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The Political Economy of the Disability Insurance. Theory and Evidence of Gubernatorial Learning from Social Security Administration Monitoring

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Abstract
The dramatic rise in the disability insurance (DI) roles in the last 20 years has been the subject of much controversy in both popular and academic circles. While, the relationship between DI and labor force participation has been the subject of a growing literature, the mechanism of this transition from employment to DI remains unclear. We hypothesize that one mechanism is the state-level administration of the program which creates a classic principal-agent problem. This paper analyzes the impact of continuing conflict of interests for Disability Determination Services agencies—between Social Security Administration standards and state gubernatorial political interests—interacted with the increased demand for disability insurance as an alternative for low-skilled works during the period of 1982 to 2000. We find evidence that multi-term governors allow a greater fraction of applicants than do first term governors. We then develop a model that illustrates how these differences can be due to the type of monitoring conducted by the Social Security Administration. We provide additional evidence supporting this hypothesis in the form of sub-group analysis by economic and political constraints. Overall, we find evidence that the monitoring system is counter-productive and encourages over-use of the disability insurance program to serve political ends.

Keywords: Disability insurance, principal-agent, social security administration, monitoring

JEL classification codes: H55, I18, I38, G22

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1 Introduction

The dramatic rise in disability insurance roles in the last 20 years has been the subject of much controversy in both popular and academic circles. Provided by the Social Security Administration (SSA), Disability Insurance (DI) and Supplemental Security [1] Both theory and empirical evidence have found what appear to be labor market consequences from the expansion of DI but with the general assumption that marginally able individuals are able to enter DI when they are unable to find employment with a sufficiently high wage. From this assumption there arises the question of whether the administrators of DI are simply willing to expand DI enrollment during times of economic hardships or are simply unable to distinguish between marginal candiates due to lack of evidence.

This study uses several facts about the DI program administrative procedure to determine the role political gaming by governors may play in expanding disability rolls. First, as many scholars have noted, there is an inherent agency issue in the administration of DI because it is fully federally funded but entirely state-administred. By law, disability determinations are made by state agencies under contract with the Social Security Administration. The head of this agency, the director of Disability Determination Services (DDS), is appointed by the the governor and the staff of this agency is comprised of state employees. This naturally generates a conflict of interest for these agencies which depend on the federal government for funding, but remain under the administrative and political direction of state governors[2]. The observed linkage between unemployment rates and gubernatorial popularity suggests that governs may have a strategic interest in reducing, or appearing to reduce, the unemployment rate.[3] Recent work by Wolfers (2005) puts a

[1] From the Annual Statistical Supplement, 2005

[2] Even popular guides such as Nolo's Guide (2004) discuss the possibility that DDS directors may be influenced by political concerns and thus amenable to more lenient allowance policies. In addition, several reports by the Social Security Advisory Boards express concern over this conflict of interest.

[3] Cohen and King (2004) find that when the state unemployment is lower than the national average, governors lose political capital and face worse approval ratings. Approval ratings are important not only

finer point on this, illustrating that voters systematically make attribution errors regarding responsibility for negative economic conditions. Thus governors may face political fallout for economic conditions and may wish to use any mechanisms at their disposal to improve the welfare and economic well-being of their constituents. Second, admission into DI depends on the presentation of evidence that a worker is unable to work and such evidence often involves evidence of injury or illness related pain. However, such injuries and illnesses may be difficult to observe for non-specialists, doctors typically provide evidence. The type of doctor and nature of evidence that is sufficient to determine disability can vary the cost and difficulty in receiving and continuing to receive disability benefits. Third, the SSA during this period had very little direct oversight and only period reviews.

Taken together facts one and two suggest that the if political actors, such as governors, were sufficiently motivated, there existed a mechanism by which disability rolls could be expanded. This would have been quickly observed and corrected, however, were it not for the lax monitoring and oversight by the SSA. Thus this paper address two questions regarding the interaction between legal rulings, administrative procedures, and labor market participation: First, to what extent did the rise of subjective admission criteria allow political actors to influence DI enrollment? While evience that the rise in disability occured after the 1984 liberalization of DI policies presented in Autor and Duggan (2002), the question of to what extent this is related to political motives is difficult to a certain from aggregate trends. This is especially true for disability insurance which during many time periods appears to have been administered in largely uniform ways. To answer this question we therefore rely on the interaction between this discretionary period and the style of monitoring used by the SSA. Using a simplified model of delegation, we illustrate that a lax monitoring process can allow governors with a preference for higher allowance

because they are a key indication of re-election prospects (King 2001) but also because they expand the executive's ability to set their own policy agenda (Canes-Wrone and de Marchi, 2002).

rates to learn how much they can safely increase acceptance rates without consequences. Because this learning occurs over time, we can compare multi-term governs to single-term governors during the same time periods. We show that while DI rates began rising as early as 1994, multi-term and single term governors rates did not begin to diverge until 1986, when the introduction of evidence from treating physicians (rather than SSA physicians) was allowed by a court ruling. The divergence continued to grow until 1993 when evidentiary standards on pain were tightened and closed almost entirely by 1996 when the SSA issued a set of unifying evaluation criteria. Second, what role did this political influence on the disability determination process play in the growth of the disability program? We find evidence that during periods in which the returns to expansion are high, for example governors face unfavorable economic or fiscal conditions, the acceptance rates among multiple term governors is even higher. We also provide some evidence that the differences we observe are due to a governor's learning rather than a selection mechanism by which governors with low allowance rates do not survive to later terms. During the relevant time periods, the mid-eighties to the mid-nineties, disability insurance acceptance rates rose nearly 15 percent. Our results suggest that at least 10 percent of that increase is due to the gubernatorial influence on the allowance rates.

This paper thus provides an important contribution linking two strands of literature: on vote buying and on labor market effects of social welfare programs. In particular, previous work has documented that that political pressure and institutional design can combine to impact the administration of government programs. The results of this paper thus corroborate a growing body of literature that highlights the importance of political institutions on the public expenditure decisions and the use of spending to "buy off" voters. [4] There is also substantial evidence regarding the impact of disability benefits on

[4] In particular, there is evidence that political institutions matter for policy outcomes. In addition, whether an official is appointed or elected does impact the performance of these officials. See Besley and Case (2003) for an overview on political institutions and expenditures and see for example Petzman (1992) on vote buying behavior.

labor force participation in the United States and internationally.[5] While previous work has systemtically documented both these issues, this paper provides a mechanism linking the outcome of individual decisions (i.e. to avoid work for sufficiently generous public welfare alternatives) and political mechanisms that facilitate such behavior. In this case, the steep rise in the number of individuals on disability insurance is clearly linked to the rising acceptance rates. This increased acceptance rate could only occur when governors had enough flexibility in determination processes to allow more marginally disabled individuals onto disability rolls. The results of this paper thus indicate a important potential mechanism that has been under-explored: the role of political institutions in facilitating issues of moral hazard and adverse selection in insurance, tax and public welfare provisions.

2 Background Information

The Social Security Administration (SSA) provides income and medical benefits to individuals eligible for disability insurance under the Social Securities Act (1935).[6] The provision of these benefits occurs through two programs:

- Social Security Disability Insurance (DI): Established under Title II of the Social Security Act, DI is a social insurance program. It is intended to protect workers who become disabled and therefore cannot (or at least cannot be expected to) work. Thus, DI eligibility requires workers be previously employed.[7] After age 65, DI benefits are converted to Old Age and Survivors Insurance (OASI).

[5] For example, Bound, 1989 finds only small disincentive effects from DI. In contrast, Gruber and Kubik, 1997 and Autor and Duggan, 2003, find a significant effect on labor force participation which appears concentrated among the low-skilled.

[6] For many people, the true value of disability insurance is the entitlement to Medicare (for DI recipients after a 2 year waiting period) and Medicaid (for SSI recipients).

[7] In fact, the program functions on a credit system which takes account of both how long an individual worked and the time period an individual worked. The number of work credits needed for disability benefits depend on the age of disability.

- Supplementary Security Insurance (SSI): Established under Title XVI of the Social Security Act, SSI is means-tested, intended to protect individuals with limited income and assets. SSI beneficiaries can continue to receive benefits past age 65.

Both programs use the same health criteria to determine eligibility. The Social Security definition requires that an "inability to engage in any *substantial gainful activity* by reason of any medically determined physical or mental impairment which can be expected to result in death or which has lasted or can be expected to last for a continuous period of not less than 12 months."[8] "Substantial gainful activity" is defined as working on a regular and continuing basis and earning over $830 a month (in 2005). [9] The disability must be "demonstrable by medically acceptable clinical and laboratory diagnostic techniques. "This restriction is not overly strict in part due to the liberalization of the DI program that occurred in 1984. Among other issues, this liberalization relaxed many of the requirements that governed the determination process.[10] Thus the criteria for disability, while well-defined, are not objective and leave room for discretion in the determination process.

2.1 Funding and Administration

A crucial aspect of the Federal DI/SSI system is that it is federally funded but administered by the states. This administration occurs through the Disability Determination Services (DDS) offices in each state. These offices are part of state governments and are typically headed by an individual appointed by the governor. This agency manages the disability insurance claims sent by the SSA field office.

[8]Social Security Administration Disability Insurance "Red Book," emphasis added

[9]It bears mentioning that the substantial gainful activity earnings restrictions only refer to money obtained from working and does not restrict income from investments. Thus a disabled individual may have income independent of his or her DI benefits.

[10]This liberalization resulted in greater consideration of mental illness, increased weight placed on symptoms such as pain, and acceptance of diagnoses and evidence from personal physicians of applicants, among other changes. For greater discussion on the effects of liberalization, see Autor and Duggan (2003)

This state-based administrative mechanism was originally established to facilitate coordination with existing state vocational rehabilitation agencies and to encourage physician acceptance and participation in the disability insurance program.[11] However, state management, subjective decisionmaking standards, and lack of federal oversight is believed to be responsible for the great deal of variation in the disability allowance rates. State agencies are required to follow the regulations set for by the SSA, but there are relatively few Federal requirements relating to their administrative practices. The agencies follow state established personnel policies with respect to such matters as salaries, benefits, and educational requirements; do their own hiring; provide most of the training for adjudicators; follow their own quality assurance procedures; and pay state-established reimbursement rates for purchase of medical evidence. This results in different training and administrative practices that affect the determination process.

Variation in training and practices is exacerbated by the increased subjectivity of the determination process. Court decisions as well as changing perceptions about what constitutes disability has resulted in a number of new policies that require individual judgment by the those adjudicating disability applications. For example, all adjudicators are required to assess such subjective factors such as the weight that should be given to the opinion of a treating source and credibility with respect to allegations of pain and other symptoms.[12]

Variation in health status, occupational composition, and demographics across different states would naturally give rise to differences in allowance rates. Determining the source of such variation, however, is important because the administrative environment leaves DDS agencies vulnerable to the influence of state-level political considerations. Indeed a General Accounting Office (GAO) report worried explicitly about the impact of

[11] A detailed discussion of the original and current structure of the DI program is available in Social Security Advisory Board (2001)

[12] Court cases include *Schisler v. Bowen*, 787 F. Supp. 76 (2 Cir.1986), which dealt with treating source opinion, and *Hyatt v. Heckler*, 579 F. Supp. 985 (4 Cir. 1986), which dealt with assessment of pain.

politics on disability determinations given that all DDS employees were state employees working for an executive agency.[13] Moreover, a state director of DDS stated, for example, that he would "probably be discharged if he followed a strict interpretation of SSA guidelines" (GAO 1978). Similarly another employee of a DDS office said, "We are state employees; therefore, we don't have to pay attention to what the SSA regional office . . . or any other federal agency says" (GAO 1978, 7-8).

The structure of the disability system therefore establishes conflicting incentives for states and the SSA. Unlike the federal government, which has an incentive to cost minimize by reducing caseloads, state governors have an interest in increasing them. This is for two reasons. First, if individuals applying for DI are denied they may apply for other forms of social welfare for which states bear the cost. To the extent that governors seek to cost-minimize with respect to their own social programs, they will attempt to admit more marginally disabled individuals into the federal DI program. Second, the removal of these individuals from the ranks of the unemployed may allow a change in the perception of state level economic performance. This could affect the governor's political capital or re-election prospects.

2.2 Legal History

The large growth in both the application and enrollment into the Federal Disability Insurance prompted a set of Congressional legislative reforms in 1980 which formed the backbone of the federal government's effort to define the scope and limit the growth of DI. SSA was required to review a specified percentage of State DDS allowances and allowed fo partial or complete take over from a State Disability Determination services (DDS) the function of making disability determinations if the DDS fails to follow Federal regulations and guidelines or if the State no longer wishes to make the determinations; required the

[13] GAO Report to Senator Jim Sasser (September 1985)

agency to make own-motion reviews of ALJ decisions. Most notably, the reforms also required continuing disability reviews (CDRs) of DI benefits for non-permanently disabled beneficiaries at least every three years. In order to define the scope of improvement, the Act also incorporated an amendment that was based on SSA's policies on the evaluation of pain. The amendments also contained a number of provisions designed to encourage DI and SSI disability beneficiaries to return to work, including continuation of benefits while the beneficiary is in vocational rehabilitation, the disregard of certain work-related expenses, and facilitated reentitlement to benefits. The new rules established the need for a standard of pain evaluation. During the application and appeals process, medical evidence is critical to correctly identifying whether an individual can be categorized as "disabled". The procedures rely on evidence from three difference sources: the treating physician, a consulting examiner, and a medical advisor. The weight given to the treating physician evidence relative to the other two sources may determine case outcomes but until 1991 was not uniformly applied to disability determinations. (Schneider, 1996). This formulation, often left ambiguous by the courts, could then be set at the state level permitting greater variation in the evidence provided by the individual's treating physician, which was generally thought to increase the likelihood of acceptance. This is because increased weighting of physician testimony allows the increased weight of subjective measures of pain and injury which treating physicians may testify to but government sponsored doctors (such as consulting examiner or medical advisor) may be unable to observe. The weighting of this testimony became an issue of contention between the SSA and the Federal courts for almost 15 years. During that time period, changes in the boundaries of SSA authority as well as the rights of disability applicants and recipients generating changing standards of evaluation during the application and appeals process.

Based on divergence and later convergence in administrative rules regarding the weight to treating physician testimony there are three distinct periods of rules: 1982-1985, 1986-

1992, and 1993-1996.

2.2.1 Period 1 (1982-1985): Uniform Standards on Evidence of Pain after 1980 Reforms

Despite the 1980 legislation, a large number of newly denied or failed continuiation cases were being returned to DI by the courts. The reports of the Ways and Means and Finance Committees on the 1980 amendments encouraged the courts to conform to new legislative standards stating that the courts. In 1981 the courts responded in *Finnegan v. Matthews*. The Ninth Circuit Court of Appeals in *Finnegan v. Mathews* restricted SSA's ability to terminate SSI payments to beneficiaries who had been grandfathered into the SSI program essentially counteracting the intention of the 1980 establishment of continuing disability reviews. SSA issued a non-acquiescence ruling, deciding not to apply the decision, on the grounds that the court's standard would be impossible to administer. In 1982, The Ninth Circuit Court of Appeals in *Patti v. Schweiker* respnded again that SSA could not terminate benefits to an SSI disability beneficiary unless it showed that the beneficiary's condition had improved. To remedy this, Congress provided for a due process hearing to ensure legal standards of proof were met before termination of benefits of disability beneficiaries. The Ninth Circuit enjoined SSA to follow its rulings in *Finnegan* and *Patti*.

Given the courts response to the 1980 reforms and the sense that "the review process mandated under the 1980 amendments...resulted in some significant problems and dislocations which were not anticipated and which contributed to an unprecedented degree of confusion in the operation of the program," Congress passed the Disability Benefits Reform Act of 1984 (P.L. 98-460). The Disability Benefits Reform Act increase the evidentiary requirement necessary to demonstrate improvement and ability to work as grounds to terminate benefits.. This act also wrote into the law for a temporary period SSA's criteria for evaluating pain and required the consideration of the cumulative effect of multiple disabilities.This law also attempted to establish uniform standards for determining disability to apply at all levels of determination, review, and adjudication based on a Health and Human Services, in conjunction with the National Academy of Sciences, study regarding evidence of pain and pain management options. The importance of physician testimony arose in 1980 with the legislative change and was then heightened by the 1984 reforms. However, while the 1984 reforms formally relaxed previous standards, in practice it simply brought the administrative rules from SSA into agreement with the Cirucit courts nationwide. Prior to the law change in 1984, a class action suit in the District Court for the Western District of North Carolina, *Hyatt* , found SSA's policy regarding pain ran contrary to the Fourth Circuit law and enjoined the agency from refusing to follow the law of the circuit. By the end of this year, every circuit court had held that SSA should apply a medical improvement standard before terminating disability benefits. Rather than the 1984 legislative reforms, this study uses two changes regarding the inclusion of treating physician evidence on pain and injury. While this issue is subtle, its potential for altering determinations is quite significant.

2.2.2 Period 2 (1986-1992): Variation in Legal Standards on Evaluation of Pain and Physician Testimony

The second period was initiated by the the Second Circuit Court of Appeals (in *Schisler v. Heckler*) which stated that a treating physician's opinion on the subject of medical disability is binding unless contradicted by substantial evidence. This legitimized a lower court decision on the matter and moved the second district away from the uniform standards of testimony weight supported by the SSA. While the Supreme Court upheld the SSA determination procedures in *Bowen v. Yuckert* (1986) which upheld SSA's use of a minimum threshold of medical disability in denying benefits based on a non-severe impairment at step two of the sequential evaluation process but was mute on the standards by which evidence in these procedures might be. *Schisler* introduced a much heavier weight for treating physician testimony which also introduced increased confusion about the 1984 SSA guidelines. Thus, for governors interested in weighting testimony of physicians could continue to do so. However, SSA maintained its the 1984 temporary amendment on objective standards for evaluating pain which was largely thought to restrict the scope of what constituted evidence of pain largely eliminating the role for testifying treating physicians. Thus for governors closely following SSA rules, the combined effect of the 1986 laws and SSA announcements was to overide the *Schisler* decision by maintaining evaluation of pain standards and thus eliminate the increase likelihood of allowance from treating physicians. Indeed, hoping to reduce the expansion of DI benefits, the ruling also provided guidance on how to develop evidence of pain and how to apply the policy at each step of the sequential evaluation process.

This restriction prompted a second effort to reduce state discretion and generate uniformity, in 1988, SSA issued a new ruling on pain which restated the existing policy in the 1984 amendments. Reviewing the *Hyatt* class action case, the District Court for the Western District of North Carolina found that SSA's published policies and instructions on pain, including its 1988 ruling, did not conform to circuit law. The district court ordered those policies and instructions to be cancelled and drafted a new ruling on pain to be distributed to North Carolina adjudicators. Thus ended the second period and ushered in the third period where after1989, the legalality of the pain standards were in question reintroducing the importance of treating physician testimony

In 1991, the SSA issued new regulations on the evaluation of pain and other symptoms and on the evaluation of opinions of claimants' treating physicians. The pain regulation restated existing policy and included guidance on how this policy would be applied during the sequential evaluation process. The regulation on treating source opinion said the agency would give controlling weight to such opinions when they were well supported by medically acceptable clinical and laboratory diagnostic techniques and were not inconsistent with other substantial evidence in the case record. Beginning in 1992 four Statewide class action suits were filed against State DDSs and/or SSA alleging that improper policies and procedures were employed in making disability determinations. The States involved were Iowa, Nebraska, Oregon, and Utah. The issues included development and consideration of treating source medical evidence and opinion; evaluation of subjective symptoms, including pain; evaluation of credibility; appropriate use of vocational resources and evaluation of vocational evidence; and Federal oversight of the DDSs. All cases were settled with agreements which included redeterminations of certain previously denied claims and ongoing communications with plaintiffs'representatives to discuss concerns related to the disability determination process.

During this time period, four circuits were extremely vocal in their condemnation of the SSA standards and the unwillingness of the SSA to acquiesce to previous court rulings: the second circuit (NY, CT, VT), the fourth circuit (MD, WV, VA, NC, SC), the eight circuit (ND, SD, NE, MN, IA, MO, AR) and the ninth circuit (MT, ID, NV, AZ, CA, OR, WA, AK, HI). The opposition to the SSA mean states in the more controvertial circuits faced increased scruity and even legal review of DDS decisions. Thus inadvertantly, these circuit court stances on SSA administrative authority generated *de facto* variation in the extent of monitoring on disability determiniations. [14]

2.2.3 Period 4 (1993-1996): Unification and Training on SSA Standards

The tide turned in 1993, the Second Circuit Court of Appeals in *Schisler v. Sullivan* found that SSA's 1991 regulations on the opinions of treating physicians, while they departed in some ways from the court's earlier opinion, were a valid use of the agency's regulatory power. Finally in 1996 SSA issued a set of nine Social Security rulings commonly called

[14] For detailed discussion of the response of various circuit courts to SSA standards as well as comparison of appeals rates, see Haire and Lindquist, 1997

process unification rulings and provided training on the rulings for all disability adjudicators. The subjects of the rulings included the weight to be given to treating source opinions and other medical opinions, the evaluation of pain and other symptoms, the assessment of credibility and residual functional capacity, and the application of Federal court decisions.Thus after 1992, the discretion and uncertainty was ended and a uniform treatment of pain evaluation and treating physician testimony was returned.

2.3 Monitoring and Oversight by the SSA

The major shift toward treating physician testimony and subjective evidence of pain was thus introduced by various legistlative changes and court rulings in 1984, and continued through 1996. While the relaxation and later constriction of such subjectivity would be less problematic if the SSA administred the programs but the independence of State-administered DDS was compounded by the relatively lax oversight and monitoring provided by the SSA.

Prior to 1972, SSA conducted pre-effectuation review (PER) of all DDS decisions. In 1972, the federal review of DDS decisions was drastically reduced to a national sample of five percent, conducted post-effectuation of the decision. In 1980, Congress established the Pre-Effectuation Review (PER) giving SSA the authority to review a certain percentage of DDS decisions before they were paid. PER required a review of 15 percent of Title II (DI) and concurrent (DI/SSI) allowances in 1980, 35 percent in 1982, and 65 percent in 1983 and beyond. Today, the PER sample is a sample of 50 percent of all Title II (DI) and concurrent Title II/XVI (DI-SSI) initial allowances prior to effectuation of payment. Of the 50 percent of cases selected for review, 45 percent are targeted based on the profile and 5 percent are randomly selected (these are the Title II and concurrent Title II/XVI initial and reconsideration allowances selected for a quality assurance review). PER is mandated by law and has been updated to identify and sample the most error-prone cases for review.

In addition to the PER, the 1980 Social Security Amendments also gave SSA authority to set performance standards for DDSs with the option of taking over DDS workloads, if they failed to meet those standards. The 1980 Amendments also mandated that non-permanent disability cases must be reviewed every three years (continuing disability reviews (CDRs)). As a result of the 1980 Amendments, SSA established a DDS performance accuracy threshold of 90.6 percent combined accuracy rate for initial allowances and denials and began undertaking quality assurance reviews (QARs). The 90.6 percent level was somewhat arbitrarily chosen, based on the fact that it represented one and one-half standard deviations from the mean accuracy rate at that the time. If a state DDS initial allowance or denial accuracy falls to 90 percent or less, sampling of the deficient stratum is increased to 140 cases per quarter (reduced from 196 in May, 2000) and remains at that level until the accuracy rate improves.[15] In addition, the SSA requires DDSs meet standards of timeliness, with the target case processing time of 49.5 calendar days or less for DI applicants and 57.9 days or less for SSI applicants. If a DDS has an accuracy rate of less than 90 percent for two consecutive quarters but meets the timeliness standards, SSA has the discretion to decide to provide technical and management assistance (TMA). If a DDS has an accuracy rate of less than 90 percent and fails to meet one of the timeliness requirements, it is deemed to have "unacceptable performance level" and the SSA must provide TMA. If after 1-2 years performance is still unacceptable, the SSA can take over the administration of DI determinations in that state. Although the SSA has the statutory authority to assume responsibility for conducting disability determinations for a state, it has never exercised this authority. The apparent reason for this is the possible political ramifications to the governors of such a move. Lewin (2001) suggests that exer-

[15] State DDS performance and compliance with federal policy is measured by the findings of the QARs. Only Group I deficiencies (a decisional deficiency with sufficient documentation to support an opposite decision; or a documentation deficiency where the medical documentation is not sufficient to support any disability decision.) are used in the calculation of performance accuracy provided that the DDS also failed to meet processing time standards for either Title II or Title XVI.

cise of this authority was considered under the Reinvention of Government II initiative, in 1996, and rejected for such reasons. However, it may also be the case that no state has ever deviated a sufficient amount for a long enough period of time to warrant a takeover. In this case, the threat of takeover may be sufficient to induce state governors to apply subjective admission criteria only up to an existing threshold level.

3 Data

This study links Social Security Administration data from 1982 through 2000 to data on political variables collected by Besley and Case (1995) and information on case law in various federal districts.

The disability application variables, reported in Panel A of Table 1, include applications and allowance rates for individuals who apply for DI or SSI separately as well as individuals who apply for DI and SSI combined. The allowance rate is defined as the number of approved applications at the DDS level divided by the total number of applications. The denominator of this outcome is reported as the number of applications for DI and SSI separately as well as combined DI/SSI applications. Table 1 shows that about 43 percent of DI claims and 40 percent of SSI claims are accepted. Moreover, this number has been increasing over time. In 1982 only about 35 percent of DI applications and 33 percent of SSI applications were accepted. This rose to a peak of 49 percent of DI applicants and 47 percent of SSI applicants in 1992.

State demographic and economic variables are reported in Panel B of Table 1. The unemployment rate averaged about 6 percent during this period though in the post-liberalization period (after 1984) it was on average only about 5.5 percent. States vary a great deal in their unemployment rate, however. For example, during that time period both West Virginia (in 1985) and Louisiana (1986) had unemployment rates well over 10 percent. In contrast, in those years New Hampshire and Massachusetts had unemployment rates of well below 5 percent. Similarly, 25 percent of the population lives below 150 percent of poverty. However, this varies widely as some states less than 10 percent of the population lives below 150 percent of poverty (Connecticut) and in some states over 40 percent of the population lives below poverty (Mississippi). These factors are useful in illustrating the reason why, due to various economic factors, states are likely to differ widely in their allowance rates and the political value of a higher allowance rate.

Another source of variation in the demand for disability insurance is the relative value of DI payments. There is considerable variation in the DI replacement rate (i.e. the average DI payment/ the average wage) as well as the unemployment insurance (UI) replacement rate (i.e. the average UI payment/ the average wage). There is also variation in the number of people without health insurance (on average 75 percent, but as low as 55 percent.) This is particularly relevant because individuals are eligible for Medicare 24 months after an individual is deemed disabled. These factors regarding access to public welfare may also influence demand and thus the political value of disability insurance.

The political variables are reported in Table 2. Panel A of Table 2 reports descriptive variables about the governors. About 60 percent of the state-years have governors serving their first term in office. About 30 percent of the state-years have governors serving their second term in office. About 49 percent of the state-years have democratic governors. The average governor is about 54 years old. In addition to the descriptive variables in Panel A, we also report some outcome variables in Panel B. Only about 13 percent of incumbents lose re-election (either in a primary or a general election). About one-quarter of the sample are ineligible for another term. Another 17 percent were eligible to run, but did not do so. Thus governors who did not get re-elected even though they were eligible for re-election represent about 30 percent of the sample. On average, winning governors won about 57 percent of the votes, but some won with as little as 35 percent of the vote. Only about 6 percent of the sample won by a margin of greater than 10 percentage points.

Panel C of Table 2 reports rules which may limit gubernatorial power. Over 80 percent of the sample has gubernatorial line-item veto, where the governor can eliminate individual items in omnibus legislation. Only 20 percent of the sample has supermajority requirements to approve tax increases. 45 percent of the sample has indexed limits on tax and expenditure changes but only 25 percent of the sample has limits that are restrictive.

Panel D of Table 2 reports other political variables relevant for gubernatorial political power. In 16 percent of the sample, one party received more than 60 percent of the vote indicating strong party ties. On average, 57 percent of state senate members and 56 percent of state house members are democrats and indeed about 56 percent of the sample has a democratic legislature. In general, democrats are believed to be associated with higher government spending and in general fiscal laxness. However, we find evidence of a significantly negative relationship between having a democratic legislature and the fraction of expenditures that are deficit funded. About 20 percent of the state senate members and 14 percent of state assembly members are women and again, there appears to be little correlation with government expenditures. Higher fractions of women in political office are sometimes thought to indicate the political liberalness of an area and would be associated with higher spending levels. We find evidence that a higher fraction of women is associated (in a marginally significant sense) to higher rates of deficit spending. Finally, about 48 percent of the sample has a split government, where the governor and the majority of the legislature are of opposite parties. It is typically thought that split governments are more fiscally conservative. We find no evidence of a significant relationship between split government and deficit spending.

Panel D also reports the relationship between the governor's party and the current president's party. The relationship between the governor and president's party may relate to career concerns of governors. For example, if a governor is too extravagant in allowances for his or her state, then while there is little consequence for within state politics, there may be reputation consequences in national politics. Nearly 40 percent of the sample has governors who are of the same party as the president. Of the 60 percent of the sample in which the governors and presidents are of opposite parties, about 23 percent have republican governors and democratic presidents. The political party may be important if there are different reputational and electoral consequences for higher welfare spending by political party.

4 A Model of Gubernatorial Learning

To motivate the need for a theoretical model, we first consider the trends in disability insurance and the extent to which these trends suggest gubernatorial behavior may be relevant factor in disability determinations. Previous work has extensively documented the trends in DI and the role that this has played in US unemployment rates (Autor and Duggan 2003). Using a similar data, it is clear that increases in both acceptance rates and application rates contributed to the expansion of the disability program.Figures 1 and 2 illustrate the DI application rates (per 100,000) and allowance rates (respectively) from 1982 until 2000. These figures show the rates of first-term governors and single term governors in the solid and dashed lines respectively. Between 1982 and 1990 application rates are largely flat in both single term and multi-term governors and if anything, slightly (though not significantly) higher among first term governors. Despite this relatively constant application rate, allowance rates increased steadily from 1982-1986 among both single term and multi-term governors. The divergence between single and multi-term governors' allowance rates begin in 1986and continue through 1996. Although allowance rates decline in states with multi-term governors between 1986 and 1988, these rates remain constant among multi-term governors. After 1998, both groups dramatically increase allowance rates, though somewhat more rapidly among multi-term governors, until 1992 and then rapidly reduce allowance rates until 1996. Application rates, on the other hand, appear to largely co-move for both single term and multi-term governors, increasing steadily through 1994 and then decreasing after 1994. After 1996, disability insurance allowance rates once again rise, while application rates continue to fall.

The timing correspondence between allowance rates and legal ruling and lack of correspondence between applications and allowance rates raises two potential factors that may affect the adjustment of DI allowance rates by governors. The first is flexibility. Even if a governor wishes to adjust allowance rates for political purposes, he or she cannot do so if there are clearly objective standards for application acceptance. Thus the introduction of increased flexibility after 1986 increased the potential for governors to increase the allowance rates for political reasons. However, a likely second factor is that probability of detection. If SSA monitoring was perfect, then such deviations in allowance rates would be detected with a high probability. If there are political consequences for such detection (e.g. reputational consequences) governors will not tend to deviate from the targeted allowance rate. Put another way, for a fixed penalty from the SSA, an increased probability of detection should reduce the willingness of governors to deviate from the targeted allowance rate. To test this we compare states in which the federal circuit acquiesced to the SSA rulings (and saw less review and appeal and we refer to as " low monitored") to states which did not acquiesce (and saw greater review and thus we refer to as "strictly monitored"). We find evidence consistent with this theory. **Figure 2A** shows allowance rates in strictly monitored states. There is little divergence between single ter and multi-term governors (except in 1990) and frequent crossing of the two lines. In contrast, **figure 2B** shows allowance rates for low monitored states. In these states, while first-term governors appear to increase and decrease their allowance rates, multi-term governors appear to either hold steady or increase allowance rates. In

A question that then must be answered is why single term governors do not adjust to lax monitoring in the same way as multi-term governors–i.e. why do single term governors appear to reduce allowance rates even when monitoring is relatively low. A key issue may be the information governors have about the targeted rate from the SSA and what allowance rate level constitutes a small versus a large deviation from the targeted rate. Second term and later governors have much more information having had signals from the SSA and therefore adjust DI rates much more as economic/political needs arise. information about the likelihood of detection. First term governors may be wary of moving DI allowance rates in because they do not have enough information about how the Social Security Administration will react. Thus we see much more movement and larger differences by governor term length during periods of little scrutiny and reduced monitoring. To more formally illustrate this, we develop a simple model of strategic behavior between a governor and the SSA.

4.1 Basic Setup

To begin, suppose the governor has utility $U(x)$, where $x = a - a^{ssa}$ and represents the difference between the allowance rate set by the governor (a) and SSA's desired allowance rate (a^{ssa}). SSA observes x. SSA can take one of three actions: i) do nothing, ii) send a warning ($s = 1$), and iii) impose technical and management assistance or completely take over the administration (in short take over, $t = 1$). To decide which action to take, SSA follows these rules:

- send a warning if $x > c - \Delta$ (i.e. define a variable such that $s = 1(x > c - \Delta)$)
- take over disability determination if $x > c$ (i.e. define a variable such that $t = 1(x > c)$).

In these rules c represents the cost to the SSA of taking over any DDS and Δ is the amount by which SSA shades the true costs of takeover in order to ensure compliance.

For illustrative purposes we will treat Δ as exogenously given.[16] Assume that governors know Δ, but don't know c.[17] That is, we assume that governors know how much SSA will shade by but they do not know the true cost of takeover. Also, assume that if $x > c$ governors utility is zero (i.e. $U(x) = 0$ for) the period and any period after. That is governors receive zero utility in this period and future periods if SSA takes over and as such governors will always avoid setting $x > c$.

In a one period model the governor weights the utility gain from setting a higher acceptance rate against the increase in the probability of takeover.[18] In a two period model, however, information is transmitted based on the SSA's action in the previous period. The governors will therefore maximize their utility over both periods, i.e.

$$\begin{aligned} \max_{x_0, x_{10}, x_{11}} U(x_0, x_{10}, x_{11}) &= \Pr(t_0 = 0) U(x_0) + \Pr(t_0 = 0, t_1 = 0, s = 0) U(x_{10}) \quad (1) \\ &\quad + \Pr(t_0 = 0, t_1 = 0, s = 1) U(x_{11}). \end{aligned}$$

where x_0 is the difference between SSA's desired allowance rate and the allowance rate set by the governor at time $\tau = 0$, x_{10} is the difference between SSA's desired allowance rate and the allowance rate set by the governor at time $\tau = 1$ if the governor does not receive a warning, and x_{11} difference between SSA's desired allowance rate and the allowance rate set by the governor at time $\tau = 0$ if the governor receives a warning.

[16] An interesting extension to this model is one in which Δ is also a choice parameter strategically set to induce maximal compliance.

[17] Assuming that Δ is also unknown does not alter the results, while if the governor knows c, $x = c$, an uninteresting case.

[18] Note that to assure an interior solution in a one period model the main regularity condition is that the hazard rate $\frac{f(x)}{1-F(x)}$ is monotonic.

4.2 Solving the Governor's Maximization Problem

Suppose that c has a known distribution, $F(c)$, which admits a density $f(c)$. Substituting in the distribution function for the probabilities, the expected utility in 1 simplifies to:

$$[1 - F(x_0)]\, U(x_0) + [1 - F(x_{10})]\, U(x_{10}) + [F(x_0 + \Delta) - F(x_{11})]\, U(x_{11}) \qquad (2)$$

Suppose the governor maintains the administration of the disability program (i.e. $t_0 = 0, t_1 = 0, s = 1$) and he received a warning, then x_{11} is implicitly defined by:

$$\arg\max_{x_1} P(c > x_{11} | c > x_0, s)\, U(x) = (1 - F(x_{11} | x_0 < c < x_0 + \Delta))\, U(x_{11}) \qquad (3)$$

The first order condition from equation 3 is:

$$(1 - F(x_{11} | x_0 < c < x_0 + \Delta))\, U_1(x_{11}, \alpha) - f(x_{11} | x_0 < c < x_0 + \Delta)\, U(x_{11}) = 0$$

or more simply:

$$(F(x_0 + \Delta) - F(x_{11}))\, U_1(x_{11}) - f(x_{11})\, U(x_{11}) = 0 \qquad (4)$$

In a parallel manner the governor's strategy in the state of the world where there is no warning at time (i.e. $t_0 = 0, t_1 = 0, s = 0$) is implicitly defined by the first order condition:

$$(1 - F(x_{10}))\, U_1(x_{10}) - f(x_{10})\, U(x_{10}) = 0 \qquad (5)$$

Let x_{10}^* and x_{11}^* be the solutions to these two maximization problems. We can then rewrite equation 2 as:

$$\max_{x_0} U(x_0) = [1 - F(x_0)]\, U(x_0) + [1 - F(x_{10}^*)]\, U(x_{10}^*) + [F(x_0 + \Delta) - F(x_{11}^*)]\, U(x_{11}^*) \tag{6}$$

with corresponding first order condition:

$$\begin{aligned}
0 &= [1 - F(x_0)]\, U_1(x_0) - f(x_0)\, U(x_0) \qquad (7)\\
&\quad + \{[1 - F(x_{10}^*)]\, U_1(x_{10}^*) - f(x_{10}^*)\, U(x_{10}^*)\}\, x_{10}'^*(x_0)\\
&\quad + \{[F(x_0 + \Delta) - F(x_{11}^*)]\, U_1(x_{11}^*(x_0)) - f(x_{11}^*)\, U(x_{11}^*)\}\, x_{11}'^*(x_0)\\
&\quad + f(x_0 + \Delta)\, U(x_{11}^*)
\end{aligned}$$

In equation 7, $x_{10}'^*(x_0)$ is the change in the second period solution (without warning) with respect to x_0, and similarly $x_{11}'^*(x_0)$ is the change in the second period solution (with a warning) with respect to x_0.

Note that these first order conditions (equations 4, 5, and 7) cannot be simultaneously satisfied. If all there are satisfied that implies that

$$0 = [1 - F(x_0)]\, U_1(x_0) - f(x_0)\, U(x_0) + f(x_0 + \Delta)\, U(x_{11}^*) \tag{8}$$

Define $G(x_0) = [1 - F(x_0)]\, U_1(x_0) - f(x_0)\, U(x_0)$. Equation 8 then implies that $G(x_0 < 0)$. However, we have assumed $G(x_{10}^*) = 0$. Because of the regularity condition $G(z)$ is decreasing, implying that $x_{10}^* < x_0$, which cannot be optimal. Governors will never set $x_1 < x_0$ if there was no takeover in the initial period (i.e., governors should always set $x_1 \geq x_0$).

Consider a case where governors choose the interior solution if they do not receive a warning, so that $G(x_{10}^*) = 0$. If there is a warning instead, governors pursue the safest strategy and maintain the same acceptance rate in the second period (i.e. if $s = 1$, then $x^*_{11} = x_0$). In this situation, we can rewrite the first order condition:

$$0 = G(x_0) + [F(x_0 + \Delta) - F(x_0)]\, U_1(x_0) - f(x_0)\, U(x_0) + f(x_0 + \Delta)\, U(x_0) \tag{9}$$

In order for equation 9 to hold, $G(x_0) + [F(x_0 + \Delta) - F(x_0)]\, U_1(x_0) - f(x_0)\, U(x_0) < 0$. Since $x^*_{10} > x_0$ and $G(z)$ is decreasing in z, we know that $G(x_0) > 0$. This implies that $F(x_0 + \Delta) - F(x_0)\, U_1(x_0) - f(x_0)\, U(x_0) < 0$.

Note however that this implies that:

$$\begin{aligned} G(x_0) - \left|[F(x_0 + \Delta) - F(x_0)]\, U_1(x_0) - f(x_0)\, U(x_0)\right| &> 0 \Rightarrow \\ G(x_0) - \left(-\left\{[F(x_0 + \Delta) - F(x_0)]\, U_1(x_0) - f(x_0)\, U(x_0)\right\}\right) &> 0 \Rightarrow \\ G(x_0) + [F(x_0 + \Delta) - F(x_0)]\, U_1(x_0) - f(x_0)\, U(x_0) &> 0 \end{aligned}$$

Thus there does not exist an interior solution where after a warning the governor will set the acceptance rate at the same level. Intuitively this results indicates that because governors know they still have some room to increase their acceptance rates and the warning itself does not impose any costs (so getting another warning without a takeover is costless), it is not optimal for them to simply maintain the status quo when given a warning.

Next, consider a case where governors choose the optimal x_1 if they receive a warning (i.e. the first order condition for $x^*_{11}$is satisfied). If there is no warning, governors simply increase by Δ (i.e. $x^*_{10} = x_0 + \Delta$). Note that since Δ is known, and the strategy of the SSA is known, governors know they can safely increase by Δ and still avoid takeover. Additionally, $G(x^*_{11}) > 0$. Since we know that $x^*_{11} > x_0$, this implies that $G(x_0) > 0$. The first order conditions can then be written as:

$$
\begin{aligned}
0 &= G(x_0) + G(x_0+\Delta) + f(x_0+\Delta)\,U(x_{11}^*) \qquad (10)\\
0 &= [F(x_0+\Delta) - F(x_{11}^*)]\,U_1(x_{11}^*) - f(x_{11}^*)\,U(x_{11}^*)
\end{aligned}
$$

The first condition can be satisfied if $G(x_0+\Delta)$ is sufficiently negative. In this case, governors will always choose $x_{11} > x_0$ and the warning by the SSA simply dictates the magnitude of the increase.[19]

4.3 Summary of the Model Results

The strategic model suggests that for a given governor, acceptance rates in the second period should be at least as large as in the first period. This comes simply from the relatively simplistic monitoring and penalty tools used by the SSA in which warnings indicate significant deviations, and thus allow governors to impose minor adjustments and avoid any additional penalty. First term governors, however, will not have the benefit of this warning and thus must start from scratch, setting allowance rates with no information on the SSA's targeted allowance rate level. Note also that this model illustrates that the utility from deviation is going to be a key in determining the extent of deviaton a governor may wish to impose in either the first or second period, conditional on a given expected penalty level. However, as the penalty level adjusts, for a given utility level, governors will seek to minimize the distance between the allowance rate they set in the first period and the perceived SSA targeted allowance rate. Thus we have three main predictions:

1. For a given governor, allowance rates should be weakly increasing over time.

[19] Whenever it is not satisfied, there are no interior solutions in the second period and the two boundary solutions are $x_{11}^* = x_0$, $x_{10}^* = x_0 + \Delta$.

2. For a given penalty level, governors should set higher allowance rates if the returns to doing so are higher. This tendency will be exaggerated the more information a governor has about the targeted allowance rate of the SSA (and thus for multi-term governors).

3. For a given utility level, governors should set lower allowance rates as the probability of detection increase. This tendency will be reduced the more information a governor has about the target allowance rate of the SSA (and thus for multi-term governors).

Predictions 2 and 3 hinge on the idea that the greater the uncertainty, the more governors must worry that their targeted increase will trigger a penalty and warning. With perfect information the governor can set the maximum allowance rates at the target rate plus the cost of take-over. Thus, the more information a governor has about the SSA targeted rate, the less uncertainty around the maximum increased allowance rate a governor may impose without incurring the penalty. This will thus increase deviations when the returns are higher (because the expected costs are lower) but also reduce the effects of changes in the probability of detection because the space over which that detection may occur is smaller.

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5 Results on Changes in Disability Insurance Allowance Rates

To test this model and determine how realistic and substantial such behavior appears to be, we test the three predictions sequentially. To do this, we consider the effect on allowance rates and then verify that there does not appear to be significant changes in application rates. We begin with a parsimonious specification regressing allowance rates on a linear years in office variable with state and year fixed effects. The results of this regression are reported in column (1) of **Table 3**. Each additional year of office increases allowance rates by about 0.13 or about half a percent each year. This estimate appears to be robust to the inclusion of a range of state-time varying covariates including labor force participation, average income, poverty rate and demographic controls (results reported in column 2). It also does not appear very sensitive to estimation type or corrections for serial correlation. Column (3) reports a specification using a two-step feasible GLS estimator and assuming an AR(1) process for the error terms. The coefficient is more precisely estimated but not significantly different than the OLS estimates. Given the strong prediction of the model that learning implies a given governor should increase allowance rates, we estimate a specification with governor and year fixed effects (note that state fixed effects will be subsumed in the specification). The coefficient doubles in size, suggesting that the state-year fixed effects model between governor variation masked some of the growth in allowance rates within a given governor over time. Indeed it appears that governors increase the allowance rates by almost 1 percent each year. While not substantial in any given year, the average tenure of a governor is 4.4 years so this suggests that any given governor may raise allowance rates by nearly 5 percent during his or her period in office. This specification also suggests that this may not be purely due to governor electoral survival. It does not appear that there are high and low allowance rate governors and that high allowance governors simply have longer term lengths. Rather, it appears that for a given governor, as they are in office longer, they relax the standards for admission into disability insurance. To further support this, we restrict the sample to multi-term governors only and estimate the governor fixed effects specification again. From the results reported in column (5), it appears that the coefficient is now twice that of the state-year fixed effect pooled model reported in column (2). Overall it appears that governors increase the allowance rates over time, and this appears true even when considering only multi-term governors. A model of electoral success would suggest that when restricting to multi-term governors, the tenure in office should have no effect on the overall allowance rate. Thus the results appear more consistent with a model of learning over time.

To consider how realistic our interpretation of learning might be, we next turn to the means that governors have to adjust disability allowance rates. Changes in the policy, training and other factors which may influence determination procedures are typically established by the director of DDS, a political appointee.[20] If governors are somewhat constrained in changing the appointment during the term time, we would expect this learning effect to be stifled in the first term and more prominent in later terms. To test this, we include separate effects for first-term years and later term years in office. Indeed it appears that most of the effect is concentrated in the later years in office. This results is especially indicative because there is state level variation in the number of years in a given term. Thus governors who have been in office for anywhere ranging from 2 to 6 years will be "multi-term" governors if their state has shorter or longer term-lengths. Additionally note that the effect is even greater if the previous governor was of the same party. While the significance of this coefficient is sensitive to specification, it is consistent with a story of gubernatorial learning about the SSA targeting and monitoring strategy. If it is the case that governors of the same party are more likely to share information and staff than governors of different party, then we would expect some persistence in the learning if a new governor succeeds someone from his or her own party.

A natural concern is that this difference in allowance rates over a governor's tenure reflects a change in the underlying application base. The governor fixed effects specification in part suggests this is not the case since for any given governor term length, there

[20] The Director of Disability Determination Services is typically appointed by the governor and approved by the legislature. The SSA has no official input into the nomination or appointment of these individuals. Some states have considered this office sufficiently important that the Director of DDS sits on the governor's cabinet.

are a range of states and years in which any given governor may be single or multiple term governor. However, if the underlying applicant base is changing with the gubernatorial electoral cycle, this will pose a problem for our identification. To explicitly test this, we estimate a governor fixed effect model using applications per 1000 people (in a state-year). We find no significant effect and the magnitude of the coefficients is extremely small. Given that there does not appear to be change in the application rates across term lengths or in later term, there is less concern that the dependent variable of allowance rates (which is allowances divided by applications) could be changing due to changes in the application pool. Nevertheless, we also estimate the governor fixed-effects model using allowances per 1000 in the population–which does not have the same problem of a potentially dynamically responsive denominator. We find similar effects with a slightly less than one percent per year increase in allowances per 1000 in later term governors. Overall the results appear consistent with learning model prediction that learning, rather than changes in the underlying pool of DI applications, may be responsible for changes in allowance rates for specific governors over time.

The next prediction of the model is that for a given penalty level, the governor will increase allowance rates if the return to doing so is higher. Conditional on a given penalty level, governors may be willing to risk detection if they are more constrained in vote-buying tools. To test this we consider state laws which reduce the fiscal freedom of governors. There are two such laws which we consider: first, some states have laws in which there is a tax and expenditure limitation. At some point during the sample, twenty-five states have a law of this sort with 6 states changing the law during the 18 year sample span. Second, some states have laws in which a supermajority of the legislature is required to approve any funding increase. This again limits the ability of the governor to expand state-funded programs for political returns. During the sample period, 13 states have such laws and 6 changed their laws during the sample period. A separate potential restriction on the ability to pass state-funded bills may be if the government is split, i.e. the party of the governor is different from the party of the legislative majority.

The model of gubernatorial learning has implications for the usage of DI as a political tool. While there are gains from using DI, if it indeed serves as a vote-buying mechanism, it is also risky. Because c is unknown, governors who are not constrained from otherwise addressing economic conditions may prefer not to use expand DI maximally while governors who are constrained either through political institutions or economic factors may be forced to increase allowance rates more than they might otherwise. While a good deal of the political economy literature focuses on unemployment and political outcomes, it is equally plausible that governors who are constrained from social welfare spending through political institutions may use DI as a means to improve the well-being of individuals in their state.

To further explore the relationship between necessity and allowance rates, we estimate regressions with state and year fixed effects within various sub-samples. The results, reported in Table 5, highlight how as governors are constrained, either through economic conditions or political institutions, they are more likely to use DI as a means of public welfare. Column (1) of Table 5 provides estimates for the full sample. In states with high unemployment rates (i.e. higher than the national median) multi-term governors have an even higher allowance rate. This fits with the theory that governors may be using DI as free (from a state budget perspective) way of dealing with adverse economic shocks. The same is not true for high deficit spending states. First-term governors in states which finance a higher percentage of their expenditures through deficits have almost the same acceptance rate as the full sample.

In states with restrictions on tax and expenditure increases and especially in states with supermajority requirements for new tax or expenditure laws, first-term governors have substantially lower acceptance rates relative to multi-term governors than the sample as a whole. This is suggestive of a more "risky" use of DI at times when governors may be constrained from passing other legislation. If higher acceptance rates increase the chance of SSA takeover, then the amount governors increase the acceptance rates by in their second term will be influenced by their ability to pass other interventions (obviating the need for a large increase in DI acceptances).[21]

Note that republican governors have an even higher allowance rate than the average multi-term governor. This may be related to two factors. First, republican governors may be in states in which there is a greater distaste for state spending and tax increases. This means that the governor has few options if he or she wishes to expand social protection. Second, republican governors career concerns may be such that higher state deficits are more detrimental than greater usage of federal programs. As a result, republican governors appear to be quite willing to use federal public welfare programs.

While there appear to be raw differences in the acceptance rates by term length, this could be related to political survival and political savviness. In order to test this, we estimate a set of specifications with governor fixed effects. In these specification, single term governors who are never re-elected are absorbed by the governor fixed effects. Thus, identification for the first-term effect comes from comparing governors in their first term to later terms, essentially treating multi-term governors as panel observations on the same individual. Table 6 reports a comparison of estimates using governor fixed effects to those using state fixed effects. The DI only allowance rate is still lower for first term governors relative to second term governors but the effect is not significant. However, the effect among concurrent applicants (columns (6)) and indeed among the total number of DI applications (not reported) actually increases. Moreover if a governor cannot run again (he or she is prevented by term limit laws), the effect is also larger in the governor

[21]The specifications reported in Table 5 use individual subgroups for clarity of discussion. Results from a pooled regression are similar and there are no significant interactive effects between the subgroups (although there are likely too few observations to get sufficient statistical power to identify any interactive effects).

fixed effects setting, providing additional evidence of career concerns.

As a final robustness check we show that changes in the distribution of disability are not able to explain these differences. In Table 7 we regress the differences in the Log-Number of DI beneficiaries for each diagnostic type on the multi-term dummy variable. Less that 5 percent of the diagnostic types show significant differences between first and multi-terms governors. This finding also suggest that applicants are probably unaware of the differences in allowance rates across terms. Otherwise, marginal applicants, who often report musculoskeletal or back-pain problems, would have an incentive to apply when allowance rates are higher.

6 Concluding Remarks

Our results provide fairly strong evidence that governors in their second term allow higher acceptance rates for federal Disability Insurance (DI). We believe this inefficiency is due to the inherently imperfect principal-agent situation set up the by the administration of DI. In particular, because the federal government funds DI but to a large extent leaves the management and administration to state government, there is broad scope for gubernatorial discretion to influence the allowance rates. The irony of such a scenario is that the monitoring by the Social Security Administration (SSA) actually serves to inform governors about the extent to which they can costlessly increase DI. The evidence presented here suggests that the same governors, over time, will increase their allowance rates once they learn how much room they have to increase the rates.

We also provide some evidence confirming the vote-buying use of DI by comparing governors who have a greater incentive or need to use DI as a political tool. In particular, we find that governors with higher than average unemployment rates have even larger effects in their first term. Moveover, governors who are restricted in their ability to pass social welfare programs (either because of political institutions or a split with the legislature) have even higher DI allowance rates after the first term. This is consistent with our model of learning and also suggests that there may indeed be some costs to using DI as a vote-buying mechanism.

The results of this paper provide some insight into the ways in which DI administration can be responsible for reduced labor force participation. In a world with perfect information and monitoring, governors could not use disability insurance as a means of vote buying because individuals who were not sufficiently disabled would not be allowed onto the DI rolls. This paper identifies a specific mechanism for how misclassifications and state inconsistencies may underlie misuses of social welfare program by political figures. The average estimates presented in this paper account for about 10 percent of the rise DI over the two-decade time period examined in this paper. However, much of the difference occurred over the same time period as the rise in DI rolls suggesting this political effect may be particularly relevant for the rise in DI and its implications for labor force participation. Moreover, while we identify governors as a source for the politicization of DI, there may be other ways in which state politicians more generally exploit the inherent principle-agent problem set up by the administration of the federal DI programs.

Overall, the changes we find are both significant and substantial. Unfortunately, we are not able to make strong statements about the social welfare impact of this politicization of DI allowances because we have little information about who is being allowed onto the rolls. If governors are simply providing some form of social insurance or long-term unemployment insurance for individuals who could not be employed and might otherwise suffer severe financial hardship then this use of DI to provide a stop-gap safety net may be net-beneficial. On the other hand, if individuals who would otherwise be employed or actively seeking employment are entering DI, then the program may be quite socially costly. The social welfare implications of the rise in DI rolls and its relationship to this particular mechanism for that rise is therefore left as an area of future research. However, the results provide a cautionary tale for governments seeking to reduce costs from administration. Monitoring in the form of low cost, not very credible threats is not simply ineffective but may actually be counter-productive. In this case, the monitoring system actually facilitates misuse of the system and higher DI rolls, likely far outweighing the costs needed to more effectively monitor state determination services. Thus we would recommend either a single agent structure, through federalization of DI or a more strict monitoring system with credible, costly penalties, in order to more efficiently administer DI and SSI.

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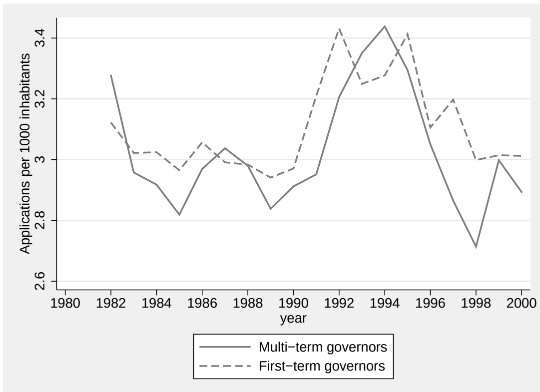

Figure 1: DI applications (× 100,000)

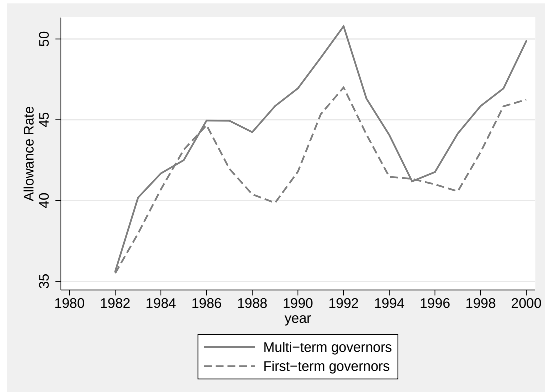

Figure 2: DI allowance rates

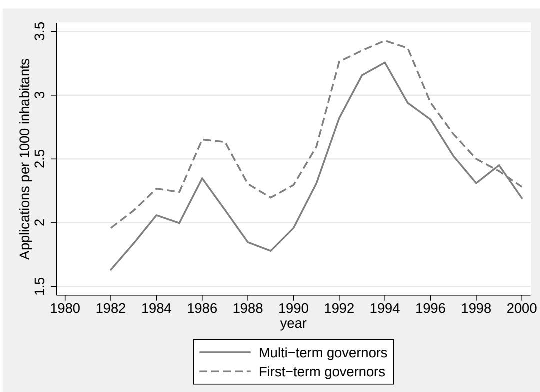

Figure 3: SSI applications (× 100,000)

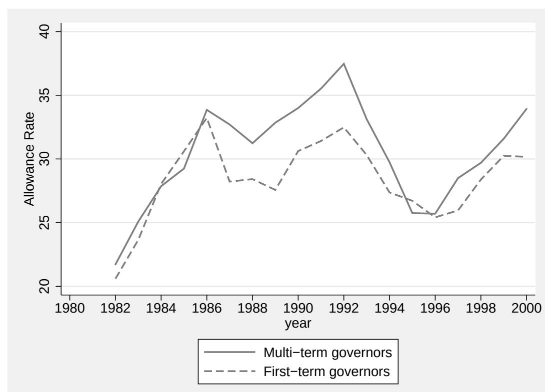

Figure 4: SSI allowance rates

Table 1: Summary Statistics for Disability Application and State Demographic Variables

	N	*Mean*	*Standard Dev*	*Min*	*Max*
Panel A: Disability Application Variables					
DI Applications	950	11,581	12,088	540	68,524
DI Allowance Rate	950	0.432	0.074	0.240	0.650
SSI Applications	950	15,759	20,501	214	136,419
DI and SSI Combined Allowance Rates	950	0.293	0.068	0.130	0.550
DI Total Applications (DI + Concurrent Applications)	950	20,907	21,353	870	139,725
DI Total Allowance Rates (DI + Concurrent Rates)	950	0.371	0.070	0.200	0.620
Panel B: State Demographic and Economic Variables					
Unemployment Rate	950	0.060	0.022	0.020	0.180
Unemployment Rate from 1984-2000	800	0.056	0.018	0.020	0.130
Labor Force Participation Rate	950	0.669	0.040	0.510	0.760
DI Replacement Rate	950	0.365	0.046	0.250	0.549
UI replacement rate	950	0.370	0.053	0.200	0.530
Real Family Assistance per capital ($1982)	864	0.040	0.025	0.005	0.132
Mean personal income (x1000)	950	19.496	5.744	8.990	37.547
Fraction of population below poverty line	950	0.138	0.042	0.030	0.280
Fraction of population below 100-125% of poverty	950	0.048	0.014	0.010	0.090
Fraction of population between 125 -150% of poverty	950	0.050	0.014	0.010	0.100
Percentage with health insurance coverage	950	0.754	0.057	0.560	0.880
Fraction of population that is working age	950	0.613	0.023	0.530	0.680
Fraction of population aged 5-17	912	0.191	0.017	0.070	0.269
Fraction of population married	950	0.493	0.023	0.420	0.560
Fraction of population that is white	950	0.807	0.141	0.220	1.000

Table 2: Summary Statistics for Political Variables

	N	*Mean*	*Std. Dev.*	*Min*	*Max*
Panel A: Gubernatorial Descriptive Variables					
First Term Governors	895	0.607	0.489	0.000	1.000
Second Term Governors	895	0.306	0.461	0.000	1.000
Third Term or Later Governors	895	0.087	0.282	0.000	1.000
Governor is a Democrat	912	0.487	0.500	0.000	1.000
Governor's Age	912	53.50	7.90	34.00	78.00
Panel B: Gubernatorial Outcome Variables					
Incumbents Lost Re-election	234	0.128	0.335	0.000	1.000
Incumbents could not run for re-election	905	0.239	0.427	0.000	1.000
Incumbents eligible to run but did not	839	0.175	0.380	0.000	1.000
Percent of votes captured by winner	250	56.88	7.69	35.40	82.40
Governors won with a margin of greater than 10 percentage points	950	0.625	0.484	0.000	1.000
Panel C: Rules Impacting Gubernatorial Influence/Power					
Governors has a line-item veto	912	0.854	0.353	0.000	1.000
Super-majority requirements for tax or expenditure increase	900	0.183	0.387	0.000	1.000
State has a limitation on tax or expenditure increases	900	0.453	0.498	0.000	1.000
State has a restrictive tax/expenditure limitations	900	0.258	0.438	0.000	1.000
Panel D: Other Political Variables					
One party received more than 60 percent of votes	384	0.167	0.373	0.000	1.000
Fraction of state senate members who are democrats	891	0.573	0.176	0.114	1.000
Fraction of state house or assembly members who are democrats	892	0.567	0.173	0.157	0.952
Fraction of state senate members who are women	912	0.191	0.085	0.016	0.433
Fraction of state house or assembly members who are women	912	0.142	0.093	0.000	0.469
Governor and legislative majority are of opposite parties	912	0.475	0.500	0.000	1.000
Governor and the President are of the same party	950	0.382	0.486	0.000	1.000
Governor and the President are of different parties	950	0.618	0.486	0.000	1.000
Governor is a Republican and the President is a Democrat	909	0.226	0.418	0.000	1.000
Percentage of expenditures that are deficit spending	864	0.438	0.080	0.238	0.705

Table 3: Estimates of Differences in Allowance Rates by Gubernatorial Term Length

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
Dependent Variable	Disability Insurance (DI) Allowance Rate			Concurrent (DI + SSI) Allowance Rate			Disability Insurance (DI) Log-applications			Concurrent (DI + SSI) Log-applications		
mean	43.90			30.08			892.8			870.8		
=1 if multi-term governor	1.31**	1.36*	0.99**	1.67**	1.61*	1.34***	-2.36	-0.58	0.35	-2.21	-1.15	-1.71
	(0.63)	(0.79)	(0.43)	(0.70)	(0.80)	(0.45)	(1.56)	(1.42)	(1.62)	(1.86)	(1.75)	(2.38)
=1 if governor cannot	-1.28	-1.00	-0.85*	-1.88**	-1.66**	-0.87*	3.46*	1.77	0.60	3.88	3.17	0.71
run again	(0.78)	(0.79)	(0.47)	(0.73)	(0.70)	(0.45)	(2.01)	(1.81)	(1.89)	(2.35)	(1.98)	(2.61)
=1 if the previous governor		0.84	0.61		0.21	0.80*		-0.02	1.38		-0.26	-3.23
is from the same party		(0.70)	(0.42)		(0.64)	(0.43)		(1.39)	(1.80)		(2.17)	(2.43)
Employed/Population		31.38	18.83**		-1.78	2.41		-260.74***	-291.71***		-225.78***	-345.18***
		(20.81)	(8.24)		(21.78)	(7.64)		(40.59)	(34.60)		(61.97)	(50.57)
Mean personal income		-0.02	-0.20***		0.02	-0.27***		0.25	1.54***		-0.43	0.07
		(0.21)	(0.07)		(0.18)	(0.07)		(0.65)	(0.31)		(0.67)	(0.43)
% of pop below 100%		0.46	-10.50*		-7.52	-20.60***		14.64	6.62		2.04	34.38
of poverty level		(14.60)	(6.35)		(10.65)	(6.16)		(23.17)	(23.60)		(33.05)	(31.17)
% of working age pop		-22.91	38.54***		4.21	71.40***		-35.08	253.81***		46.21	133.58**
(18¡=age¡=64)		(22.48)	(12.76)		(22.59)	(12.46)		(48.59)	(45.36)		(59.05)	(63.37)
Married		-11.72	-38.04***		-29.56*	-52.42***		104.72***	-69.09*		-26.31	3.44
		(17.25)	(11.15)		(16.57)	(10.91)		(37.73)	(41.64)		(51.19)	(57.62)
White		0.84	9.05***		6.35	2.78		-24.15	-221.57***		-3.74	-238.56***
		(11.72)	(3.13)		(9.87)	(2.49)		(30.57)	(16.82)		(29.01)	(24.34)
Age-Adjusted-Rate		-0.00	-0.04***		0.01	-0.02***		0.01	0.13***		0.09	0.02
		(0.01)	(0.00)		(0.01)	(0.00)		(0.03)	(0.02)		(0.06)	(0.03)
DI replacement rate		-1.96	0.34		11.02	-1.63		-110.60**	-72.29***		-203.49***	-253.09***
		(17.02)	(5.88)		(15.77)	(6.13)		(47.32)	(25.01)		(62.38)	(33.50)
UI replacement rate		1.51	-2.62		10.88	9.55**		27.91	3.02		38.99	-36.61
		(7.25)	(4.52)		(9.20)	(4.48)		(20.40)	(23.09)		(37.09)	(30.25)
State FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Year FE	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Clustered Standard Errors	Y	Y	N	Y	Y	N	Y	Y	N	Y	Y	N
Estimation Method	OLS	OLS	GLS	OLS	OLS	GLS	OLS	OLS	GLS	OLS	OLS	GLS
Observations	749	749	749	749	749	749	749	749	749	749	749	749
R-squared	0.79	0.80	–	0.73	0.73	–	0.99	0.99	–	0.99	0.99	–

Standard errors clustered by state in parentheses. Coefficients that are significant at the .10 [.05] (.01) are marked with *[**](***). Regressions all include additional controls for state marriage rates and age-adjusted state death rates.

Table 4: Estimates of Differences in Allowance Rates by Gubernatorial Term Length for three different time periods: 1982–86, 1987–92, 1993–00

	(1)	(2)	(3)	(4)
Dependent Variable	Disability Insurance (DI) Allowance Rate (in %)	Concurrent (DI + SSI) Allowance Rate (in %)	Disability Insurance (DI) Log-applications (in %)	Concurrent (DI + SSI) Log-applications (in %)
=1 if multiterm in 1982-85	-0.03	-0.47	0.19	-2.96
	(0.89)	(1.07)	(2.31)	(3.45)
=1 if multiterm in 1987-92	1.00	1.95**	0.07	0.27
	(0.88)	(0.88)	(1.55)	(2.32)
=1 if multiterm in 1993-00	1.40*	1.23	0.19	-1.93
	(0.77)	(0.73)	(2.01)	(2.38)
State FE	Y	Y	Y	Y
Year FE	Y	Y	Y	Y
Clustered Standard Errors	Y	Y	Y	Y
Estimation Method	OLS	OLS	GLS	OLS
Observations	893	893	893	893
R-squared	0.81	0.73	0.99	0.99

Standard errors clustered by state in parentheses. Coefficients that are significant at the .10 [.05] (.01) are marked with *[**](***). Regressions all include additional controls for state marriage rates and age-adjusted state death rates.

Table 5: Estimates of Differences in Allowance Rates by Gubernatorial Term Length for Subgroups

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
				Sample Restricted to States in Years in which they have				
	Full Sample	Unemployment Rate above National Median Unemployment	% of expenditures which are deficit spending above average % of deficit spending	Split Government (Governor and Legislative Majority of Opposite Parties)	Restrictions on tax and expenditure increases	Super-majority requirements for new tax or expenditure laws	Republican Governor	Governor with Line-Item Veto (Can reject single items in legislation)
Panel A: Dependent Variable is Disability Insurance (DI) Only Allowance Rate								
=1 if multi-term governor	1.53**	2.46***	1.11*	1.46*	1.98**	2.82**	2.85***	0.23
	(0.60)	(0.84)	(0.63)	(0.84)	(0.78)	(1.12)	(0.90)	(1.02)
=1 if the previous governor is from the same party	0.91*	2.62**	0.32	0.73	1.74**	0.74	1.10	1.06
	(0.55)	(1.03)	(0.75)	(0.80)	(0.74)	(1.22)	(0.88)	(0.97)
=1 if governor cannot run again	-1.15*	-2.89***	-1.15	-2.78***	-1.32	-4.29***	-3.16***	-1.07
	(0.63)	(0.90)	(0.75)	(0.83)	(0.91)	(0.95)	(1.04)	(1.03)
Panel B; Dependent Variable is Concurrent (DI + SSI) Allowance Rate								
=1 if multi-term governor	1.60**	1.69**	1.47*	1.75**	2.09**	3.18***	2.35***	-0.05
	(0.64)	(0.82)	(0.79)	(0.89)	(0.91)	(1.06)	(0.84)	(1.18)
=1 if the previous governor is from the same party	0.21	1.37	0.10	0.55	1.03	0.37	0.63	0.55
	(0.53)	(0.86)	(0.75)	(0.83)	(0.71)	(1.02)	(0.80)	(1.09)
=1 if governor cannot run again	-1.67***	-2.20**	-1.75**	-2.93***	-1.78*	-3.47***	-2.72***	-0.71
	(0.62)	(0.92)	(0.82)	(0.85)	(0.96)	(0.88)	(0.96)	(1.17)
Observations	745	265	329	371	317	144	368	287

Standard errors clustered by state in parentheses. Coefficients that are significant at the .10 [.05] (.01) are marked with *[**](***). Regressions all include additional controls for state marriage rates and age-adjusted state death rates.

Table 6: Estimates of Gubernatorial Learning Separate from Electoral Effects

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent Variable	Disability Insurance (DI) Allowance Rate (in%)			Concurrent (DI + SSI) Allowance Rate (in%)		
mean	44.02			30.15		
=1 if multi-term governor	1.36*	1.43		1.61*	1.62*	
	(0.80)	(1.04)		(0.80)	(0.96)	
=1 if governor will serve			-0.56			-1.20
more than one term			(0.85)			(1.03)
=1 if previous governor is	0.84	1.67	1.40*	0.21	0.36	0.84
from the same party	(0.70)	(1.01)	(0.81)	(0.64)	(0.94)	(0.70)
=1 if governor cannot	-1.01	-1.53	-2.20*	-1.67**	-1.75*	-2.52***
run again	(0.79)	(0.97)	(1.10)	(0.70)	(0.94)	(0.71)
State FE	Y	N	Y	Y	N	Y
Year FE	Y	Y	Y	Y	Y	Y
Governor FE	N	Y	N	N	Y	N
Observations	745	745	457	745	745	457
R-squared	0.80	0.88	0.84	0.73	0.84	0.78

Standard errors clustered by state in parentheses. Coefficients that are significant at the .10 [.05] (.01) are marked with *[**](***). Regressions all include additional controls for year fixed effects, state marriage rates and age-adjusted state death rates.

Table 7: Estimates of Differences in the Log-Number of DI Beneficiaries by Diagnostic Type and by Gubernatorial Term Length

Dep. Variable	Multiterm	SE	Multiterm	SE
Change in beneficiaries	State FE		Governor FE	
Congenital	0.01*	(0.01)	-0.00	(0.01)
Endocrinous	0.01	(0.02)	-0.00	(0.02)
Infectious	0.02	(0.02)	0.01	(0.02)
Injuries	0.02	(0.02)	0.03	(0.03)
Total mental	-0.03	(0.06)	-0.06	(0.08)
Retardation	-0.01	(0.02)	-0.05	(0.03)
Other mental	-0.02	(0.05)	-0.01	(0.08)
Neoplasm	0.00	(0.02)	-0.01	(0.03)
Blood	-0.01	(0.01)	-0.02	(0.01)
Circulatory system	-0.00	(0.02)	0.01	(0.03)
Digestive system	0.01	(0.01)	0.01	(0.02)
Genitourinary	0.02	(0.01)	0.01	(0.02)
Muscoloskeletal	-0.07	(0.04)	-0.04	(0.06)
Nervous	0.02	(0.02)	0.00	(0.03)
Respiratory	0.00	(0.02)	-0.05**	(0.02)
Skin	-0.01	(0.01)	-0.01	(0.01)
Other mental	0.01	(0.01)	-0.00	(0.01)

Based on the DI statistical supplements from 2000 to 2007. Standard errors clustered by state in parentheses. Standard errors clustered by state in parentheses. Coefficients that are significant at the .10 [.05] (.01) are marked with *[**](***). Regressions all include year fixed effects.