

Appendix

A1. Formal Model Proofs

Proof of Lemma A: R chooses m without knowing q_A , the quality of employee A . Instead, R only knows that q_A has been drawn from the uniform distribution: $q_A \sim U[0,1]$. If $q_A \geq m$, then A remains the bureaucratic employee, and R 's payoff is: $U_R = q_A - |x_A - 1|$. But if $q_A < m$, then A is fired, B becomes the bureaucrat, and R 's payoff is: $U_R = q_B - |x_B - 1|$, where x_B and q_B are each chosen by Nature from the distribution: $U[0,1]$. Hence, in choosing m , R optimizes as follows:

$$\arg \max_{m \in [0,1]} : \int_m^1 (q_A - 1 + x_A) \cdot dq_A + \int_0^m \left[\int_0^1 q_B \cdot dq_B - 1 + \int_0^1 x_B \cdot dx_B \right] \cdot dq_A$$

$$s.t.: m \leq 1 - u,$$

where the constraint, $m \leq 1 - u$, represents the limitation imposed by L 's unionization policy. The

optimization solution is: $m^* = \begin{cases} 1 - x_A, & \text{if } x_A \geq u; \\ 1 - u, & \text{otherwise.} \end{cases} = \min\{(1 - x_A), (1 - u)\}$.

Proof of Lemma B: If he *stays*, then A receives a payoff of 1 if $q_A \geq m$, and 0 otherwise. If he *exits*, then A 's payoff is $w \in (0,1)$. Hence, A anticipates R 's equilibrium choice of m^* and *exits* iff: $q_A < m^* = \min\{(1 - x_A), (1 - u)\}$.

Proof of Lemma C: Via Lemma B, L 's choice of u affects A 's decision of whether to *stay* or *exit*. If A *stays*, then L 's payoff is: $U_L = q_A - x_A$. But if A *exits*, then L 's payoff is: $U_L = q_B - x_B$, where x_B and q_B are each chosen by Nature from the distribution: $x_B, q_B \sim U[0,1]$. Hence, in choosing u , L faces the optimization problem:

$$\arg \max_{u \in [0,1]} : \int_{1-u}^1 (q_A - x_A) \cdot dq_A + \int_0^{1-u} \left[\int_0^1 q_B \cdot dq_B - \int_0^1 x_B \cdot dx_B \right] \cdot dq_A,$$

which has the solution: $u^* = \begin{cases} 1 - x_A, & \text{if } x_A < \frac{1}{2}; \\ 0, & \text{if } x_A \geq \frac{1}{2}. \end{cases}$

Proof of Proposition 1: Via Lemma B, A *exits* iff his quality, q_A , falls below the threshold: $q_A < \min\{(1 - x_A), (1 - u)\}$. Because q_A is drawn randomly by Nature from the distribution

$q_A \sim U[0,1]$, the probability that A *exits* is: $\Pr(A \text{ exits}) = \begin{cases} 1 - x_A, & \text{if } u \leq x_A; \\ 1 - u, & \text{if } u > x_A. \end{cases}$ The first-order

derivative is: $\frac{\partial \Pr(A \text{ exits})}{\partial u} = \begin{cases} 0, & \text{if } 0 \leq u \leq x_A; \\ -1, & \text{if } x_A < u \leq 1. \end{cases}$ Hence, the probability that A *exits* is weakly

decreasing along $u \in [0,1]$.

Proof of Proposition 2: Via Lemma C, the equilibrium level of unionization is:

$u^* = \begin{cases} 1 - x_A, & \text{if } x_A < \frac{1}{2}; \\ 0, & \text{if } x_A \geq \frac{1}{2}. \end{cases}$ The first-order derivative w.r.t. x_A is: $\frac{\partial u^*}{\partial x_A} = \begin{cases} -1, & \text{if } x_A < \frac{1}{2}; \\ 0, & \text{if } x_A \geq \frac{1}{2}. \end{cases}$ Hence,

equilibrium unionization is weakly decreasing along $x_A \in [0,1]$.

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Proof of Proposition 3: The second-period bureaucrat's identity depends on whether the first-period bureaucrat, A , *stays* or *exits*. If A *stays*, then the period 2 bureaucrat's ideal point remains x_A . But if A *exits*, B becomes the period 2 bureaucrat, and his ideal point is drawn by Nature, with an expected value of $E[x_B] = \int_0^1 x_B \cdot dx_B$. Moreover, the likelihood of A *exiting* is a function of u , via Proposition 1. Hence, when $x_A < 0.5$, the expected value of the second-period bureaucrat's ideal point, denoted below as $E[x_2]$, is:

$$E[x_2] = \begin{cases} \int_0^{1-x_A} \left[\int_0^1 x_B \cdot dx_B \right] \cdot dq_A + \int_{1-x_A}^1 x_A \cdot dq_A, & \text{if } u \leq x_A; \\ \int_0^{1-u} \left[\int_0^1 x_B \cdot dx_B \right] \cdot dq_A + \int_{1-u}^1 x_A \cdot dq_A, & \text{if } u > x_A. \end{cases} = \begin{cases} x_A^2 - \frac{x_A}{2} + \frac{1}{2}, & \text{if } u \leq x_A; \\ \frac{1}{2} - u \left(\frac{1}{2} - x_A \right), & \text{if } u > x_A. \end{cases}$$

Hence, the expected change in the bureaucrat's ideal point from period 1 to period 2 is:

$$E[x_2] - x_A = \begin{cases} x_A^2 - \frac{3x_A}{2} + \frac{1}{2}, & \text{if } u \leq x_A; \\ (1-u) \left(\frac{1}{2} - x_A \right), & \text{if } u > x_A. \end{cases}, \text{ which is weakly decreasing along } u \text{ when } x_A < 0.5.$$

Appendix

A2. Agency Ideal Point Estimates

Agency Name	Agency Abbreviation	Clinton 1 st Term	Clinton 2 nd Term	G.W. Bush 1 st Term	G.W. Bush 2 nd Term
DEPARTMENT OF THE AIR FORCE	AF	0.221697	0.315466	0.240925	0.077621
DEPARTMENT OF AGRICULTURE	AG	-0.15598	-0.16684	0.071749	-0.05458
DEPARTMENT OF THE ARMY	AR	0.239532	0.251072	0.142575	0.049436
FEDERAL LABOR RELATIONS AUTHORITY	AU	-0.14461	-0.39371	-0.10311	-0.17645
MERIT SYSTEMS PROTECTION BOARD	BD	-0.166	-0.35576	0.12399	-0.09531
PENSION BENEFIT GUARANTY CORPORATION	BG	-0.33352	-0.17957	-0.2439	-0.12543
OFFICE OF MANAGEMENT AND BUDGET	BO	-0.29151	-0.35066	-0.14346	0.21227
COMMISSION ON CIVIL RIGHTS	CC	---	-0.47665	-0.47665	-0.36157
DEPARTMENT OF COMMERCE	CM	-0.27765	-0.13437	0.069032	-0.11104
COMMODITY FUTURES TRADING COMMISSION	CT	0.097892	-0.27209	-0.20606	-0.08078
NATIONAL CREDIT UNION ADMINISTRATION	CU	0.077407	-0.21273	0.214741	-0.24706
PANAMA CANAL COMMISSION	CZ	---	-0.339	---	0.448671
DEPARTMENT OF DEFENSE	DD	0.119705	0.077769	0.190505	0.065947
DEPARTMENT OF JUSTICE	DJ	-0.05495	0.035418	0.011645	-0.12916
DEPARTMENT OF LABOR	DL	-0.30521	-0.2349	0.088942	0.024725
DEPARTMENT OF ENERGY	DN	-0.27908	-0.16515	0.072267	-0.13861
EXPORT-IMPORT BANK OF THE UNITED STATES	EB	-0.42808	-0.01609	0.068573	-0.16713
OFFICE OF ADMINISTRATION	EC	-0.482	-0.31494	-0.34596	0.409837
DEPARTMENT OF EDUCATION	ED	-0.331	-0.26588	0.092021	-0.08134
EQUAL EMPLOYMENT OPPORTUNITY COMMISSION	EE	-0.39939	-0.25169	-0.24679	-0.29095
FEDERAL EMERGENCY MANAGEMENT AGENCY	EM	-0.11768	-0.05326	0.041283	-0.1244
ENVIRONMENTAL PROTECTION AGENCY	EP	-0.19669	-0.16655	-0.12858	-0.25614
FEDERAL COMMUNICATIONS COMMISSION	FC	-0.15096	-0.18635	-0.15302	-0.2346
FEDERAL DEPOSIT INSURANCE CORPORATION	FD	-0.02246	-0.01206	-0.08455	-0.20045
FARM CREDIT ADMINISTRATION	FL	0.228405	0.668333	-0.16568	-0.06732
FED MEDIATION AND CONCILIATION SERVICE	FM	---	---	---	-0.51012
COURT SERVICES AND OFFENDR SUPERVSN	FQ	---	---	-0.38114	-0.0067
FEDERAL RESERVE SYS -- BD OF GOVERNORS	FD	---	-0.34372	-0.19062	0.154186
FEDERAL TRADE COMMISSION	FT	-0.01689	-0.17942	-0.17727	-0.22232
FEDERAL HOUSING FINANCE BOARD	FY	0.320115	-0.21907	0.08345	-0.25907
GENERAL SERVICES ADMINISTRATION	GS	-0.36992	-0.23699	0.049982	-0.07036
DEPARTMENT OF HEALTH AND HUMAN SERVICES	HE	-0.16053	-0.17227	0.080955	-0.19658
DEPARTMENT OF HOMELAND SECURITY	HS	-0.05765	0.201264	0.27232	0.088696
DEPARTMENT OF HOUSING AND URBAN DEVELOPM	HU	-0.11663	-0.18146	0.158988	-0.09767
U.S. INFORMATION AGENCY	IA	-0.16929	0.3995	---	---
BROADCASTING BOARD OF GOVERNORS	IB	0.311806	---	0.40401	0.059924
INTERSTATE COMMERCE COMMISSION	IC	-0.03741	0.001067	0.085998	-0.00103
INTER-AMERICAN FOUNDATION	IF	---	---	-0.36004	---

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DEPARTMENT OF INTERIOR	IN	-0.24932	-0.22905	-0.11259	-0.1655
LIBRARY OF CONGRESS	LC	-0.50771	---	---	-0.39849
GOVERNMENT ACCOUNTABILITY OFFICE	LG	-0.23111	-0.28668	-0.20526	-0.27157
GOVERNMENT PRINTING OFFICE	LP	-0.47896	0.195172	-0.0042	-0.11427
FEDERAL MARITIME COMMISSION	MC	---	0.382	---	---
NATIONAL SCIENCE FOUNDATION	NF	-0.13023	-0.35754	-0.29546	-0.30563
NATIONAL LABOR RELATIONS BOARD	NL	-0.3375	-0.33513	-0.25072	-0.26113
NAT AERONAUTICS AND SPACE ADMINISTRATION	NN	-0.0292	0.044234	-0.10092	-0.15335
NAT ARCHIVES AND RECORDS ADMINISTRATION	NQ	-0.27833	---	-0.32063	0.240803
NUCLEAR REGULATORY COMMISSION	NU	0.445393	0.154554	-0.03251	-0.0284
DEPARTMENT OF THE ARMY	NV	0.236204	0.207512	0.153669	0.068329
OFFICE OF PERSONNEL MANAGEMENT	OM	0.071475	0.204135	0.329089	-0.21125
PUBLIC INTERNATIONAL ORGANIZATION	PI	-0.36649	0.044906	0.723	---
POSTAL RATE COMMISSION	PJ	---	0.242833	0.032799	---
PEACE CORPS	PU	-0.30256	-0.39246	0.119491	-0.03893
RAILROAD RETIREMENT BOARD	RR	0.434366	0.329687	-0.16209	-0.40392
SMALL BUSINESS ADMINISTRATION	SB	-0.2496	-0.27649	0.2107	0.112673
SECURITIES AND EXCHANGE COMMISSION	SE	-0.41884	-0.34237	-0.10177	-0.16215
SPECIAL ACTION OFC FOR DRUG ABUSE PREVEN	SJ	---	-0.51491	-0.51646	-0.49643
CONSUMER PRODUCT SAFETY COMMISSION	SK	-0.3009	-0.34498	-0.39108	-0.22787
SMITHSONIAN INSTITUTION	SM	-0.2156	-0.12409	-0.23757	-0.32563
SELECTIVE SERVICE SYSTEM	SS	0.213	-0.0055	-0.36649	-0.0085
DEPARTMENT OF STATE	ST	-0.07765	-0.24336	0.186872	-0.0327
SOCIAL SECURITY ADMINISTRATION	SZ	-0.14136	-0.07826	-0.11445	-0.18063
NATIONAL TRANSPORTATION SAFETY BOARD	TB	-0.15807	-0.01297	0.384077	0.003921
U.S. INTERNATIONAL TRADE COMMISSION	TC	0.306023	0.054201	-0.28668	-0.25901
DEPARTMENT OF TRANSPORTATION	TD	-0.18333	-0.14632	0.000921	-0.04157
DEPARTMENT OF TREASURY	TR	-0.27494	-0.07759	0.034622	-0.15029
TENNESSEE VALLEY AUTHORITY	TV	---	---	-0.38817	-0.32093
DEPARTMENT OF VETERANS AFFAIRS	VA	-0.01244	-0.08636	-0.08359	-0.15966
TRADE DEFICIT REVIEW COMMISSION	ZN	---	---	0.29406	0.220318

Appendix

A3. Proportion of Federal Employees Unionized, 1993-2006

Year	Proportion of Federal Workforce Unionized
1993	0.58
1994	0.58
1995	0.57
1996	0.57
1997	0.56
1998	0.56
1999	0.56
2000	0.56
2001	0.56
2002	0.56
2003	0.56
2004	0.56
2005	0.55
2006	0.54

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A4. Unionization by Agency and Year

Agency	Year 1993	Year 1994	Year 1995	Year 1996	Year 1997	Year 1998	Year 1999	Year 2000	Year 2001	Year 2002	Year 2003	Year 2004	Year 2005	Year 2006
AG	0.58	0.58	0.57	0.57	0.56	0.56	0.56	0.56	0.58	0.57	0.57	0.57	0.55	0.54
AU	0.57	0.58	0.54	0.55	0.53	0.53	0.53	0.59	0.59	0.53	0.55	0.47	0.51	0.52
BD	0.59	0.59	0.59	0.57	0.51	0.51	0.5	0.48	0.51	0.5	0.52	0.46	0.54	0.52
BG	0.6	0.57	0.58	0.59	0.56	0.54	0.58	0.56	0.53	0.55	0.55	0.55	0.56	0.53
BO	0.57	0.58	0.61	0.6	0.56	0.58	0.57	0.52	0.57	0.6	0.51	0.54	0.55	0.57
CC	0.59	0.7	0.53	0.57	0.49	0.62	0.59	0.63	0.51	0.63	0.52	0.42	0.55	0.61
CM	0.58	0.58	0.57	0.57	0.54	0.54	0.54	0.54	0.55	0.55	0.55	0.54	0.54	0.54
CT	0.59	0.61	0.57	0.57	0.49	0.52	0.57	0.56	0.51	0.52	0.51	0.51	0.5	0.56
DJ	0.57	0.57	0.57	0.56	0.64	0.64	0.64	0.64	0.57	0.56	0.56	0.57	0.54	0.53
DL	0.57	0.58	0.58	0.57	0.53	0.53	0.53	0.53	0.55	0.54	0.54	0.53	0.55	0.54
DN	0.58	0.57	0.58	0.56	0.53	0.52	0.52	0.53	0.53	0.54	0.54	0.54	0.55	0.55
EB	0.57	0.51	0.53	0.54	0.55	0.57	0.55	0.48	0.53	0.56	0.57	0.51	0.57	0.58
EC	0.52	0.53	0.5	0.56	0.59	0.55	0.61	0.53	0.52	0.55	0.53	0.55	0.5	0.55
ED	0.55	0.57	0.58	0.58	0.53	0.52	0.54	0.54	0.55	0.54	0.54	0.54	0.51	0.51
EE	0.59	0.58	0.57	0.57	0.53	0.53	0.53	0.56	0.55	0.55	0.54	0.54	0.55	0.54
EM	0.58	0.58	0.56	0.57	0.57	0.56	0.56	0.55	0.55	0.56	0.57	0.55	0.55	0.54
EP	0.57	0.57	0.57	0.56	0.54	0.52	0.53	0.53	0.55	0.55	0.55	0.55	0.55	0.54
FC	0.55	0.56	0.57	0.55	0.55	0.55	0.55	0.56	0.53	0.53	0.53	0.53	0.51	0.55
FM	0.68	0.59	0.61	0.63	0.49	0.53	0.48	0.52	0.45	0.51	0.49	0.45	0.58	0.53
FQ	0.55	0.55	0.57	0.57	0.67	0.67	0.63	0.62	0.57	0.56	0.52	0.56	0.47	0.42
FT	0.56	0.56	0.57	0.57	0.53	0.55	0.52	0.53	0.54	0.53	0.52	0.55	0.53	0.53
GS	0.56	0.57	0.56	0.56	0.54	0.53	0.53	0.52	0.54	0.55	0.54	0.54	0.55	0.55
HE	0.58	0.58	0.57	0.56	0.54	0.53	0.53	0.53	0.55	0.55	0.55	0.54	0.55	0.54
HS	0.58	0.58	0.57	0.56	0.6	0.6	0.6	0.6	0.61	0.61	0.61	0.61	0.54	0.54
HU	0.57	0.57	0.57	0.57	0.52	0.52	0.52	0.51	0.54	0.54	0.53	0.52	0.54	0.55
IB	0.56	0.56	0.56	0.59	0.56	0.57	0.55	0.57	0.56	0.56	0.57	0.56	0.53	0.54
IC	0.54	0.57	0.55	0.59	0.51	0.42	0.47	0.64	0.52	0.51	0.52	0.48	0.58	0.51
IF	0.74	0.61	0.5	0.61	0.48	0.49	0.56	0.49	0.51	0.53	0.47	0.5	0.59	0.56
IN	0.58	0.58	0.56	0.57	0.55	0.54	0.55	0.55	0.57	0.56	0.56	0.56	0.55	0.55
MC	0.53	0.68	0.64	0.57	0.59	0.57	0.62	0.48	0.36	0.43	0.52	0.48	0.51	0.41
NF	0.55	0.59	0.58	0.59	0.54	0.56	0.55	0.56	0.54	0.51	0.53	0.53	0.54	0.56
NL	0.59	0.58	0.56	0.57	0.53	0.52	0.51	0.51	0.55	0.53	0.52	0.51	0.57	0.55
NN	0.58	0.58	0.58	0.57	0.56	0.55	0.56	0.55	0.57	0.56	0.56	0.55	0.54	0.53
NQ	0.58	0.59	0.57	0.58	0.52	0.51	0.54	0.54	0.55	0.51	0.54	0.56	0.53	0.51
OM	0.58	0.57	0.57	0.55	0.53	0.53	0.51	0.51	0.54	0.54	0.53	0.54	0.53	0.51
PU	0.57	0.58	0.58	0.55	0.58	0.56	0.53	0.56	0.57	0.58	0.57	0.57	0.54	0.5
RR	0.57	0.56	0.56	0.55	0.48	0.48	0.47	0.47	0.5	0.53	0.47	0.49	0.55	0.54
SB	0.56	0.56	0.58	0.57	0.53	0.54	0.53	0.53	0.56	0.55	0.57	0.55	0.54	0.54
SE	0.59	0.58	0.58	0.57	0.55	0.53	0.54	0.55	0.57	0.57	0.56	0.57	0.51	0.53

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SK	0.54	0.57	0.56	0.54	0.51	0.49	0.58	0.52	0.6	0.58	0.53	0.55	0.6	0.54
SM	0.57	0.57	0.57	0.55	0.54	0.54	0.54	0.55	0.55	0.54	0.51	0.52	0.51	0.52
SS	0.53	0.57	0.54	0.59	0.5	0.46	0.51	0.49	0.47	0.57	0.46	0.54	0.57	0.46
ST	0.56	0.56	0.56	0.55	0.54	0.54	0.53	0.53	0.56	0.55	0.55	0.55	0.54	0.52
SZ	0.58	0.58	0.57	0.57	0.53	0.54	0.53	0.53	0.56	0.55	0.55	0.54	0.56	0.55
TB	0.55	0.6	0.55	0.52	0.45	0.56	0.49	0.52	0.51	0.54	0.54	0.56	0.58	0.6
TC	0.56	0.58	0.55	0.51	0.52	0.49	0.51	0.53	0.51	0.55	0.52	0.53	0.56	0.54
TD	0.58	0.58	0.57	0.57	0.54	0.54	0.54	0.54	0.56	0.56	0.56	0.55	0.55	0.55
TR	0.57	0.57	0.57	0.56	0.55	0.55	0.55	0.55	0.57	0.57	0.56	0.56	0.55	0.54
VA	0.58	0.58	0.58	0.57	0.54	0.54	0.54	0.54	0.56	0.56	0.56	0.55	0.56	0.55

Note. The table reports the proportion of employees, in each studied agency, who are identified as belonging to a collective bargaining unit. The agencies listed are those included in the analysis for which agency ideal points can be estimated.

Appendix

A5. Unionization across Occupational Categories

Occupational Category	Percent of Occupational Category Unionized
Unidentified Category	0.88
Other White Collar	0.79
Technical	0.69
Clerical	0.64
Administrative	0.47
Professional	0.46