public bureaucrats. For individual countries, the number of observations varies between 524 for Italy (of which 33 are bureaucrats) and 1,347 for Germany (of which 88 are bureaucrats).

In the case of the LB and the EB, the variable is constructed on the basis of information about the respondents' sector of employment. This categorization of the public bureaucracy does not only include public administration, but public sector employment in total. Accordingly, the proportion of respondents classified as public bureaucrats is higher in the LB and the EB than in the ESS. The four waves of the LB used contain 72,150 observations with non-missing values for life satisfaction and a total of 40,539 observations when the sample is restricted to the economically active population. Of these, 6,587 work in the public sector. The number of observations varies between 1,367 in Paraguay and 2,954 in Ecuador, with the number of bureaucrats varying between 187 in Paraguay and 557 in Panama. Finally, the waves from 1989-1994 of the EB offer 64,470 observations, of which 22,520 are observations for bureaucrats. The number of

observations varies between 2,435 for Luxembourg (of which 949 are bureaucrats) and 11,987 for Germany (of which 3,697 are bureaucrats).

The restriction of our sample to working respondents leads to lower bound estimates of bureaucratic rents for two reasons. First, former government sector employees usually enjoy exceptionally generous retirement provisions. Second, public officials are often protected from dismissal by special statutes. Hence, former bureaucrats will be underrepresented among unemployed people. Generous retirement arrangements and greater job security are both likely to be important aspects of bureaucratic rents.

### 4.2 Measurement of Rents in the Public Bureaucracy

Rents in the public bureaucracy are measured by the utility differential of government sector employees relative to employees in the private sector, whereby utility is approximated by self-reported subjective well-being.

Based on the three data sources, we estimate micro-econometric well-being functions as outlined in equation (1). For the standard socio-demographic characteristics, we find similar partial correlations with life satisfaction to those reported in the literature (see e.g. Di Tella, MacCulloch and Oswald 2001 for the Eurobarometer; Graham and Pettinato 2002 for the Latinobarometer; Frey, Benesch and Stutzer 2005 for the European Social Survey). We do not report on the life satisfaction functions for each country in detail. Exemplary, the detailed specification for Europe and Latin America as a whole are presented in tables A1 to A3 in the appendix. In both regions, public bureaucrats are, on average, more satisfied with their life than people working in the private sector, though

the result for the ESS is not statistically different from zero at conventional levels. The respective coefficients are 0.109 (std. err. 0.097) for the ESS, 0.048 (std. err. 0.013) for the LB and 0.045 (std. err. 0.045) for the EB and amount to life satisfaction differentials between 1.5 and 2 percent of the life satisfaction reported by an average individual working in the private sector. However, these estimates are not very informative, as they mask considerable variation across countries. The corresponding estimates for the individual countries are presented in figure 1.

[Figure 1 about here]

There are four countries with life satisfaction differentials for public employees that are larger than plus 5 percent (the highest decile). These are the Czech Republic, Paraguay, Poland and Greece. At the other end of the spectrum there are countries in which it is more attractive to work in the private sector. In the lowest decile, there are four countries with relative differentials that are around minus 3 to minus 4 percent. These are Finland, France, Israel and Costa Rica. The relative gaps in life satisfaction are measured with different degrees of precision, reflected in the confidence interval for each estimation.[6] These variations in the standard errors of the relative differentials are taken into account in the next step of the analysis.

In this analysis, the differences in life satisfaction between government and private employees are taken as a proxy measure of the relative attractiveness of the two sectors. This interpretation of relative life satisfaction differentials in single countries has, however, to be taken with caution. Whether somebody works in the government or in the private sector is not randomly determined. People rather self-select into jobs given the

institutional restrictions. They try to find employment in the sector where they expect to be relatively better off.

While it is inherently interesting to understand who is joining the public service, self-selection might lead to systematic biases in the current analysis. For example, better educated people are more likely to join the public administration in many countries. To the extent that they are more satisfied with life in general, they contribute to a positive raw differential in subjective well-being even though there might be no rent.

In order to get an unbiased average effect of working in the public bureaucracy on life satisfacton, an instrumental variable approach would be necessary. However, the instrumental variable approach has proven to be very difficult to apply in the determination of public sector specific wage premiums: „[To] identify the selection equation most studies of a worker's choice of sector of employment have used variables such as age or education; yet arguably such variables are more appropriate as explanatory variables in the earnings regression" (Gregory and Borland 1999, p. 3599). We thus resolve to control for differences in observed individual characteristics (like the level of education), as well as unobserved individual characteristics that are correlated with the former. This procedure is expected to reduce the bias in calculated differentials.

More important than any bias in the general level of the life satisfaction differential would be distortions that affect the ranking of countries with regard to rents in the public bureaucracy. Such distortions would hamper the analysis of the institutional determinants of rents. The possible distortions can be tentatively assessed by comparing raw life satisfaction differentials with life satisfaction differentials after controlling for individual

characteristics. If our proxies for rents are not mere measurement artifacts, they are expected to be relatively large for the same countries whether observed characteristics are taken into account or not. In fact, a high Spearman rank order correlation between raw and corrected life satisfaction differentials of 0.809 is found. Given the stability, we take the substantial variation in relative life satisfaction differentials across countries as our explanandum for the next section.

## 4.3 Determinants of Rents in the Government sector

### 4.3.1 Empirical strategy

Several determinants of rents are explored, as discussed in section 3. Thereby, we see the *barriers to trade and market entry*, as well as *constitutional checks and balances* in a country as different aspects of the same phenomenon, reflecting an 'equilibrium' state of a weak or strong institutional environment determining bureaucratic rents. Empirically, we approach this same phenomenon from those two perspectives, applying different sets of explanatory variables as proxies.

The tested hypotheses are not mutually exclusive but, on the contrary, highlight different aspects of bureaucratic rent seeking. Therefore, we test each hypothesis separately.

A key variable in the literature on rent-seeking and corruption is a country's economic development. Reported corruption is the lower, the higher the GDP per capita in a country is. Economic development is an important summary measure, or proxy for a functioning state and economy, including the public administration. This is reflected in positive correlations between most variables of good governance and GDP per capita.

Correlations for our set of variables are provided in table A5 in the appendix. In order to empirically study whether some institutional or policy variable explains variation in bureaucratic rents, rather than merely picking up the effect of economic development, we include GDP per capita in the baseline specification of our analysis. It ensures that we study the determinants of rents for economically comparable countries.

Rents in the government sector, the dependent variable, are taken from our first step estimations for single countries. As the dependent variable is measured with unequal precision across countries, we have to correct for heteroskedasticity. We estimate GLS models and use the inverse of the estimated standard errors of the relative life satisfaction differentials as weights. Equation (3) summarizes the specification:

$$\frac{\hat{\Delta}_j}{\hat{\sigma}_{\Delta_j}} = \gamma_0 \frac{1}{\hat{\sigma}_{\Delta_j}} + \gamma_1 \frac{x_j}{\hat{\sigma}_{\Delta_j}} + \gamma_2 \frac{\log(y_j)}{\hat{\sigma}_{\Delta_j}} + \frac{u_j}{\hat{\sigma}_{\Delta_j}}, \tag{3}$$

where $\hat{\Delta}_j$ denotes the relative life satisfaction differentials, $\hat{\sigma}_{\Delta_j}$ the corresponding standard errors, $x_j$ the key explanatory variable, $y_j$ the per capita GDP, and $u_j$ the error term.

Before we introduce the individual variables and present the corresponding results, there are two things worth noting. First, all indices are rescaled in such a way that they take on values between 0 and 10 and have a straightforward interpretation. Higher values of the indicator for judicial independence, for example, correspond to more judicial independence. Second, as our dependent variable is constructed with surveys covering several years, we use average values whenever an indicator is available for more than one

year in the period considered. Specifically, all variables based on indices published by Gwartney and Lawson (2004) are averages of the original indices for the years 2000, 2001 and 2002, and all variables based on indices by Kaufmann, Kraay and Mastruzzi (2004) are averages of the original indices for the years 1996, 1998, 2000 and 2002. The descriptive statistics for our explanatory variables are presented in table A4 in the appendix. The control variable for economic development is the log of the PPP converted per capita GDP (Heston, Summers and Aten 2002).

### 4.3.2 Policies weakening economic competition

Rents in the government sector are hypothesized to depend positively on the degree to which policies protect firms from internal and foreign competition.

We use four variables capturing barriers to entry or the degree of internal competition. Probably the most thorough measure of entry barriers has been collected by Djankov et al. (2002). It aggregates the time and out-of-pocket costs of all procedures that an entrepreneur needs to carry out in order to begin legally operating a firm. In our sample, the cost of starting a new business varies from 3 percent of per capita GDP for the United Kingdom to 300 percent of per capita GDP for Bolivia.[7] Two further variables are based on business executives' perceptions (i) on the extent to which administrative procedures are an important obstacle to starting a new business and (ii) on how easy it is in general to start a new business (Gwartney and Lawson 2004). As another indicator for internal competition, we take an index for the prevalence of price controls in an economy (Gwartney and Lawson 2004).[8]

Restrictions on international trade are measured by two variables (Gwartney and Lawson 2004). The first is a composite index, comprising the government revenues from taxes on international trade, the mean tariff rate and the standard deviation of tariff rates. The second is again based on a survey capturing the views of business executives. It comprehends all trade barriers other than published tariffs and quotas, such as the time required for administrative red-tape.

The results for the policy, or regulatory variables, are compatible with the basic hypothesis. According to the regression results in table 1, bureaucrats benefit from entry barriers for new firms, impediments to foreign trade and price controls.

[Table 1 about here]

The partial correlation coefficient is largest for the variable administrative obstacles (table 1, column III). Administrative procedures are the area where bureaucrats have the most extensive implementation authority. Furthermore, cumbersome procedures give bureaucrats considerable power over prospective entrants.

Entry barriers in general are measured by two variables (table 1, columns I and II). While we find a statistically negative association between the perceived ease of entry and bureaucratic rents, there is no relationship between rents and the cost measure of Djankov et al. (2002). Price controls, another form of government intervention in domestic markets, exhibit a positive effect on bureaucratic rents (table 1, column IV). An increase of the indicators for administrative obstacles and price controls by one standard deviation is each related to a 1.0 percentage points higher relative life satisfaction differential.

For protectionist measures, a similar picture emerges, as in the case of policies against internal competition. Bureaucrats benefit mostly from the creation of those property rights over which they have an influence and which they administer, namely regulatory trade barriers (table 1, column V). An increase in the index for regulatory trade barriers by one standard deviation corresponds to an increase in the relative life satisfaction differential by 1.5 percentage points. With regard to tariffs and taxes on international trade, we find a sizeable positive effect on bureaucratic rents. However, the effect is not statistically significantly different from zero (table 1, column VI).

The results for the sample with the EB data are qualitatively comparable (see table A6 in the appendix). The size of the coefficients is slightly smaller, which leads the statistical significance to drop below conventional levels for price controls and regulatory trade barriers.

#### 4.3.3 Institutional constraints

It is hypothesized that competition through fiscal federalism, legal security through a judicial system, and uninterrupted experience of democracy are important institutional constraints on bureaucratic rent-seeking. We use a large set of indicators to operationalize these institutional factors.

Fiscal decentralization is measured by both the sub-national share of total government spending and by the sub-national share of total government revenues. The extent of a sub-national authority's autonomy, in taxation and in the spending of public funds, are important aspects of fiscal decentralization. The simple ratios between sub-national taxes

and total taxes, or between sub-national revenues and total revenues, however, severely overestimate this autonomy. The central government may set the tax rate, leaving sub-national authorities as mere tax collectors, without any influence on the allocation of resources or redistribution. Therefore, we count only those revenues as sub-national revenues where sub-national governments possess full autonomy to set their own tax rate. The variable is computed using information of an OECD (2000) study on sub-national taxing powers. Unfortunately, this information is only available for a small number of countries.[9] With regard to expenditures, no comparable information on expenditure autonomy is available. However, we do not count transfers to other levels of government as sub-national expenditures. The data on sub-national expenditure shares are averages over the years 1994 to 1996 and are from the World Bank (2001), Stein (1999) and Treisman (2002). The variable for expenditure share varies in the sample from 2.4 percent for Panama to 48.1 percent for Switzerland, and the variable on revenue decentralization varies from 0 percent for Poland to 35 percent for Switzerland.

Four variables capture the degree to which the judiciary is independent from the other branches of the government, and the degree to which ordinary people have access to the judicial system. The first two are based on the perceptions of business executives about the judicial system in the country in which they operate (Gwartney and Lawson 2004). The first measures the extent to which a trusted legal framework exists for private business to challenge the legality of government actions or regulations. The second measures judicial independence, or the absence of interference by the government or parties in any disputes. The third is an indicator collected by Djankov et al. (2003). It

measures substantive and procedural statutory intervention in judicial cases at lower-level civil trial courts. The fourth variable captures the affordability of a country's court system and is based on a survey of small firms (World Bank 2000; 2002).[10]

The idea, that a system of checks and balances might need time to develop and consolidate, is captured with a dummy variable for whether the country experienced uninterrupted democracy from 1950 to 1995 (Treisman 2000).

The general pattern of the results for the institutional variables is that fiscal decentralization has no effect on bureaucratic rents, or at least none that is statistically significant, and that judicial constraints and uninterrupted experience of democracy are related to systematically lower rents of public employees.

[Table 2 about here]

More specifically, the fraction of sub-national expenditure in total government expenditure seems to have no effect on the rents enjoyed by bureaucrats (table 2, column I). The effect of sub-national revenue autonomy is quantitatively large (table 2, column II). However, owing to the small number of countries in the sample, the effect cannot be estimated with adequate precision. There are two interpretations for the lack of a statistically significant constraining effect of fiscal decentralization. On the one hand, there are conflicting theoretical predictions for the effect of decentralization on rent extraction (as discussed in section 3.3). This fits the mixed empirical evidence on the effect of decentralization on corruption and might indicate that countervailing effects cancel each other out. On the other hand, the failure to detect an effect may be due to data

problems. The quantitatively large effect for sub-national revenue autonomy suggests that indicators capturing the theoretically essential aspects of fiscal decentralization more closely may well produce robust results, if available for a larger sample of countries.

Access to an independent and impartial judiciary is an important constraint on rent-seeking activities by bureaucrats. All results have the expected sign and are, except for the coefficient for the formalism index of Djankov et al. (2003), statistically significantly different from zero. Representative of all results, figure 2 shows the scatterplot and the partial correlation between the relative life satisfaction differentials and impartial courts, as well as the corresponding 95 percent confidence interval.

[Figure 2 about here]

In order to assess the size of the effects, an increase of the indicators by one standard deviation is considered. The increment of the relative life satisfaction differentials lies between around 1.0 percentage point for the affordability index and around 1.5 percentage points for the indices measuring judicial independence and impartiality of courts. The difference in court impartiality between Venezuela and Denmark translates into a difference in relative life satisfaction of 5 percentage points. Excluding the Czech Republic, the relative life satisfaction differentials span over 11 percentage points. Thus, the estimated effects for judicial constraints are sizeable.

Another sizeable effect is estimated for longstanding experience with democratic governance. The relative life satisfaction differential is, on average, around 3.5 percentage points smaller in countries with uninterrupted democracy since 1950. This

supports the hypothesis that checks and balances need time to evolve and are relatively more important for bureaucratic rents than Olson type sclerosis.

The results for the institutional variables are very similar if estimated with the EB instead of the ESS data, with two exceptions (see table A7 in the appendix). The result for the affordability of the legal system vanishes. In contrast, the coefficient for the indicator of procedural formalism increases, both in size and statistical significance.

### 4.4 Acquisition of Rents and Perceived Corruption

Can public employees acquire rents through corruption? Measures of perceived corruption are a widely used proxy for rents in the government sector. However, as argued in section 3, it is an empirical question whether bureaucrats can acquire rents via corruption, or whether gains from corruption are either dissipated or compensate for lower salaries. Our measure of rents allows for the empirical testing of whether higher corruption is correlated with higher rents.

We measure the pervasiveness of corruption in a country by two variables. The first variable is an aggregate corruption perception indicator, constructed by Kaufmann, Kraay and Mastruzzi (2004). This is the most sophisticated corruption index currently available. It aggregates surveys of perceived corruption across countries, based on the views of business people, risk analysts, investigative journalists and the general public, by using an unobserved component model. The focus is on kickbacks in public procurement, the embezzlement of public funds and the bribery of public officials. The second corruption indicator specifically captures bureaucratic corruption (Gwartney and Lawson 2004). It is

based on a survey measuring perceptions of business executives about the frequency of irregular, additional payments, connected with import and export permits, business licenses, exchange controls, tax assessments, police protection, or loan applications. The two indices are highly correlated for our sample ($\rho = 95.3$).

We find a close positive association between corruption and bureaucratic rents for the sample considered. Figure 3 visualizes the positive statistical association for the second indicator.

[Figure 3 about here]

Table 3 presents the complete regression results for both corruption indices. As can be seen from table 3, columns I and III, the relative life satisfaction differential increases by 0.8 percentage points for every one point increase on the eleven point scale of the index measuring general corruption, and by 1.1 percentage points for every one point increase of the index measuring bureaucratic corruption. The magnitude of these coefficients is sizeable and comparable across the two indices. An increase of one of the corruption indices by one standard deviation entails an increment in the life satisfaction differential of 2 percentage points, a magnitude comparable to the difference in the level of rents between Norway or Sweden on the one hand and Slovenia on the other hand. A similar thought experiment can be conducted for Paraguay, the country with the highest corruption level and the second highest life satisfaction differential. If corruption could be eradicated, bureaucratic rents would practically disappear: the life satisfaction

differential would lie around -0.5 percent for the index measuring irregular payments to bureaucrats and around 0.4 percent for the index measuring general corruption.

[Table 3 about here]

Overall, corruption and the level of economic development explain a limited fraction of bureaucratic rents, amounting to an $R^2$ of 0.15 and 0.16. This leaves sufficient scope for other factors to contribute to our understanding of rents in the government sector.

The results are very similar for the sample with less European countries, based on the EB. Columns I and III of table A8 in the appendix show the regression results. The partial correlations between bureaucratic rents and corruption are marginally stronger for both corruption indices.

In a robustness analysis, we study whether the results may be driven by a confounding factor, without corruption having anything to do with bureaucratic rents. As there is no obvious candidate for such a confounding factor, we include the three most robust determinants of corruption in the regression. These are the percentage of the population belonging to the Protestant religion, political stability and, as in all regressions, the level of economic development (Treisman 2000; Serra 2004).[11] Data on religious affiliation come from La Porta et al. (2004), the Central Intelligence Agency (1992) and the Slovenian statistical office (1996). The indicator on political stability is borrowed from Kaufmann, Kraay and Mastruzzi (2004).

Columns II and IV in table 3 depict the results of this robustness test. The positive relationship between corruption and rents holds, controlling for the most important

determinants of corruption. In the case of general corruption, the coefficient increases by 50 percent (table 3, columns I and II), and in the case of irregular payments to bureaucrats, the coefficient is stable (table 3, columns II and IV). The positive relationship is only slightly less robust for the sample based on the EB data (table A8 in the appendix, columns II and IV). The magnitude of the coefficients decreases by around 30 percent.

So far, we have interpreted the partial correlation between corruption and bureaucratic rents as if it would reflect benefits like bribes, contributing to public bureaucrats' well-being. However, besides this "literal" interpretation, there are at least two other interpretations. On the one hand, weak institutional constraints may breed corruption and simultaneously other forms of bureaucratic rent-seeking, as they facilitate slack. In such a situation, managers of government bureaus can maintain an oversized staff and a multi-tiered hierarchy, thus rewarding many employees with leading positions and otherwise prestigious and pleasant jobs. At the same time, the workload for the individual bureaucrat is reduced. According to this interpretation, the partial correlation between corruption and rents would be reduced if it is controlled for alternative forms of bureaucratic rent seeking (to the extent that these alternative forms are correlated with corrupt rent-seeking).

Alternatively, it could be explored whether low corruption reflects the use of efficiency wages. Empirical research has shown that high relative wages are associated with low levels of corruption in less developed countries (Van Rijckeghem and Weder 2001). In case efficiency wages are applied and work, larger parts of rents for bureaucrats are due

to salary premiums in low corruption countries rather than in high corruption countries, ceteris paribus. When controlling for (relative) income, the partial correlation between corruption and the relative life satisfaction differential would increase and reveal the total effect of corruption on rents.

The ESS contains detailed information on respondents' working hours and official income. This allows us to address the alternative interpretations. Table 4, columns I and III, repeat the basic regressions of the relative life satisfaction differentials on corruption for the sample of 21 European countries covered by the ESS. Columns II and IV show the regression results for relative life satisfaction differentials that are calculated, holding individual income and working hours constant. The size of the coefficients decreases by between a fourth and a fifth if income and working hours are controlled for. Hence, corruption seems to go hand in hand with bureaucratic rent-seeking, in the form of reduced work time and higher salaries. The results thus provide no evidence for the efficiency wage hypothesis for our sample of European countries.

[Table 4 about here]

## 5 Concluding Remarks

A new measure is proposed that directly approaches the idea of rents in the public bureaucracy as a utility premium of government sector workers relative to their private sector equivalent. The monopoly position of the public bureaucracy in providing public services and regulations creates various possibilities for bureaucrats to acquire rents. Those rents can involve wage differentials, monetary and non-monetary fringe benefits,

bribes etc. As previous approaches had difficulty in measuring the net total of these rents, we rely on information about people's reported life satisfaction. This new approach allows to capture people's overall evaluation of their situation, and thus to directly approximate total net rents. In contrast to the approach based on wage differentials, the approach is not plagued with the necessity of controlling for all job amenities and disamenities.

In our empirical analysis, we measure, ceteris paribus, the difference in life satisfaction between people working in the government sector and people working in the private sector *within* a country. The result is the average rent created, and not dissipated, in the public bureaucracy, taking into account country-specific factors, which affect employees in both sectors alike. We find that the relative advantage of working in the government sector differs substantially across countries. In accordance with theories on rent-seeking, we find that the differences in rents can be partly accounted for by country differences in regulatory policies and differences in institutional constraints. In particular, independent courts restrict the leeway of public bureaucracy and, as a consequence, government sector employees experience lower rents on average. Our proxy measure of rents also correlates with widely used perceived corruption indices. The fact that rents positively correlate with corruption shows that the benefits acquired through corruption are neither completely dissipated, nor do they compensate for potentially lower regular salaries in the government sector.

In our study, we focus on differences in labor market rents between the public and the private sector, and try to explain the variation across countries. This leaves at least three

questions open. First, how is the level of well-being in general affected by the creation of rents in the public bureaucracy? According to political economics, rent-seeking involves the unproductive use of resources and is distorting relative prices, and is thus reducing the overall efficiency of an economy. One therefore expects that rents for public bureaucrats are associated with a lower average level of well-being in a society. Second, are there beneficiaries of bureaucratic rent-seeing in the private sector? People working in protected industries are expected to be relatively better off then the rest. Larger rents in the public bureaucracy might thus co-exist with larger variation of life satisfaction in the private sector. Third, how are rents, if there are any, distributed within the public bureaucracy? While it is likely that possibilities to acquire rents differ between the hierarchical levels within the public bureaucracy, there is also the possibility of widespread rent sharing. So far, data restrictions prevent us from further study of these relevant extensions.

Our new methodological approach can be applied to study other forms of rents outside of the government sector, where market imperfections have to be assessed. For example, it can be studied to what extent people exposed to environmental disadvantages are compensated on the housing and labor market. The approach can also be applied to study groups (e.g. minorities or women) that are potentially discriminated on the labor market. More generally, our analysis demonstrates that life satisfaction data can be applied to validate political economics theories in a new way. Recent research in this vein, for example, successfully contributes to the understanding of partisan models of political business cycles (Di Tella and MacCulloch 2005). We show that differences in reported

life satisfaction provide new insights into theories on rent-seeking in the public bureaucracy. Public bureaucrats are not only benevolent, but acquire rents if the restrictions are loose. Those rents are not completely dissipated and lead public bureaucrats to be more satisfied with their life in general than people working in the private sector.

## NOTES

[1] The approach also allows us to capture any disutility from working in the public bureaucracy. For example, social status associated with being a bureaucrat may be positive or negative. Similarly, corrupt bureaucrats may get some negative utility from acting illegally. Or, working in a hierarchy might reduce people's job satisfaction and consequently their life satisfaction (Frey and Benz 2004).

[2] Rents are, of course, also possible in the private sector. This is, e.g., in industries with monopoly power, or professions where large entry barriers exist like the liberal professions. These rents affect the distribution of subjective well-being *within* the private sector. Overall, they are expected to reduce the level of welfare. The arguments for within a sector are thus the same as for the distribution between government and private sector employment.

[3] If efficiency wages are paid in order to prevent misuse of bureaucratic leeway, the prediction of the previous section regarding the relationship between institutional constraints and rents in the public sector remains unchanged: The weaker the institutional constraints, the higher are rents either through reduced work effort, corruption etc. or through higher (efficiency) salaries. It is, however, questionable whether, under weak institutional conditions, "optimal" efficiency wages are introduced.

[4] Hungary is a further country covered by the European Social Survey. Hungary cannot be included in our analysis because information on respondents' industry is missing.

[5] Originally, there are 42,093 observations in the ESS with non-missing values for life satisfaction. Of these, 21,518 observations are excluded because the respondent was neither employed nor self-employed in the week preceding the interview or because his/her main income source is neither wage nor income from self-employment. Furthermore, 1,287 observations are excluded because it is not known in which industry the respondent works, leaving a total of 19,288 observations.

[6] Five countries, the Czech Republic, Paraguay, Austria, Argentina and Panama, exhibit positive relative differentials, and two countries, Costa Rica and Finland, exhibit negative relative differentials that are different from zero in a statistically significant way. The estimates that cannot statistically significantly be

differentiated from zero encompass three groups: First, countries with a positive life satisfaction differential that is measured imprecisely, such as in Poland, Greece, Germany and Peru; second, countries with a negative life satisfaction differential that is measured imprecisely, such as in Switzerland, France and Israel; third, countries with no life satisfaction differential at all, such as Italy, Sweden, Honduras and Norway.

[7] This variable is missing for Costa Rica, El Salvador, Guatemala, Honduras, Luxembourg, Nicaragua and Paraguay.

[8] Countries are given a minimum value of 0 if no price controls or marketing boards are present, a value of 2 if price controls are limited to industries with economies of scale, a value of 4 if price controls are applied in a few other industries, such as agriculture, and still higher ratings the more frequent price controls are, up to a maximum value of 10 for the widespread use of price controls throughout various sectors of the economy.

[9] The variable on the revenues of sub-national governments, where they possess full autonomy to set the tax rate as a share of total revenues, can be computed for Austria, Belgium, the Czech Republic, Denmark, Finland, Germany, Hungary, Mexico, the Netherlands, Norway, Poland, Portugal, Spain, Sweden, Switzerland and the United Kingdom. The variable on the sub-national share of total government spending is available for all countries in the sample, except for Greece.

[10] This variable is missing for Austria, Belgium, Denmark, Finland, Greece, Ireland, Israel, Luxembourg, the Netherlands, Nicaragua, Norway, Paraguay and Switzerland. The formalism index is missing for Nicaragua.

[11] British colonial heritage, and a long and uninterrupted experience of democracy, are further robust determinants of corruption (Treisman 2000; Serra 2004). However, given our sample of European and Latin American countries, the former variable has little meaning and would equal a dummy for Ireland, Israel and the United Kingdom. The latter variable is used as a key explanatory variable.

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*Table 1*. Competition and rents in the public bureaucracy

| *Dependent variable* | | | | | | |
|---|---|---|---|---|---|---|
| Life satisfaction differential for public bureaucrats | I | II | III | IV | V | VI |
| *Internal competition* | | | | | | |
| Total cost of market entry | 8E-5 | | | | | |
| | (0.010) | | | | | |
| Ease of starting business | | -0.008(*) | | | | |
| | | (0.004) | | | | |
| Administrative obstacles | | | 0.011(*) | | | |
| | | | (0.006) | | | |
| Price controls | | | | 0.007* | | |
| | | | | (0.003) | | |
| *External competition* | | | | | | |
| Tariffs and taxes on inter-national trade | | | | | 0.009 | |
| | | | | | (0.006) | |
| Regulatory trade barriers | | | | | | 0.010(*) |
| | | | | | | (0.005) |
| *Control variable* | | | | | | |
| Log(GDP per capita) | -0.006 | 0.008 | 0.005 | 0.002 | 0.003 | 0.014 |
| | (0.007) | (0.007) | (0.006) | (0.004) | (0.006) | (0.010) |
| *Constant* | 0.064 | -0.034 | -0.109 | -0.036 | -0.039 | -0.151 |
| | (0.068) | (0.052) | (0.080) | (0.045) | (0.058) | (0.103) |
| Number of observations | 31 | 38 | 38 | 38 | 38 | 38 |
| $R^2$ | 0.04 | 0.09 | 0.10 | 0.17 | 0.07 | 0.09 |

*Notes:* (1) Generalized least square estimations; (2) * is significant at the 95 percent level, and (*) at the 90 percent level; (3) standard errors in parentheses.

*Sources:* European Social Survey 2002/2003, Graham and Felton (2005) based on Latinobarometer 1997, 2000, 2001 and 2003, Gwartney and Lawson (2004) and Djankov et al. (2002).

*Table 2*. Institutions and rents in the public bureaucracy

| *Dependent variable* | | | | | | | |
|---|---|---|---|---|---|---|---|
| Life satisfaction differential for public bureaucrats | I | II | III | IV | V | VI | VII |
| *Fiscal federalism* | | | | | | | |
| Expenditure share of sub-national levels | 2E-4<br>(4E-4) | | | | | | |
| Revenue share (rate autonomy) | | -0.066<br>(0.052) | | | | | |
| *Judiciary* | | | | | | | |
| Impartial courts | | | -0.007*<br>(0.003) | | | | |
| Judicial independence | | | | -0.005(*)<br>(0.003) | | | |
| Procedural formalism | | | | | 0.005<br>(0.006) | | |
| Affordability of legal system | | | | | | -0.012**<br>(0.004) | |
| *Uninterrupted democracy* | | | | | | | -0.034**<br>(0.012) |
| *Control variable* | | | | | | | |
| Log(GDP per capita) | -0.004<br>(0.005) | 0.008<br>(0.015) | 0.015<br>(0.009) | 0.013<br>(0.009) | 0.003<br>(0.008) | 0.002<br>(0.006) | 0.014<br>(0.007) |
| *Constant* | 0.035<br>(0.046) | -0.071<br>(0.150) | -0.098<br>(0.069) | -0.091<br>(0.072) | -0.044<br>(0.091) | 0.045<br>(0.065) | -0.107<br>(0.058) |
| Number of observations | 37 | 15 | 38 | 38 | 37 | 25 | 38 |
| $R^2$ | 0.02 | 0.12 | 0.12 | 0.10 | 0.02 | 0.29 | 0.20 |

*Notes:* (1) Generalized least square estimations; (2) ** is significant at the 99 percent level, * at the 95 percent level, and (*) at the 90 percent level; (3) standard errors in parentheses.

*Sources:* European Social Survey 2002/2003, Graham and Felton (2005) based on Latinobarometer 1997, 2000, 2001 and 2003, World Bank (2000; 2001; 2002), Stein (1999), Treisman (2000; 2002), OECD (2000), Gwartney and Lawson (2004), and Djankov et al. (2003).

*Table 3*. Corruption and rents in the public bureaucracy

| *Dependent variable* | | | | |
|---|---|---|---|---|
| Life satisfaction differential for public bureaucrats | I | II | III | IV |
| *Corruption* | | | | |
| General corruption | 0.008* | 0.012* | | |
| | (0.003) | (0.005) | | |
| Irregular payments | | | 0.011* | 0.011* |
| | | | (0.004) | (0.005) |
| *Control variables* | | | | |
| Protestants | | -3E-5 | | -6E-5 |
| | | (2E-4) | | (2E-4) |
| Political stability | | 0.006 | | 0.001 |
| | | (0.005) | | (0.004) |
| Log(GDP per capita) | 0.019(*) | 0.021* | 0.019* | 0.019(*) |
| | (0.010) | (0.010) | (0.009) | (0.009) |
| *Constant* | -0.197(*) | -0.271* | -0.208* | -0.210* |
| | (0.099) | (0.116) | (0.097) | (0.100) |
| Number of observations | 38 | 38 | 38 | 38 |
| $R^2$ | 0.15 | 0.19 | 0.16 | 0.17 |

*Notes:* (1) Generalized least square estimations; (2) * is significant at the 95 percent level, and (*) at the 90 percent level; (3) standard errors in parentheses.

*Sources:* European Social Survey 2002/2003, Graham and Felton (2005) based on Latinobarometer 1997, 2000, 2001 and 2003, Kaufmann, Kraay and Mastruzzi (2004), Gwartney and Lawson (2004), Heston, Summers and Aten (2002), La Porta et al. (2004), Central Intelligence Agency (1992), and Statisticni urad republike slovenije (1996).

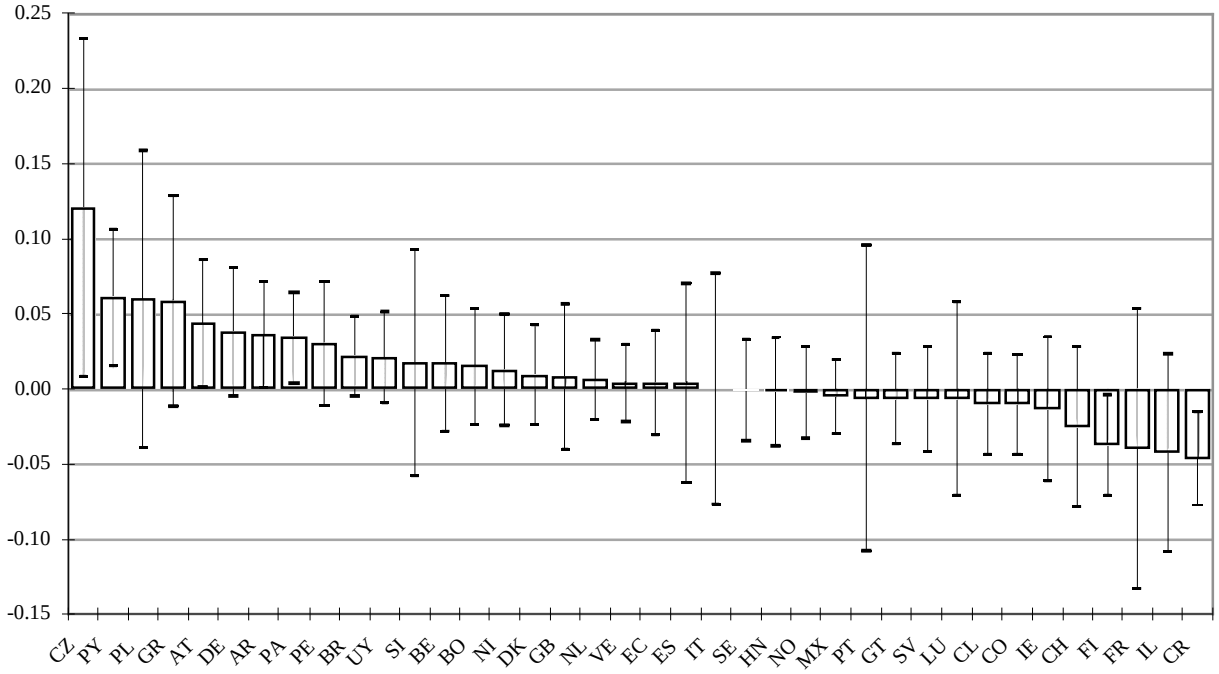
*Table 4*. Corruption and rents in the public bureaucracy: the role of personal income and working time

| *Dependent variable* | | | | |
|---|---|---|---|---|
| Life satisfaction differentials for public bureaucrats | I<br>Excl. channels | II<br>Incl. income and working hours | III<br>Excl. channels | IV<br>Incl. income and working hours |
| *Corruption* | | | | |
| General corruption | 0.010 | 0.008 | | |
| | (0.007) | (0.007) | | |
| Irregular payments | | | 0.017* | 0.012 |
| | | | (0.007) | (0.008) |
| *Control variable* | | | | |
| Log(GDP per capita) | -0.010 | -0.021 | -0.001 | -0.014 |
| | (0.032) | (0.034) | (0.029) | (0.033) |
| *Constant* | 0.010 | 0.207 | -0.012 | 0.126 |
| | (0.330) | (0.347) | (0.306) | (0.339) |
| Number of observations | 21 | 21 | 21 | 21 |
| $R^2$ | 0.21 | 0.18 | 0.30 | 0.22 |

*Notes:* (1) Generalized least square estimations; (2) * is significant at the 95 percent level; (3) standard errors in parentheses; (4) the dependent variable is the relative life satisfaction differential between public and private sector workers in columns I and III, and between public and private sector workers with identical household income and working hours in columns II and IV.

*Source:* European Social Survey 2002/2003, Kaufmann, Kraay and Mastruzzi (2004), Gwartney and Lawson (2004).

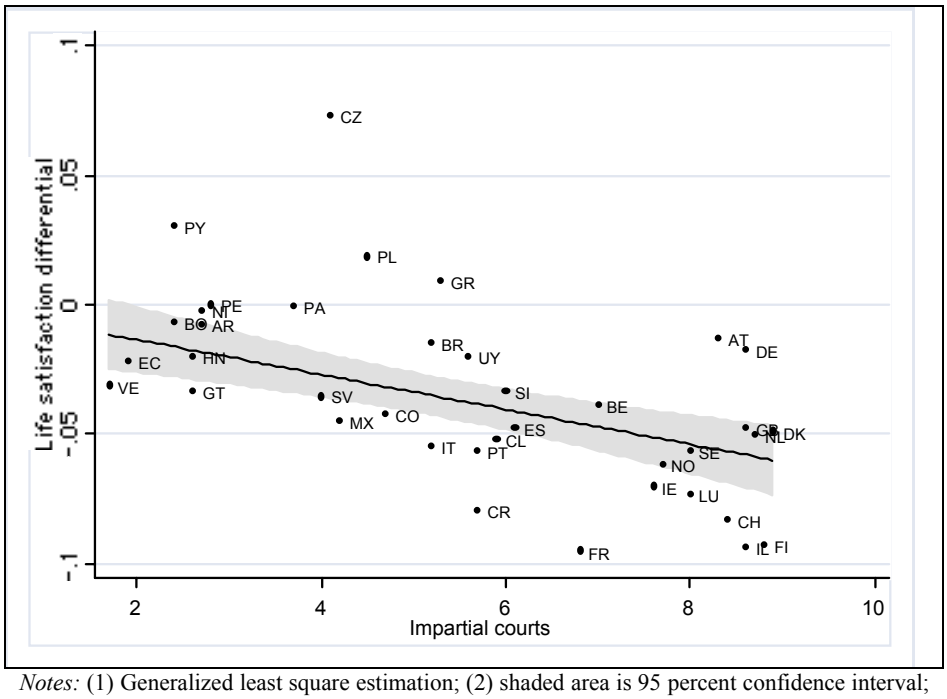
*Figure 1*. Relative life satisfaction differentials for Europe and Latin America




*Notes:* This graph plots estimates for the relative life satisfaction differentials and the corresponding 90 percent confidence interval. The relative life satisfaction differentials are computed by dividing the coefficients for government sector employment by the coefficient for the intercept estimated in micro-econometric life satisfaction functions for the 38 countries. The standard errors of the relative differentials are computed using the delta method.

*Sources:* European Social Survey 2002/2003, and Graham and Felton (2005) based on Latinobarometer 1997, 2000, 2001 and 2003.

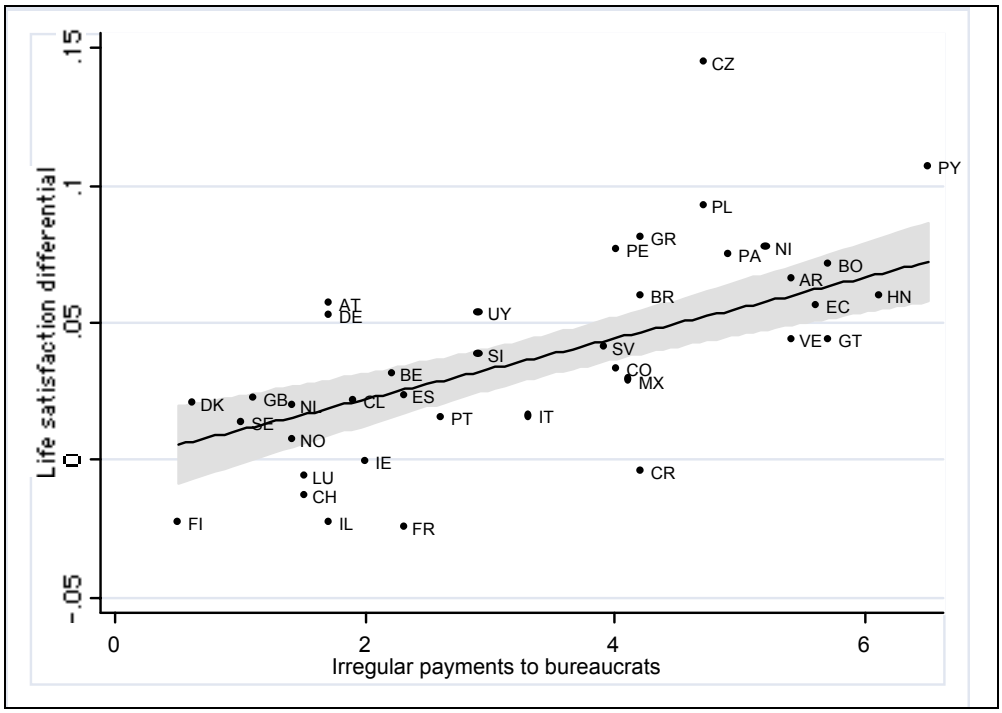
*Figure 2.* Independent judiciary and rents in the public bureaucracy




*Notes:* (1) Generalized least square estimation; (2) shaded area is 95 percent confidence interval; (3) life satisfaction differentials are corrected for log(GDP per capita) and the constant.

*Sources:* European Social Survey 2002/2003, Graham and Felton (2005) based on Latino-barometer 1997, 2000, 2001 and 2003, Heston, Summers and Aten (2002) and Gwartney and Lawson (2004).

*Figure 3.* Corruption and rents in the public bureaucracy




*Notes:* (1) Generalized least square estimation; (2) shaded area is 95 percent confidence interval; (3) life satisfaction differentials are corrected for log(GDP per capita) and the constant.

*Sources:* European Social Survey 2002/2003, Graham and Felton (2005) based on Latinobarometer 1997, 2000, 2001 and 2003, Heston, Summers and Aten (2002) and Gwartney and Lawson (2004).

*Table A1.* Estimations incl. control variable for Europe as a whole; part 1

| *Dependent variable* Life satisfaction | *Coefficient* | *Robust st. error* |
|---|---|---|
| *Public bureaucracy* | | |
| Public bureaucracy | 0.109 | 0.097 |
| *Individual characteristics* | | |
| Male | Reference group | |
| Female | 0.190** | 0.050 |
| Age | -0.081** | 0.014 |
| $Age^2$ | 0.001** | 2E-4 |
| Married; with partner | 0.470** | 0.078 |
| Married; without partner | -0.380 | 0.342 |
| Separated; with partner | 0.242 | 0.338 |
| Separated; without partner | -0.468* | 0.206 |
| Divorced; with partner | 0.491** | 0.183 |
| Divorced; without partner | -0.353* | 0.138 |
| Widowed; with partner | 0.518 | 0.720 |
| Widowed; without partner | -0.820* | 0.329 |
| Single; with partner | 0.539** | 0.091 |
| Single; without partner | Reference group | |
| Sq. root of household size | -0.033 | 0.070 |
| Not completed primary ed. | Reference group | |
| Primary education | -0.220 | 0.292 |
| Lower secondary ed. | 0.414 | 0.275 |
| Upper secondary ed. | 0.608* | 0.272 |
| Post sec., non-tertiary ed. | 0.670 | 0.284 |
| Tertiary ed., $1^{st}$ stage | 0.882** | 0.274 |
| Tertiary ed., $2^{nd}$ stage | 0.715* | 0.284 |

*Table to be continued.*

*Table A1.* Estimations incl. control variable for Europe as a whole; part 2

| | | |
|---|---|---|
| Citizen | 0.127 | 0.176 |
| Foreigner | Reference group | |
| Living in a big city | -0.711** | 0.129 |
| Living in suburbs | -0.331** | 0.129 |
| Living in a small town | -0.458** | 0.121 |
| Living in a village | -0.264* | 0.120 |
| Living in the countryside | Reference group | |
| *Constant* | | |
| Constant | 7.041** | 0.025 |
| Number of observations | 19,288 | |
| Number of public bureaucrats | 1,356 | |
| $R^2$ | 0.05 | |

*Notes:* (1) Least squares estimation (incl. intra- and inter-country weights); all control variables are transformed into mean deviation form such that the coefficient of the constant term can be interpreted as the life satisfaction of the average individual, if he/she were to work in the private sector; (2) ** is significant at the 99 percent level, * at the 95 percent level, and (*) at the 90 percent level; (3) results are not shown for dummies, indicating that sex, age, marital status, household size, education, citizenship status, and community type are not available, as well as for a dummy indicating that a subject belongs to the highest income class.

*Source:* European Social Survey 2002/2003.

*Table A2.* Estimations incl. control variable for Europe as a whole

| *Dependent variable*<br>Life satisfaction | *Coefficient* | *Robust st. error* |
|---|---|---|
| *Public bureaucracy* | | |
| Public bureaucracy | 0.045** | 0.008 |
| *Individual characteristics* | | |
| Male | Reference group | |
| Female | 0.021** | 0.008 |
| Age | -0.014** | 0.002 |
| $Age^2$ | 2E-4** | 2E-5 |
| Married | 0.089** | 0.011 |
| Living together | 0.010 | 0.019 |
| Separated | -0.275** | 0.043 |
| Divorced | -0.161** | 0.023 |
| Widowed | -0.097** | 0.033 |
| Single | Reference group | |
| Education, up to 15 years | Reference group | |
| Education, 16-19 years | 0.043** | 0.010 |
| Education, 20 years and more | 0.127** | 0.011 |
| In education | 0.072 | 0.049 |
| Living in a big city | -0.087** | 0.010 |
| Living in a small town | -0.036** | 0.009 |
| Living in the countryside | Reference group | |
| *Constant* | | |
| Constant | 2.670** | 0.005 |
| Number of observations | | 64,470 |
| Number of public bureaucrats | | 22,520 |
| $R^2$ | | 0.03 |

*Notes:* (1) Least squares estimation (incl. inter-country weights); all control variables are transformed into mean deviation form such that the coefficient of the constant term can be interpreted as the life satisfaction of the average individual, if he/she were to work in the private sector; (2) ** is significant at the 99 percent level; (3) results are not shown for dummies, indicating that sex, age, marital status, education, and community type are not available, as well as for a dummy indicating that a subject belongs to the highest income class.

*Source:* Euro-Barometer Survey Series, 1989-1994.

*Table A3.* Estimations incl. control variable for Latin America as a whole

| *Dependent variable*<br>Life satisfaction | *Coefficient* | *Robust st. error* |
|---|---|---|
| *Public bureaucracy* | | |
| Public bureaucracy | 0.048** | 0.013 |
| *Individual characteristics* | | |
| Male | Reference group | |
| Female | -0.039** | 0.010 |
| Age | -0.014** | 0.002 |
| $Age^2$ | 2E-4** | 2E-5 |
| Married | -0.010 | 0.012 |
| Divorced | -0.077** | 0.019 |
| Single | Reference group | |
| Illiterate | -0.026 | 0.024 |
| Not completed primary ed. | Reference group | |
| Primary education | 0.018 | 0.018 |
| Not completed secondary ed. | -0.002 | 0.017 |
| Completed secondary ed. | -0.028(*) | 0.017 |
| Not completed university | -0.009 | 0.021 |
| Completed university | 0.062** | 0.019 |
| Living in the capital | -0.157** | 0.013 |
| Living in a big city | -0.182** | 0.014 |
| Living in a small town/village | Reference group | |
| *Constant* | | |
| Constant | 2.670** | 0.005 |
| Number of observations | | 40,539 |
| Number of public bureaucrats | | 6,587 |
| $R^2$ | | 0.05 |

*Notes:* (1) Ordinary least squares estimation; all control variables are transformed into mean deviation form such that the coefficient of the constant term can be interpreted as the life satisfaction of the average individual, if he/she were to work in the private sector; (2) ** is significant at the 99 percent level, and (*) at the 90 percent level; (3) results are not shown for dummies, indicating that sex, age, marital status, education, and community type are not available, as well as for a dummy indicating that a subject belongs to the highest income class.

*Source:* Graham and Felton (2005) based on Latinobarometer 1997, 2000, 2001 and 2003.

*Table A4*. Descriptive statistics

| Variable | Number of observations | Mean | Standard deviation | Min. | Max. |
|---|---|---|---|---|---|
| *Corruption* | | | | | |
| General corruption [a] | 38 | 3.43 | 2.34 | 0.02 | 7.14 |
| Irregular payments [b] | 38 | 3.29 | 1.74 | 0.50 | 6.50 |
| *Competition* | | | | | |
| Total cost of market entry [c] | 31 | 0.46 | 0.52 | 0.03 | 3.01 |
| Ease of starting business [b] | 38 | 5.08 | 1.40 | 2.50 | 8.10 |
| Administrative obstacles [b] | 38 | 5.77 | 0.81 | 3.40 | 7.10 |
| Price controls [b] | 38 | 3.72 | 1.43 | 0.70 | 7.00 |
| Tariffs and taxes on international trade [b] | 38 | 1.53 | 0.76 | 0.10 | 3.10 |
| Regulatory trade barriers [b] | 38 | 2.54 | 1.49 | 0.50 | 5.20 |
| *Institutions* | | | | | |
| Expenditure share of sub-national levels [d, e, f] | 37 | 21.07 | 12.65 | 2.40 | 48.10 |
| Revenue share (rate autonomy) [g] | 15 | 0.11 | 0.13 | 0.00 | 0.35 |
| Impartial courts [b] | 38 | 5.41 | 2.79 | 0.80 | 9.30 |
| Judicial independence [b] | 38 | 5.57 | 2.33 | 1.70 | 8.90 |
| Procedural formalism [h] | 37 | 4.17 | 0.97 | 2.40 | 5.91 |
| Affordability of legal system [d] | 25 | 4.61 | 0.90 | 3.15 | 6.42 |
| Uninterrupted democracy [f] | 38 | 0.42 | 0.50 | 0.00 | 1.00 |

*Source:* [a] Kaufmann, Kraay and Mastruzzi (2004), [b] Gwartney and Lawson (2004), [c] Djankov et al. (2002), [d] World Bank (2000; 2001; 2002), [e] Stein (1999), [f] Treisman (2000; 2002), [g] OECD (2000) and [h] Djankov et al. (2003).

*Table A5*. Correlation matrix

| | Life satisf. differential | General corruption | Irregular payments | Total cost of market entry | Ease of starting b. | Admin. obstacles | Price controls | Taxes on intern. trade | Reg. trade barriers |
|---|---|---|---|---|---|---|---|---|---|
| Life satisfaction differential | 1.00 | | | | | | | | |
| General corruption | 0.37 | 1.00 | | | | | | | |
| Irregular payments | 0.60 | 0.93 | 1.00 | | | | | | |
| Total cost of market entry | -0.08 | 0.81 | 0.67 | 1.00 | | | | | |
| Ease of starting business | -0.14 | -0.85 | -0.74 | -0.94 | 1.00 | | | | |
| Administrative obstacles | 0.14 | 0.93 | 0.81 | 0.93 | -0.94 | 1.00 | | | |
| Price controls | 0.34 | 0.67 | 0.77 | 0.55 | -0.43 | 0.55 | 1.00 | | |
| Taxes on international trade | 0.35 | 0.93 | 0.87 | 0.66 | -0.67 | 0.85 | 0.65 | 1.00 | |
| Regulatory trade barriers | 0.40 | 0.94 | 0.92 | 0.71 | -0.69 | 0.85 | 0.78 | 0.97 | 1.00 |
| Exp. share of subnat. levels | -0.11 | -0.29 | -0.41 | -0.11 | 0.12 | -0.15 | -0.52 | -0.21 | -0.25 |
| Revenue share (rate autonomy) | -0.36 | -0.59 | -0.59 | -0.50 | 0.47 | -0.48 | -0.72 | -0.42 | -0.51 |
| Impartial courts | -0.40 | -0.91 | -0.94 | -0.74 | 0.82 | -0.83 | -0.68 | -0.80 | -0.84 |
| Judicial independence | -0.23 | -0.92 | -0.85 | -0.80 | 0.79 | -0.86 | -0.63 | -0.88 | -0.90 |
| Procedural formalism | -0.07 | 0.59 | 0.54 | 0.89 | -0.84 | 0.72 | 0.45 | 0.40 | 0.50 |
| Affordability of legal system | -0.17 | 0.24 | 0.08 | 0.24 | -0.41 | 0.32 | -0.47 | 0.17 | 0.02 |
| Uninterrupted democracy | -0.23 | -0.77 | -0.81 | -0.78 | 0.80 | -0.73 | -0.69 | -0.58 | -0.67 |
| Log(GDP per capita) | -0.21 | -0.95 | -0.89 | -0.81 | 0.77 | -0.91 | -0.77 | -0.94 | -0.96 |

| | Exp. share of subnat. levels | Rev. share (rate auton.) | Impartial courts | Judicial inde-pendence | Procedural formalism | Affordability of legal syst. | Uninterrupt-ed democr. | Log(GDP per capita) |
|---|---|---|---|---|---|---|---|---|
| Exp. Share of subnat. levels | 1.00 | | | | | | | |
| Revenue share (rate autonomy) | 0.38 | 1.00 | | | | | | |
| Impartial courts | 0.50 | 0.47 | 1.00 | | | | | |
| Judicial independence | 0.21 | 0.37 | 0.90 | 1.00 | | | | |
| Procedural formalism | -0.03 | -0.29 | -0.67 | -0.71 | 1.00 | | | |
| Affordability of legal system | 0.02 | 0.37 | -0.30 | -0.31 | 0.22 | 1.00 | | |
| Uninterrupted democracy | 0.55 | 0.52 | 0.93 | 0.81 | -0.81 | -0.21 | 1.00 | |
| Log(GDP per capita) | 0.38 | 0.51 | 0.88 | 0.91 | -0.60 | -0.12 | 0.77 | 1.00 |

*Table A6*. Competition and rents in the public bureaucracy (based on Euro-Barometer)

| *Dependent variable* | | | | | | |
|---|---|---|---|---|---|---|
| Life satisfaction differential for public bureaucrats | I | II | III | IV | V | VI |
| *Internal competition* | | | | | | |
| Total cost of market entry | 0.016 | | | | | |
| | (0.013) | | | | | |
| Ease of starting business | | -0.006* | | | | |
| | | (0.003) | | | | |
| Administrative obstacles | | | 0.010(*) | | | |
| | | | (0.006) | | | |
| Price controls | | | | 0.005 | | |
| | | | | (0.003) | | |
| *External competition* | | | | | | |
| Taxes on international trade | | | | | -0.002 | |
| | | | | | (0.006) | |
| Regulatory trade barriers | | | | | | 0.007 |
| | | | | | | (0.005) |
| *Control variable* | | | | | | |
| Log(GDP per capita) | -0.001 | 0.009 | 0.005 | 0.002 | -0.001 | 0.012 |
| | (0.008) | (0.006) | (0.005) | (0.005) | (0.006) | (0.009) |
| *Constant* | 0.012 | -0.043 | -0.096 | -0.029 | 0.021 | -0.116 |
| | (0.086) | (0.050) | (0.074) | (0.052) | (0.062) | (0.097) |
| Number of observations | 23 | 30 | 30 | 30 | 30 | 30 |
| $R^2$ | 0.04 | 0.09 | 0.10 | 0.17 | 0.07 | 0.09 |

*Notes:* (1) Generalized least square estimations; (2) ** is significant at the 99 percent level, * at the 95 percent level, and (*) at the 90 percent level; (3) standard errors in parentheses.

*Sources:* Euro-Barometer Survey Series, 1989-1994, Graham and Felton (2005) based on Latinobarometer 1997, 2000, 2001 and 2003, Kaufmann, Kraay and Mastruzzi (2004), Heston, Summers and Aten (2002) and Gwartney and Lawson (2004).

*Table A7*. Institutions and rents in the public bureaucracy (based on Euro-Barometer)

| *Dependent variable* | | | | | | | |
|---|---|---|---|---|---|---|---|
| Life satisfaction differential for public bureaucrats | I | II | III | IV | V | VI | VII |
| *Fiscal federalism* | | | | | | | |
| Expenditure share of sub-national levels | -4E-4<br>(4E-4) | | | | | | |
| Revenue share (rate autonomy) | | -0.036<br>(0.029) | | | | | |
| *Judiciary* | | | | | | | |
| Impartial courts | | | -0.008**<br>(0.002) | | | | |
| Judicial independence | | | | -0.006**<br>(0.002) | | | |
| Procedural formalism | | | | | 0.011*<br>(0.004) | | |
| Affordability of legal system | | | | | | -5E-4<br>(0.005) | |
| *Uninterrupted democracy* | | | | | | | -0.029**<br>(0.009) |
| *Control variable* | | | | | | | |
| Log(GDP per capita) | 0.004<br>(0.005) | -0.016<br>(0.017) | 0.022**<br>(0.007) | 0.018*<br>(0.007) | 0.012(*)<br>(0.006) | 0.009<br>(0.006) | 0.016*<br>(0.006) |
| *Constant* | -0.020<br>(0.045) | 0.177<br>(0.168) | -0.147*<br>(0.055) | -0.125*<br>(0.056) | -0.151<br>(0.076) | -0.068<br>(0.071) | -0.124*<br>(0.058) |
| Number of observations | 29 | 9 | 30 | 30 | 29 | 21 | 21 |
| $R^2$ | 0.12 | 0.20 | 0.36 | 0.29 | 0.20 | 0.15 | 0.26 |

*Notes:* (1) Generalized least square estimations; (2) ** is significant at the 99 percent level, * at the 95 percent level, and (*) at the 90 percent level; (3) standard errors in parentheses.

*Sources:* Euro-Barometer Survey Series, 1989-1994, Graham and Felton (2005) based on Latinobarometer 1997, 2000, 2001 and 2003, World Bank (2000; 2001; 2002), Stein (1999), Treisman (2000; 2002), OECD (2000), Gwartney and Lawson (2004) and Djankov et al. (2003).

*Table A8*. Corruption and rents in the public bureaucracy (based on Euro-Barometer)

| *Dependent variable* | | | | |
|---|---|---|---|---|
| Life satisfaction differential for public bureaucrats | I | II | III | IV |
| *Corruption* | | | | |
| General corruption | 0.009** | 0.006 | | |
| | (0.003) | (0.004) | | |
| Irregular payments | | | 0.013** | 0.009* |
| | | | (0.003) | (0.004) |
| *Control variables* | | | | |
| Protestants | | -2E-4* | | -1E-4 |
| | | (8E-5) | | (1E-4) |
| Political stability | | 0.003 | | 0.001 |
| | | (0.004) | | (0.004) |
| Log(GDP per capita) | 0.025** | 0.017(*) | 0.025** | 0.019* |
| | (0.008) | (0.008) | (0.007) | (0.008) |
| *Constant* | -0.252** | -0.184(*) | -0.262** | -0.198* |
| | (0.088) | (0.091) | (0.074) | (0.080) |
| Number of observations | 30 | 30 | 30 | 30 |
| $R^2$ | 0.41 | 0.49 | 0.45 | 0.51 |

*Notes:* (1) Generalized least square estimations; (2) ** is significant at the 99 percent level, * at the 95 percent level, and (*) at the 90 percent level; (3) standard errors in parentheses.

*Sources:* Euro-Barometer Survey Series, 1989-1994, Graham and Felton (2005) based on Latinobarometer 1997, 2000, 2001 and 2003, Kaufmann, Kraay and Mastruzzi (2004), Gwartney and Lawson (2004), Heston, Summers and Aten (2002), La Porta et al. (2004), Central Intelligence Agency (1992) and Statisticni urad republike slovenije (1996).