

The Role of Electoral Incentives for Policy Innovation: Evidence from the U.S. Welfare Reform

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Online Appendix

I. Theory

A. Proofs

PROPOSITION 1: *For any relative welfare weight γ and any reputation λ , a high-quality incumbent always undertakes a reform if and only if the underlying state of the world calls for a reform (state N). In addition, a reform undertaken is never reverted back to the status quo.*

PROOF OF PROPOSITION 1. — The proof of Proposition 1 follows from the optimization problem of the incumbent politician. A high-quality incumbent politician knows the state of the world. At $T = 0$, the incumbent chooses to reform or not (with the option to revert back to a_S if the reform is undertaken) in order to maximize equation (1).

In state S , no gain can be obtained from the reform ex post: the ex-post welfare of the reform in state S is either $-c$ or $-\frac{c}{2}$ if reverted back to a_S . Therefore, the reform should not be undertaken from a welfare perspective. Since the ex-post welfare of a reform in state S is negative, the probability of reelection (from the reelection rule) in state S is (weakly) positive if and only if no reform is undertaken. The optimal decision of the high-quality incumbent is then to stick with the status quo policy a_S independently of γ and λ .

In state N , undertaking the reform maximizes ex-post welfare since there are positive welfare gains ex post with probability 1, i.e. the ex-post welfare with a reform in state N is equal to $\Delta - c$, which is strictly positive from (A1), and is never reversed independently of the realization of the benefit in the short term. In addition, the probability of reelection is also maximized by implementing the reform since a positive ex-post welfare ensures reelection with probability 1, which is (weakly) greater than λ for any $\lambda \in [0, 1]$.

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PROOFS OF PROPOSITION 2 AND COROLLARY 1. —

PROPOSITION 2: *A low-quality incumbent reverts back to the status quo in face of a short-term failure of the reform if and only if $\gamma \geq \gamma^*$, where*

$$(1) \quad \gamma^* := \frac{1}{1 + \frac{c}{2\beta} - \Delta}.$$

The proof of Proposition 2 directly follows from comparing the politician's payoffs in case of reverting the reform and of continuing the reform after a short-term failure. Reverting the reform is at least as good as continuing it if and only if

$$\gamma \left(\frac{-c}{2} \right) \geq \gamma(\beta\Delta - c) + (1 - \gamma)\beta,$$

or

$$-\beta \geq \gamma \left(\beta\Delta - \frac{c}{2} - \beta \right).$$

Since the term in parenthesis is negative from (A3), the last inequality can be rewritten to obtain the threshold γ^* in equation (1).

COROLLARY 1: *A low-quality incumbent is more likely to revert in the face of short-term failure of the reform when γ increases and Δ decreases.*

The proof of Corollary 1 directly follows from differentiating equation (1) with respect to γ and Δ , respectively.

PROOFS OF PROPOSITION 3 AND COROLLARY 2. —

PROPOSITION 3: (I.) *When $\gamma \geq \gamma^*$, then a low-quality incumbent undertakes a reform if and only if*

$$(2) \quad \gamma \left(pq\Delta - \frac{c}{2}(1 + pq) \right) + (1 - \gamma)pq \geq (1 - \gamma)\lambda.$$

(II.) *When $\gamma < \gamma^*$, then a low-quality incumbent undertakes a reform if and only if*

$$(3) \quad \gamma(p\Delta - c) + (1 - \gamma)p \geq (1 - \gamma)\lambda.$$

The proof of Proposition 3 directly follows from the comparison of the politician's payoff if she undertakes the reform (for the two cases where she will or will not revert back to the status quo in the face of short-term failure) with the payoff from sticking with the status quo and running the next election on her initial reputation instead.

COROLLARY 2: *A low-quality incumbent is more likely to experiment when Δ increases, γ increases, and λ decreases.*

Corollary 2 states that low-quality politicians experiment more when the potential welfare gains are high, when they care more about welfare (and less about reelection) and when the initial reputation is low (because then the incumbent has little to lose in terms of her reelection chances).

The proof of Corollary 2 follows directly from differentiating equations (2) and (3) with respect to Δ , γ and λ respectively.

PROOF OF PROPOSITION 4. —

PROPOSITION 4: *If Republicans believe that the state of the world where an experiment is welfare-enhancing occurs with higher probability than the Democrats, Republicans will be more likely to experiment with the reform and to persist in the face of short-term failure relative to Democrats.*

The proof of Proposition 4 directly follows from the comparison of the behavior of the politicians which believe that the reform is the right thing to do with different probabilities.

B. Extension of the theoretical framework: Reputation, experimentation, and ex-post welfare

We extend our model to allow for the possibility that voters derive some welfare from the reputation of the politician even when an experiment is implemented.

Following the spirit of retrospective voting models, we now assume that the total cost of enacting and continuing the new policy initiative is $c(\lambda) \geq 1$, which is incurred independently of the success of the reform. The parameter λ still represents the reputation of the politician among the electorate with $\lambda \in [0, 1]$. The function $c(\cdot)$ is assumed to be strictly decreasing in λ ($c'(\cdot) < 0$). Hence, voters prefer to have a high-reputation politician in office as it reduces the cost of experimentation. This assumption captures that ex-post welfare now depends on the benefit from the experimentation plus the governor's reputation in a simple way. The total cost $c(\lambda)$ still consists of short- and long-run costs; hence, $\frac{c(\lambda)}{2}$ has to be paid when the reform is implemented and again if the reform is maintained in the long term. If the reform is reverted back to a_S instead, then the long-term cost is not incurred. The benefit of a reform that is reversed is zero, however.

The incumbent politician still cares about both welfare of her constituency as well as her own future electoral prospects. The objective function of the incumbent is

$$(4) \quad \gamma(\text{Welfare}) + (1 - \gamma)(\text{Probability of Reelection}),$$

where $\gamma \in [0, 1]$ is the relative weight on welfare as before. In contrast to our model in Section 4, the reputation of the governor now enters the "Welfare" term through the reduction of the cost of experimentation.

We still assume that the representative voter follows a simple reelection rule: reelect the incumbent with probability 1 if ex-post welfare is positive; never reelect the incumbent if ex-post welfare is negative; and reelect the incumbent with probability λ if ex-post welfare is 0.

We also make the following assumptions:

$$(A1') \quad p\Delta - c(0) > 0,$$

$$(A2') \quad pq\Delta - \frac{c(0)}{2}(1 + pq) > 0,$$

and

$$(A3') \quad \beta\Delta - \frac{c(1)}{2} < 0,$$

where $\beta = \frac{p(1-q)}{1-pq} < p$ is the probability that the state of the world is N conditional on a short-term failure of the reform.

Assumption $(A1')$ implies that a reform that is continued has positive expected welfare gains ex ante even for the politician with the highest cost ($\lambda = 0$). Assumption $(A2')$ says that undertaking the reform and reverting back to the status quo in the face of short-term failure has positive expected benefits ex ante even for the politician with the highest cost ($\lambda = 0$). Finally, assumption $(A3')$ implies that, if the benefit does not realize in the short term, the expected future benefit from continuing with the reform is negative even for the politician with the lowest cost ($\lambda = 1$).

BENCHMARK: POLICY CHOICES OF A HIGH-QUALITY POLITICIAN. — The benchmark (Proposition 1) remains unaffected by the change in the specification of the cost function.

POLICY CHOICES OF A LOW-QUALITY POLITICIAN. — We first focus on the decision to revert an experiment.

PROPOSITION 5: *A low-quality incumbent reverts back to the status quo in face of a short-term failure of the reform if and only if $\gamma \geq \gamma^*(\lambda)$, where*

$$(5) \quad \gamma^*(\lambda) := \frac{1}{1 + \frac{c(\lambda)}{2\beta} - \Delta}.$$

A low-quality politician who observes the short-term failure of a reform does not know whether the reform will be successful in the long term. This effect pushes her to revert back to the status quo to increase expected welfare. However, reelection

concerns pull her towards sticking with the reform. Proposition 5 disentangles these two conflicting forces as in Proposition 2 in the paper.

Interestingly, given a welfare weight γ , politicians are more likely to reverse an experiment in the case of short-term failure when reputation decreases ($\frac{\partial \gamma^*(\lambda)}{\partial \lambda} > 0$). When an experiment is implemented, the politician's reputation conflicts with the welfare of the voters because reputation now decreases the cost of the reform ex post and thus mitigates the cost of failure. We obtain a first testable hypothesis from our extension: conditional on experimenting, politicians are more likely to revert as reputation decreases.

We now analyze whether an uninformed politician who cares about both welfare and reelection ($\gamma \in [0, 1]$) undertakes the reform.

PROPOSITION 6: *(I.) When $\gamma \geq \gamma^*(\lambda)$, then a low-quality incumbent undertakes a reform if and only if*

$$(6) \quad \gamma \left(pq\Delta - \frac{c(\lambda)}{2}(1 + pq) \right) + (1 - \gamma)pq \geq (1 - \gamma)\lambda.$$

(II.) When $\gamma < \gamma^(\lambda)$, then a low-quality incumbent undertakes a reform if and only if*

$$(7) \quad \gamma(p\Delta - c(\lambda)) + (1 - \gamma)p \geq (1 - \gamma)\lambda.$$

Proposition 6 follows from a comparison of the politician's payoff if she undertakes the reform (for the two cases where she will or will not revert back to the status quo in the face of short-term failure) with the payoff from sticking with the status quo and running the next election on her initial reputation instead.

Interestingly, the extension delivers new insights on the role of reputation for experimentation: first, if the welfare weight is zero (purely office-motivated, i.e. $\gamma = 0 < \gamma^*(\lambda)$) the results in the paper remain valid: a low-quality incumbent who is purely office-motivated implements the reform if and only if $p \geq \lambda$. However, as soon as there is a positive welfare weight, the reputation is now both on the left and right hand side of equations (6) and (7). As a result, a governor's reputation has now potentially a non-monotone effect on experimentation. Whereas in Section 4 an incumbent is more likely to experiment when λ decreases, the effect in the extended model depends on the curvature of the cost function.

In an electorate where the cost function is very concave in λ , an increase of reputation will make the politicians more likely to experiment for very high levels of reputation. At the same time it will make politician with intermediate reputation less likely to experiment. If the cost function is a very convex function of λ , a politician with little reputation will become more likely to experiment as their reputation increases, whereas this will not be the case for a politician with very high reputation.

Hence, a second testable hypothesis from this extension is a non-monotone effect of reputation on the likelihood to experiment: politicians with very low, intermediate, and very high reputation have potentially different experimentation behavior.

II. Data

A. *Measuring Policy Experimentation during the TANF period*

To measure policy experimentation and reversals for the post-1996 period, we rely on the Welfare Rules Database by the Urban Institute. The database provides detailed information about states' TANF policies obtained from caseworker manuals and regulations, which are typically more detailed and up-to-date than the official plans state submit periodically to the federal government. While the database contains hundreds of rules on eligibility, benefit calculation, and many other aspects of welfare reform, we focus on a set of rules in policy areas that were at the center of the public and political debate surrounding welfare reform (see Table A1 for a list of the rules and how we code policy experiments and policy reversals).

FAMILY CAPS. — Under AFDC, benefit levels increased with family size. Under a family cap, additional benefits that an assistance unit would receive for a child born into the benefit unit while on welfare would be capped. Some states provide a percentage of the increase to the unit, while others provide no additional funds to the unit for the additional child. In several states, a family is never able to regain benefits for a capped child, even after the case has been closed for a period of time. In others, a family cap can be removed (and hence, the child can be included in the benefit computation should the family apply for assistance again) if the assistance unit remains off welfare for some time. We code a binary indicator equal to one if a state has a family cap and zero if not.

WORK REQUIREMENTS. — Under AFDC, states could require recipients to participate in the Job Opportunities and Basic Skills Training (JOBS) program, which provided education, training, and work experience activities. However, many individuals were exempt from these requirements (because of age, illness or having a small child). Under TANF, states require adults heading an assistance unit to perform some type of work-related activity. Work programs vary widely from state to state in terms of who must work, how much work is required, and what activities are considered work. The first rule defines the minimum number of hours a recipient must participate in work-related activities. The hours requirements vary from a mere effort to find a job up to full-time employment. The second rule defines whether the work requirement applies after several months of benefit receipt or by the time of application or approval. The third rule indicates whether there is a time limit of benefit receipt if a parent fails to work at least 20 hours per week in a regular job after a certain number of assistance months. The fourth rule counts the number of work exemptions due to, for example, pregnancy, disability or caring for a young child or elderly person.

SANCTIONS. — Under AFDC, sanctions were sometimes imposed if the adult heading an assistance unit did not comply with the JOBS program; in that case, the adult portion of the benefit was not paid out to the assistance unit. Under TANF, states now require household heads to perform some type of work-related activity sooner or later. If a benefit unit does not comply with these requirements, states can impose drastic sanctions. The first policy rule characterizes the initial sanction if a benefit unit fails to comply with the work requirements for the first time. The initial sanction varies from reduction of 25% or less to a suspension of the full family benefit. The other three rules characterize the severity of the worst sanction that can be imposed. The second rule defines the severity of the worst sanction varying from less than 25% of the benefit to a suspension of the full family benefit and even case closure. The third rule defines the duration of the worst sanction ranging from until the unit complies with the requirement to a permanent suspension of the family benefit. The final rule defines whether a unit has to reapply (or not) after the worst sanction has been imposed.

WORK-REQUIREMENT TIME LIMITS. — Under AFDC, families were entitled to receive benefits as long as they met the eligibility requirements. Under TANF, many states imposed both intermittent and lifetime time limits. The first rule characterizes the number of months an assistance unit can receive benefits without interruption (many states impose 24 months). The second rule defines how benefits are reduced when the assistance unit reaches the intermittent time limit. The loss of benefits might be just for the adult members or for the entire assistance unit. The third rule defines the duration of the lifetime limit ranging from no time limit to only 24 months. If states wish to extend benefits beyond the federal time lifetime limit of 60 months, they have to use their own state funds to finance it. The final rule defines whether the state allows for any extensions to the lifetime limit or not.

B. Politics and ideology measures

GOVERNOR CHARACTERISTICS. — We collect biographies of U.S. governors from the website of the National Governor's Association (National Governor's Association, 2199) and data provided by Andersen, David J. at Eagleton Institute of Politics at Rutgers University (2013). We code information on the age and educational degree of the governor. To measure a governor's competence whether an experiment is called for, we calculate her political experience prior to becoming governor. Specifically, the variable measures the number of years between the first electoral office (such as member of the State Senate or Attorney General) and the inauguration as governor. We then construct a dummy variable equal to one if a governor has prior political experience below the median and zero otherwise. Information on gubernatorial election results (especially vote margins) and term limits are taken from List and Sturm (2006); and Leip (2012).

IDEOLOGY. — Voter and governor ideology is based on ideology ratings of the state’s congressional delegation, the American for Democratic Action (ADA) rating and the AFL/CIO’s Committee on Political Education (COPE) rating as developed by (Berry et al., 1998). Berry et al. (1998) assign an ideology rating to the citizens of each congressional district by using an average of the score of the congressional member and his or her election opponent weighted by the number of votes the score received. Zero denotes the most conservative and 100 the most liberal. They then generate a state-wide measure by averaging over all congressional districts. The measure of governor ideology is constructed by assigning to the governor the ratings of the members of Congress from their party. The ideology data and updates for later years were taken from Fording, Richard C. (2013). Alternatively, we use the Cook Partisan Voting Index to measure voter ideology, which is obtained from Cook Political Report (2013).

STATE LEGISLATURE. — Data for the composition of the state legislature, state competitiveness, the party of the governor and indicators for a divided government are obtained from Klarner (2003) and updated using data provided by Klarner, Carl at KlarnerPolitics (2013). Polarization in the state legislature is calculated as $|\text{democratic seat share} - 50\%|$ for the state senate and house respectively. The divided government indicator is equal to one if the governor belongs to a different party than the majority of legislators in either the state senate or the state house. To measure state competitiveness, we use the Holbrook-Van Dunk index calculated from district-level returns to state legislative elections developed by Holbrook and v. Dunk (1993) and provided by Klarner, Carl at KlarnerPolitics (2013).

C. State Demographics and Other Controls

DEMOGRAPHICS. — Population size, the number of Blacks and the age structure are taken from the United States Census Bureau (2011). The size of the immigrant population refers to the number of legal immigrants admitted by state of intended residence and is taken from Fang and Keane (2004) for 1970 to 2002 and updated using the Yearbook of Immigration Statistics (U.S. Department of Homeland Security, 2011). Our measure of income inequality is the ratio of the 90th over the 10th percentile of total household income calculated from the March Current Population Survey (Center for Economic and Policy Research, 2012). All monetary variables are deflated by the urban consumer price index with base year 2002. Unmarried birth refers to the % of births to unmarried women per 1,000 unmarried women aged 15-44 years by state of residence. For the years 1992 to 2003, the data are available from Table 8.3 in the TANF Annual Reports to Congress (U.S. Department of Health and Human Services, Administration for Children and Families, 1998-2009). For earlier and later years, we obtain the data from the Vital Statistics available via (Center for Disease Control and Prevention (CDC)) and the NBER (National Bureau of Economic Research (1968-2017)).

STATE AFDC AND TANF SPENDING. — To measure the potential gains from experimentation, we use state-level AFDC and TANF spending. These data come from (Ehmann, Paul at U.S. Census Bureau (2013)). All fiscal variables are then converted into real measures using the urban consumer price index (with years 1982-1984=100) from the Bureau of Labor Statistics.

SPILLOVER EFFECTS ACROSS STATES. — To analyze spillover effects across states, we define a “neighbor” along three different dimensions. The first variable (similar population sizes) calculates experimentation in states with a population size similar to that of the current state. For the calculation, we use the following ten bands based on population size in 1978: (CA NY TX PA IL), (OH MI FL NJ MA), (NC IN GA VA MO), (WI TN MD LA MN), (WA AL KY CT SC), (IA OK CO AZ OR), (MS KS AR WV NE), (UT NM ME RI HI), (ID NH MT NV SD) and (ND DE VT WY AK). The second variable (geographic neighbors) codes the extent of experimentation for all states sharing a common border with the current state. The third measure (ideologically aligned governor neighbors) takes the average number of experiments of the states sharing a common border with the current state if the governor belongs to the same party as the present governor of the current state.

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