NBER WORKING PAPER SERIES

THE EFFECT OF NEW POLITICAL ADMINISTRATION ON FEDERAL GOVERNMENT PRODUCTIVITY AND EMPLOYMENT

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Working Paper 5601

NATIONAL BUREAU OF ECONOMIC RESEARCH
1050 Massachusetts Avenue
Cambridge, MA 02138
June 1996

This paper is part of NBER's research program in Productivity. Any opinions expressed are those of the author and not those of the National Bureau of Economic Research.

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ABSTRACT

There have been a number of econometric studies of the effect of changes in management and control on the productivity and employment of private, but not of public, enterprises. This paper examines the impact of changes in political administration on the productivity and employment of the entire executive branch of the U.S. government using data compiled under the Bureau of Labor Statistics' Federal Productivity Measurement Program. The estimates indicate that the mean rate of productivity growth in the first year of administrations is 2.6 times as high as the mean growth in subsequent years. Also, employment growth is strictly increasing with respect to the administration's tenure: 95% of federal employment growth during the period 1967-94 occurred in the fourth or later years of political administrations, although administrations were that old only 36% of the time. These findings are broadly consistent with evidence about the private sector. They suggest that the inauguration of a new administration initially purges the executive branch, but as an administration's tenure increases, fat and inefficiency tend to accumulate.

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Previous research has indicated that changes in the management and control of private enterprises have significant effects on their productivity and employment. Lichtenberg and Siegel (1987, 1990a) found that the productivity of manufacturing plants increased significantly (relative to average industry productivity) after a change in ownership or leveraged buyout. They also found (1990b) that changes in ownership were associated with substantial reductions in the employment of (relatively highly-paid) white-collar workers in corporate headquarters and other "auxiliary establishments" (but not in the employment of production workers).

The executive branch of the Federal government, which employs almost 3 million people, undergoes regular changes in leadership and control: there is a presidential election every four years. Although there are many important differences between the private and public sectors, the hypothesis that control changes have similar effects on productivity and employment in the two sectors is a plausible one.[1] However we are not aware of any

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[1] Recent research (Lichtenberg (1993) and Lehr and Lichtenberg (1996)) suggests that the introduction of information technology has similar effects on productivity in business and government.

previous econometric research on the impact of changes in administration on executive branch productivity and employment.

The lack of existing evidence about the effect of changes in administration on government productivity is not surprising, given the general absence of data on the output and productivity of government enterprises. But thanks to the Federal Productivity Measurement Program (FPMP) conducted by the Bureau of Labor Statistics from 1967 to 1994 (which has unfortunately now been terminated), annual time-series data on executive branch productivity and employment are available, and it is possible to investigate whether leadership changes have similar effects in the private and public sectors.

Under this program, Federal Government agencies annually submit workload counts (outputs), employment and compensation data, along with descriptions of their workloads and other related information to the BLS. BLS also obtains some data from annual reports, budgets, or Congressional hearings. In 1994 the FPMP covered over two million Federal civilian employees working in 255 organizations within 60 Federal agencies. About 2500 different products and services were measured by the

program.[2] BLS does not publish organization- or agency-level data, but it does publish series for the "measured portion" of the Federal government as a whole, and by "function," for 24 government functions, such as audit of operations, loans and grants, and medical services. We will examine the effect of changes in administration on productivity and employment on the total measured portion of the Federal government.[3]

Summary statistics on annual rates of productivity, output, and employment growth for the entire measured portion of the Federal government during the period 1967-94 are presented below (the data were obtained from Table 1 of BLS Summary 96-3, "Federal Government Productivity Highlights, 1967-94"):

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[2] See Forte (199) and U.S. Bureau of Labor Statistics (1994, 1996) for detailed discussions of the Federal productivity data.

[3] The output series compiled under the FPMP reflect final activities of the organizations being measured, that is, the outputs used by groups outside the organization. Not all outputs, however, are final to the Federal government in that some measured outputs (e.g., maintenance, personnel, and supply) are used by other government organizations. Thus, the FPMP summary statistics reflect the productivity of the measured organizations, not the Federal government as a whole. Measured productivity may perhaps be regarded as the sum of true productivity and a classical ("white-noise") measurement error. If this error is uncorrelated with changes in administration, our estimates of the effect of the latter will be unbiased.

	mean	s.d.	min	max
p	1.1%	1.2%	-2.8%	2.9%
q	1.4	1.2	-2.0	3.7
l	0.3	1.0	-1.3	2.7

p: productivity growth

q: output growth

l: employment growth

The average annual rate of labor productivity growth--the difference between the rate of output growth (1.4%) and the rate of employment growth (0.3%)--was 1.1%. There is some evidence of slowdown in Federal productivity: average rates of productivity and output growth during the last seven years of the period (1987-94) were only 0.4% and 0.6%, respectively.

We are interested in examining the relationship between government productivity and employment growth and the "age" of the political administration, A_t. The latter was defined to be equal to 1 in the first year following each presidential election (1969, 1973,..., 1993), to 2 in the second year, and so forth. The years 1985-88 were treated as years 5-8 of the Reagan

administration. Time-series data for A, p, and l are presented in Table 1.

Figure 1 is a chart of the mean annual rate of executive branch productivity growth, by year of political administration. (Since only the Reagan administration lasted more than four years, observations for which A exceeded four are grouped into a single category (5+ years).) The rate of productivity growth in the first year is much higher than it is in subsequent years, but there is essentially no relationship between p and A for $A \geq 2$. The null hypothesis that these five mean growth rates are identical can be rejected at only about the 20% significance level. However, as the following regression reveals, the difference between mean productivity growth in the first year and mean productivity growth in years 2 through 8 is highly statistically significant (t-statistics in parentheses):

$$p_t = 90.7 + 1.21\ FIRSTYEAR_t - .045\ t + e_t$$
$$\quad (1.76)\quad (2.48)\qquad\qquad (1.74)$$
$$R^2 = .285$$

where $FIRSTYEAR_t = 1$ if $A_t = 1$, and otherwise equals zero, and e_t is the residual. This implies that productivity growth in the first

year of an administration tends to be 1.2 percentage points higher than it is after the first year. Since the average rate of productivity growth is 1.1%, *the annual rate of productivity growth in the first year is 2.6 times as high as it is in subsequent years*; over 40% of all government productivity growth occurs in the first year of political administrations.

Next we consider the relationship between total executive branch *employment* growth and the "age" or year of the administration. Figure 2 is a chart of mean employment growth by year of administration. It indicates that the rate of employment growth is strictly increasing with respect to age. During the first year the administration is in office, employment typically declines by 0.6%. In subsequent years, the rate of employment growth increases, and reaches 0.8% in year 4 and 1.0% in years 5-8. The null hypothesis that these five growth rates are equal can be rejected at the 7% significance level. These figures indicate that *95% of federal employment growth during the period 1967-94 occurred in the fourth or later years of political administrations, although administrations were that old only 36% of the time*.[4]

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[4] 42% of federal employment growth occurred in the fifth or later years; administrations were that old only 14% of the time

Figure 2 suggests that it is reasonable to postulate that employment growth depends on the logarithm of A_t, so we estimated the following regression:

$$l_t = -0.44 + 0.82 \log(A_t) + v_t$$

$$(1.46) \quad (3.09)$$

$R^2 = .276$

(We tried including t and the log of employment in year t-1 as regressors, but these variables were insignificant and had almost no effect on the estimate of the $\log(A_t)$ coefficient.) There is a significant positive relationship between employment growth and the age of the administration.

One possible interpretation of these results is that the inauguration of a new administration initially purges the system--much like new management may purge a company--and places the government on a diet, restraining employment growth without sacrificing much output. (Some authors have suggested that external shocks other than leadership changes may reduce "fat" or "X-inefficiency" in corporations. Borenstein and Farrell (1996) hypothesize that sharp decreases in crude oil prices may have this effect on oil companies, and Scherer (1992) and others argue that

increases in foreign competition may have this effect on manufacturing companies.) But as an administration's tenure increases, waste, inefficiency, and fat tend to accumulate in the executive branch.

Table 1

Time-Series Data on Age of Political Administration and Executive Branch Productivity and Employment Growth

t	A_t	p_t	l_t
1968	4	1.0	2.7
1969	1	2.4	0.8
1970	2	0.4	-0.1
1971	3	1.6	-0.3
1972	4	0.6	-0.4
1973	1	2.8	-1.3
1974	2	-0.5	0.6
1975	3	1.4	0.2
1976	4	1.8	-0.9
1977	1	2.9	-1.1
1978	2	1.7	0.6
1979	3	0.7	0.0
1980	4	2.1	0.8
1981	1	2.4	-0.9
1982	2	1.5	-0.3
1983	3	1.4	1.1
1984	4	0.0	2.2
1985	5	0.7	1.8
1986	6	1.6	0.7
1987	7	0.2	1.2
1988	8	0.8	0.2
1989	1	-0.1	0.3
1990	2	2.2	0.1
1991	3	-2.8	0.8
1992	4	0.7	0.6
1993	1	2.1	-1.3
1994	2	0.0	1.0

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Figure 1

Mean Annual Rate of Executive Branch Productivity Growth,
by Year of Political Administration

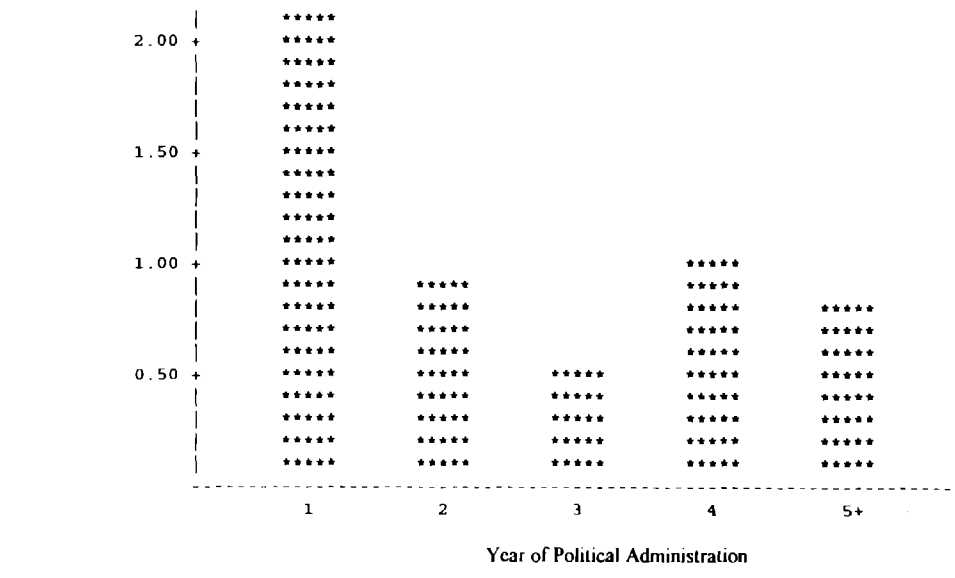

Figure 2

Mean Annual Rate of Executive Branch Employment Growth,
by Year of Political Administration