EMPIRICAL ANALYSIS AND RESEARCH METHODOLOGY EXAMINATION
Yale University
Department of Political Science
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This exam consists of three parts. Provide answers to ALL THREE sections.

Your answers should be succinct and to the point.

Use algebra to back up your assertions.

Do not answer questions that have not been asked.

Do not leave sub-parts of questions unanswered.

You have eight hours to complete the exam. You may use a calculator and one 8.5''x11'' handwritten (not photocopied) sheet of notes.

PART I
Professor Smedley is interested in the effectiveness of an informational campaign designed by the central government of an African country to reduce the diversion of public funds meant for a large-scale program of school grants. The campaign consisted of the monthly publication in newspapers of data related to the transfers of grants to local governments. Smedley's approach is to gather data on resources received by schools before and after the informational campaign. The data show that schools located in areas with access to newspapers received significantly more of their entitlement than schools in areas without access to newspapers in the post-informational campaign period.

Smedley comes to you for suggestions about statistical analysis, wondering whether a regression analysis would be informative. Is regression helpful here? If so, what regression model would you recommend? What are the important threats to unbiased inference? What alternative research design and/or statistical analysis would you suggest to Smedley?

PART II. Read the essay attached to your exam.

http://cps.sagepub.com/content/43/7/862.full.pdf+html

Jason Jordan. 2010. Institutional Feedback and Support for the Welfare State: The Case of National Health Care. Comparative Political Studies 43:862

(We do not expect you to have special expertise in the topic area, but we do expect you to bring to bear your general analytical skills as a political scientist). Offer a critical evaluation of its methodology. Are the estimates and standard errors unbiased? Why or why not? Suggest ways in which this line of research might be improved.

PART III. Statistical Reasoning

1. Suppose that the true model is $Yi = \beta_1 Xi + \beta_2 Zi + \varepsilon i$ but the econometrician mistakenly postulates: $Yi = \beta_1 Xi + ui$. What are the implications, if any, of leaving Z_i out of the model?

2. A researcher is interested in estimating the following model:
    $Yi = \beta_1 Xi + \beta_2 Zi + \varepsilon i$ but she worries that there is a high degree of collinearity between Xi and Zi. Explain why the researcher is worried. Which are some of the signs of a multicollinearity problem?

3. Professor Smedley is interested in the causal effect of rural economic conditions and ethnic conflict in Africa. Smedley gathers annual data on 7 African countries over a 30 year period. Smeadley believes that rainfall can be used as an instrumental variable for economic conditions, on the grounds that variation in weather patterns is nearly random. Using OLS, Smedley shows that rainfall is a significant predictor of rural economic conditions. Smedley also shows, using OLS, that when ethic conflict is regressed on both economic conditions and rainfall, rainfall's estimated effect is zero. Smedley therefore concludes that rainfall is both a theoretically and empirically justified instrumental variable. Is this reasoning persuasive? Include in your answer a discussion of the internal and external validity of the instrument.

4. Suppose that a researcher proposes to estimate a linear model with interactions:
    $$Yi = \alpha + \beta_1 Xi + \beta_2 Zi + \beta_3 XiZi + \varepsilon i$$
    Explain what the four parameters of this model mean in the context of this regression. How would you test if the interaction of Xi and Zi is significant?

5. Recent years have seen a surge of the use of "matching" to estimate causal effects. What is matching and how is it used? Under what conditions does it provide estimates of causal effects that are more reliable than those generated by regression?

6. In a regression what is a standard error?

7. A researcher argues that state income (SI) should be a strong predictor of levels of violent crime (VC) in the state. Using the following information about the first two sample moments of SI (given in billions of dollars) and VC (given in the number of violent crimes per year per 1,000 residents) for a sample size of N=50, please compute the ordinary least squares estimate (constant and slope coefficient) for the binary regression:
    $$\overline{VC} = \frac{1}{N}\sum_{i=1}^{N} VC_i = 1.0, \quad \overline{SI} = \frac{1}{N}\sum_{i=1}^{N} SI_i = 90.0, \quad \frac{1}{N}\sum_{i=1}^{N}(VC_i - \overline{VC})^2 = 1.44,$$

$$\frac{1}{N}\sum_{i=1}^{N}(SI_i - \overline{SI})^2 = 81, \qquad \frac{1}{N}\sum_{i=1}^{N}(VC_i - \overline{VC})(SI_i - \overline{SI}) = -9,$$

8. A researcher runs an OLS regression where the dependent variable is a dummy variable for whether the person voted (equal to 1 if the person voted and 0 otherwise) and the only independent variable included is a dummy variable for whether the person was contacted by one of the campaigns (equal to 1 if the person was contacted and 0 otherwise). The results of the OLS regression are reported in Table 1. Based on the OLS results, what would the coefficients be if a probit regression were used instead of an OLS.

Table 1

Variable	OLS	Probit
Campaign Contact	0.2017	???
Constant	0.4301	???

9. A researcher argues that the introduction of a new work law should affect men more than women. She tests her theory by gathering data on income for both men and women in both the period before and the period after the law was introduced. She then performs the following difference-in-difference analysis:
E[((Income for men in after period) – (Income for men in before period)) - ((Income for women in after period) – (Income for women in before period))]=12.

Based on that information which of the coefficients in the following regression could you identify:
Income = α + β_1Men + β_2After Period + β_3Men*After Period.

Justify your answer.

10. Assume that you can divide the American electorate into 3 distinct groups (as defined from the candidate's perspective): the candidates own base, the opposition's base, and the swing voters (note that these groups represent 100 percent of the population - i.e. B+S+O=1). A researcher has theories about how the proportion of these three different groups should affect the extremity of a representative's voting record. With this in mind, use the following definitions:
β_{Bi} = the coefficient on the size of the base voters for candidate i in i's district
β_{Si} = the coefficient on the size of the swing voters in i's district
β_{Oi} = the coefficient on the size of the opposition's base in i's district

Indicate which of the following hypotheses you can test (explain your work):
    (a) H_0: $\beta_{Bi} = 0$
    (b) H_0: $\beta_{Si} = 0$
    (c) H_0: $\beta_{Oi} = 0$
    (d) H_0: β_{Bi} - $\beta_{Si} = 0$
    (e) H_0: $\beta_{Bi} + \beta_{Si} = 0$
    (f) H_0: $\beta_{Bi} + \beta_{Oi} + \beta_{Si} = 0$

Table 1: Table of the Standard Normal Cumulative Distribution Function $\Phi(z)$

z	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
-3.4	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0003	0.0002
-3.3	0.0005	0.0005	0.0005	0.0004	0.0004	0.0004	0.0004	0.0004	0.0004	0.0003
-3.2	0.0007	0.0007	0.0006	0.0006	0.0006	0.0006	0.0006	0.0005	0.0005	0.0005
-3.1	0.0010	0.0009	0.0009	0.0009	0.0008	0.0008	0.0008	0.0008	0.0007	0.0007
-3.0	0.0013	0.0013	0.0013	0.0012	0.0012	0.0011	0.0011	0.0011	0.0010	0.0010
-2.9	0.0019	0.0018	0.0018	0.0017	0.0016	0.0016	0.0015	0.0015	0.0014	0.0014
-2.8	0.0026	0.0025	0.0024	0.0023	0.0023	0.0022	0.0021	0.0021	0.0020	0.0019
-2.7	0.0035	0.0034	0.0033	0.0032	0.0031	0.0030	0.0029	0.0028	0.0027	0.0026
-2.6	0.0047	0.0045	0.0044	0.0043	0.0041	0.0040	0.0039	0.0038	0.0037	0.0036
-2.5	0.0062	0.0060	0.0059	0.0057	0.0055	0.0054	0.0052	0.0051	0.0049	0.0048
-2.4	0.0082	0.0080	0.0078	0.0075	0.0073	0.0071	0.0069	0.0068	0.0066	0.0064
-2.3	0.0107	0.0104	0.0102	0.0099	0.0096	0.0094	0.0091	0.0089	0.0087	0.0084
-2.2	0.0139	0.0136	0.0132	0.0129	0.0125	0.0122	0.0119	0.0116	0.0113	0.0110
-2.1	0.0179	0.0174	0.0170	0.0166	0.0162	0.0158	0.0154	0.0150	0.0146	0.0143
-2.0	0.0228	0.0222	0.0217	0.0212	0.0207	0.0202	0.0197	0.0192	0.0188	0.0183
-1.9	0.0287	0.0281	0.0274	0.0268	0.0262	0.0256	0.0250	0.0244	0.0239	0.0233
-1.8	0.0359	0.0351	0.0344	0.0336	0.0329	0.0322	0.0314	0.0307	0.0301	0.0294
-1.7	0.0446	0.0436	0.0427	0.0418	0.0409	0.0401	0.0392	0.0384	0.0375	0.0367
-1.6	0.0548	0.0537	0.0526	0.0516	0.0505	0.0495	0.0485	0.0475	0.0465	0.0455
-1.5	0.0668	0.0655	0.0643	0.0630	0.0618	0.0606	0.0594	0.0582	0.0571	0.0559
-1.4	0.0808	0.0793	0.0778	0.0764	0.0749	0.0735	0.0721	0.0708	0.0694	0.0681
-1.3	0.0968	0.0951	0.0934	0.0918	0.0901	0.0885	0.0869	0.0853	0.0838	0.0823
-1.2	0.1151	0.1131	0.1112	0.1093	0.1075	0.1056	0.1038	0.1020	0.1003	0.0985
-1.1	0.1357	0.1335	0.1314	0.1292	0.1271	0.1251	0.1230	0.1210	0.1190	0.1170
-1.0	0.1587	0.1562	0.1539	0.1515	0.1492	0.1469	0.1446	0.1423	0.1401	0.1379
-0.9	0.1841	0.1814	0.1788	0.1762	0.1736	0.1711	0.1685	0.1660	0.1635	0.1611
-0.8	0.2119	0.2090	0.2061	0.2033	0.2005	0.1977	0.1949	0.1922	0.1894	0.1867
-0.7	0.2420	0.2389	0.2358	0.2327	0.2296	0.2266	0.2236	0.2206	0.2177	0.2148
-0.6	0.2743	0.2709	0.2676	0.2643	0.2611	0.2578	0.2546	0.2514	0.2483	0.2451
-0.5	0.3085	0.3050	0.3015	0.2981	0.2946	0.2912	0.2877	0.2843	0.2810	0.2776
-0.4	0.3446	0.3409	0.3372	0.3336	0.3300	0.3264	0.3228	0.3192	0.3156	0.3121
-0.3	0.3821	0.3783	0.3745	0.3707	0.3669	0.3632	0.3594	0.3557	0.3520	0.3483
-0.2	0.4207	0.4168	0.4129	0.4090	0.4052	0.4013	0.3974	0.3936	0.3897	0.3859
-0.1	0.4602	0.4562	0.4522	0.4483	0.4443	0.4404	0.4364	0.4325	0.4286	0.4247
-0.0	0.5000	0.4960	0.4920	0.4880	0.4840	0.4801	0.4761	0.4721	0.4681	0.4641
0.0	0.5000	0.5040	0.5080	0.5120	0.5160	0.5199	0.5239	0.5279	0.5319	0.5359
0.1	0.5398	0.5438	0.5478	0.5517	0.5557	0.5596	0.5636	0.5675	0.5714	0.5753
0.2	0.5793	0.5832	0.5871	0.5910	0.5948	0.5987	0.6026	0.6064	0.6103	0.6141
0.3	0.6179	0.6217	0.6255	0.6293	0.6331	0.6368	0.6406	0.6443	0.6480	0.6517
0.4	0.6554	0.6591	0.6628	0.6664	0.6700	0.6736	0.6772	0.6808	0.6844	0.6879
0.5	0.6915	0.6950	0.6985	0.7019	0.7054	0.7088	0.7123	0.7157	0.7190	0.7224
0.6	0.7257	0.7291	0.7324	0.7357	0.7389	0.7422	0.7454	0.7486	0.7517	0.7549
0.7	0.7580	0.7611	0.7642	0.7673	0.7704	0.7734	0.7764	0.7794	0.7823	0.7852
0.8	0.7881	0.7910	0.7939	0.7967	0.7995	0.8023	0.8051	0.8078	0.8106	0.8133
0.9	0.8159	0.8186	0.8212	0.8238	0.8264	0.8289	0.8315	0.8340	0.8365	0.8389
1.0	0.8413	0.8438	0.8461	0.8485	0.8508	0.8531	0.8554	0.8577	0.8599	0.8621
1.1	0.8643	0.8665	0.8686	0.8708	0.8729	0.8749	0.8770	0.8790	0.8810	0.8830
1.2	0.8849	0.8869	0.8888	0.8907	0.8925	0.8944	0.8962	0.8980	0.8997	0.9015
1.3	0.9032	0.9049	0.9066	0.9082	0.9099	0.9115	0.9131	0.9147	0.9162	0.9177
1.4	0.9192	0.9207	0.9222	0.9236	0.9251	0.9265	0.9279	0.9292	0.9306	0.9319
1.5	0.9332	0.9345	0.9357	0.9370	0.9382	0.9394	0.9406	0.9418	0.9429	0.9441
1.6	0.9452	0.9463	0.9474	0.9484	0.9495	0.9505	0.9515	0.9525	0.9535	0.9545
1.7	0.9554	0.9564	0.9573	0.9582	0.9591	0.9599	0.9608	0.9616	0.9625	0.9633
1.8	0.9641	0.9649	0.9656	0.9664	0.9671	0.9678	0.9686	0.9693	0.9699	0.9706
1.9	0.9713	0.9719	0.9726	0.9732	0.9738	0.9744	0.9750	0.9756	0.9761	0.9767
2.0	0.9772	0.9778	0.9783	0.9788	0.9793	0.9798	0.9803	0.9808	0.9812	0.9817
2.1	0.9821	0.9826	0.9830	0.9834	0.9838	0.9842	0.9846	0.9850	0.9854	0.9857
2.2	0.9861	0.9864	0.9868	0.9871	0.9875	0.9878	0.9881	0.9884	0.9887	0.9890
2.3	0.9893	0.9896	0.9898	0.9901	0.9904	0.9906	0.9909	0.9911	0.9913	0.9916
2.4	0.9918	0.9920	0.9922	0.9925	0.9927	0.9929	0.9931	0.9932	0.9934	0.9936
2.5	0.9938	0.9940	0.9941	0.9943	0.9945	0.9946	0.9948	0.9949	0.9951	0.9952
2.6	0.9953	0.9955	0.9956	0.9957	0.9959	0.9960	0.9961	0.9962	0.9963	0.9964
2.7	0.9965	0.9966	0.9967	0.9968	0.9969	0.9970	0.9971	0.9972	0.9973	0.9974
2.8	0.9974	0.9975	0.9976	0.9977	0.9977	0.9978	0.9979	0.9979	0.9980	0.9981
2.9	0.9981	0.9982	0.9982	0.9983	0.9984	0.9984	0.9985	0.9985	0.9986	0.9986
3.0	0.9987	0.9987	0.9987	0.9988	0.9988	0.9989	0.9989	0.9989	0.9990	0.9990
3.1	0.9990	0.9991	0.9991	0.9991	0.9992	0.9992	0.9992	0.9992	0.9993	0.9993
3.2	0.9993	0.9993	0.9994	0.9994	0.9994	0.9994	0.9994	0.9995	0.9995	0.9995
3.3	0.9995	0.9995	0.9995	0.9996	0.9996	0.9996	0.9996	0.9996	0.9996	0.9997
3.4	0.9997	0.9997	0.9997	0.9997	0.9997	0.9997	0.9997	0.9997	0.9997	0.9998

Comparative Political Studies

Institutional Feedback and Support for the Welfare State: The Case of National Health Care

Jason Jordan

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Institutional Feedback and Support for the Welfare State: The Case of National Health Care

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Abstract

Researchers interested in the political consequences of the welfare state argue that cross-country variations in the design of social policy institutions produce distinct patterns of public support for the welfare state. This research proposes an institutional feedback effect in which welfare institutions, once created, transform political debate, generate new constituencies, and alter how individuals and interest groups interpret their preferences. Existing research has found mixed results for these proposed institutional feedback effects on public opinion. This project contributes to research on institutional feedback through an analysis of cross-national variation in public support for national health care. National health care provides a unique opportunity for studying institutional feedback by avoiding problems with the measurement of key variables common to previous work in this area. This research offers evidence in support of institutional feedback effects by demonstrating links between the structure of health care institutions and public attitudes.

Early interest in cross-national support for the welfare state centered around the impact of popular norms and values on the evolution of different models

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of the welfare state. The relative strength of cultural and religious traditions such as liberalism, socialism, and Catholicism shaped public attitudes toward the appropriate relationship among citizens, the state, and the market to generate recognizable patterns of welfare state development. More recent research inverts the traditional link between public attitudes and social policy by examining the ways in which the structure of the welfare state itself shapes public opinion. From this perspective, welfare politics is characterized by "institutional feedback effects" in which social policy institutions after their initial creation begin to restructure the surrounding political landscape. The institutional feedback approach proposes that, as a policy institution, the welfare state informs and structures public attitudes by shaping political debate, generating new constituencies of welfare beneficiaries, and altering how individuals and interest groups interpret their preferences. These feedback effects are not predicted to be uniform across countries. Variations in structural characteristics of the welfare state should produce unique patterns of public support. Depending on their design, welfare state institutions may build large constituencies in favor of their development or create hostility to further welfare state expansion (Korpi & Palme, 1998; Rothstein, 2002).

Existing empirical work examining the impact of the welfare state on public opinion attempts to link levels of public support for welfare to the overall structure of the welfare state as defined by Esping-Andersen's (1990) seminal work on the *Three Worlds of Welfare Capitalism*. The key question involves how different strategies of redistribution and incorporation of citizens into major social programs influence public perception of the welfare state. This research agenda has met with mixed results (Andreβ & Heien, 2001; Arts & Gelissen, 2001; Bean & Papadakis, 1998; Blekesaune & Quadagno, 2003; Edlund, 1999; Jæger, 2006; Larsen, 2008; Svallfors, 1997). The inconclusiveness of existing research may stem from the reliance on welfare state typologies and indicators of public opinion that do not adequately capture the complexity of welfare state design or public attitudes. The dependence on overly broad and often theoretically questionable measures of both the dependent and independent variables may mask institutional feedbacks between specific characteristics of the welfare state and public opinion.

This project seeks to contribute to the growing body of research on the relationship between social policy institutions and public opinion by adopting an approach that more directly links the structure of particular programs to public support for these programs. Rather than comparing countries on the basis of broad characterizations of the entire welfare state, this article focuses on a single policy area within the welfare state, national health care, and how its structure may influence public support for that program. Focusing on a

single policy area reduces the imprecision associated with earlier research that relies on overly generalized characterizations of both the welfare state and public opinion. As is discussed below, the disconnect between health care and broader welfare state typologies (Bambra, 2005) provides a unique opportunity to reduce common problems in the institutional feedback literature by implicitly controlling for a number of unmeasured variables and the possibility of reverse causality.

The project proceeds by examining existing research to more clearly delineate the aspects of welfare state design thought to shape public opinion. This discussion is then applied to national health care to generate two testable hypotheses. The next sections test these hypotheses against cross-national survey data from 13 advanced industrial democracies. The final section concludes with a discussion of the implications of these results for existing research on the relationship between policy institutions and public opinion.

Attitudes and Institutions

Interest in the impact of welfare state institutions on public opinion emerged from research exploring how the politics of mature welfare states diverged from the earlier periods of their development. In his examination of the resiliency of the welfare state to the growing political, economic, and demographic pressures for retrenchment, Pierson (1994, 1996) describes a "new politics" of the welfare state characterized by the emergence of new political cleavages between net beneficiaries and net contributors that complicated the earlier class-based politics of the welfare state. Pierson's work draws attention to the possibility that welfare institutions once in place might have a feedback effect on the surrounding political landscape that created them.

Researchers interested in these potential institutional feedbacks have shown particular interest in how variations in the design of social policy institutions produce distinct patterns of political rhetoric, interest group formation, and, by extension, public support. In particular, the institutional feedback literature proposes that welfare state strategies that emphasize universal access to welfare programs across the income scale are likely to build broader support than those that focus on the redistribution of resources from the wealthy to the poor (Rothstein, 2002). Korpi and Palme (1998) suggest that differing strategies of incorporation affect the potential for cross-class coalitions to develop in favor of the welfare state. Selective strategies that target resources on the poor are thought to accentuate divisions between recipients and contributors to the welfare state. By emphasizing the role of redistribution, the selective strategy generates a discourse of the welfare state revolving around

the conflict between the responsibility of the wealthy to care for the poor and the corresponding responsibility of the poor to care for themselves (Rothstein, 1998, 2002). This political discourse divides contributors and beneficiaries into separate camps applying competing normative frameworks in a political struggle over the distribution of welfare state resources. Alternatively, welfare state strategies that emphasize universal access to the welfare state on the basis of social citizenship rights mute the traditional class conflicts inherent in welfare politics by masking the redistributive nature of the welfare state. Because universal programs provide benefits to all citizens and are generally financed through general tax revenues, it becomes difficult for individuals to assess the balance between their benefits and contributions to particular programs. In other words, universal programs reduce individuals' ability to determine whether they are net contributors to or net beneficiaries of the welfare state. Moreover, universalism alters the political discourse surrounding the welfare state by shifting attention away from redistribution and toward issues of common concern to all citizens. This reduces political conflicts between the working and middle classes, allowing for the formation of cross-class coalitions in favor of a generous welfare state.

Critics of the institutional feedback approach challenge the suggestion that the structure of the welfare state transforms the underlying class basis of support for the welfare state. Edlund (2007) offers an alternative theory of institutional feedback that proposes a much greater continuity in welfare politics than suggested by scholars of institutional feedback. Edlund argues that the construction of the welfare state did not eliminate the major political actors that defined earlier stages of welfare politics, nor did it erase the conflicts between workers and employers that drove its initial development. As a result, unions and business groups are likely to remain at the center of welfare politics and may continue to define and frame the political debate in terms of class struggle. In addition, contrary to the claims of institutional feedback scholars, the sheer size of the universal, social democratic welfare state may exacerbate class conflicts by increasing the visibility and scope of redistribution. As welfare states grow in size and generosity, they may become an increasingly significant focal point for class conflict (Svallfors, 2007). In contrast to the institutional feedback approach, Edlund's alternative perspective predicts that class divisions will remain and perhaps even be exacerbated under universal welfare states.

The institutional feedback and Edlund's alternative perspectives therefore offer two distinct predictions concerning the relationship between the structure of welfare institutions and popular support. The institutional feedback approach posits that universal welfare states will diminish the class

distinctions in support for the welfare state seen in earlier periods, creating a broad cross-class coalition of welfare state supporters, whereas more selective or targeted strategies will have lower levels of support as the result of continued conflicts of interests between class groups. Alternatively, Edlund's approach suggests that the welfare state will not fundamentally transform earlier patterns of public support for the welfare state. In fact, the sheer size of the universal welfare states may heighten public awareness of the stakes involved in the struggles over the welfare state, potentially intensifying class polarization in attitudes toward the welfare state.

Empirical efforts to test these two competing theories of institutional feedback generally adopt a strategy that attempts to link cross-national variations in support for the welfare state to Esping-Andersen's (1990) now classic conception of welfare regimes. Esping-Andersen classified welfare states according to qualitative differences in how welfare states as a whole institutionalize different norms of social solidarity, justice, and the relationship among citizens, the state, and the market. To date, the effort to test for institutional feedback effects through application of the regimes approach has met with mixed results. In an analysis of representative countries, Andreβ and Heien (2001) find patterns of overall support for the welfare state consistent with institutional feedback effects (also see Edlund, 1999; Larsen, 2008; McClosky & Zaller, 1984; Svallfors, 1997). On the other hand, Bean and Papadakis (1998) find no discernible evidence for a link between welfare regime and public support for redistribution (also see Arts & Gelissen, 2001). Research examining the predicted impact of welfare state design on class polarization in support for the welfare state finds little evidence of distinct cleavage structures within welfare regimes (Edlund, 2007; Jæger, 2006; Larsen, 2008; McClosky & Zaller, 1984; Svallfors, 2004).

One explanation for these inconsistent results may lie in the failure of existing research to account for both the complexity of the welfare state and attitudes toward it (Jæger, 2006). Typologies necessarily downplay the complexity of welfare policy to draw out the underlying patterns of variation of greatest interest to the researcher. As ideal types, welfare regimes do not accurately describe any particular country and may mask important elements of variation both across and within countries. Though a state's regime type may define its overarching strategy, states often employ a variety of different approaches across the many policy areas that make up the welfare state. For example, in the area of health care many states have adopted strategies that significantly differ from their approach to other areas of social protection (Bambra, 2005).

If what we think of as the welfare state is in fact a collection of different policy instruments that may or may not be built on the same guiding principles,

then public attitudes to the welfare state may be more complex than generally understood. Existing research generally attempts to gauge support for the welfare state through either attitudes toward redistribution (Andreβ & Heien, 2001; Jæger, 2006; Svallfors, 1997) or through an additive index that summarizes support for individual elements of the welfare state (Larsen, 2008). This approach to measuring support for the welfare state is problematic for two reasons. First, given the internal complexity of the welfare sate, individuals may have more nuanced opinions than assumed by measures of overall support for the welfare state. If individuals' opinions are shaped by how programs affect their individual self-interest or fit within their larger ideological framework as suggested above, then their support should vary across policy areas according to how each policy is designed in relationship to the individuals. For example, if the institutional feedback model is correct, levels of support for social security and Temporary Assistance for Needy Families within the United States should vary because both programs have different constituencies and engender different political debates. The internal variation within welfare states suggests that the notion of public support for the welfare state may be misleading. Instead, citizens may hold more nuanced views that recognize the complexity of welfare design.

A second and more problematic issue with existing measures of public opinion involves the use of support for redistribution as an indicator of support for the welfare state. The institutional feedback approach does not require that citizens in universal welfare states be more supportive of redistribution. Instead, it predicts that citizens in universal welfare states will be more supportive of the welfare state precisely because it reduces the appearance and political discussion of redistribution (Rothstein, 1998, 2002). The institutional feedback literature explicitly argues that the unique feature of the universal welfare states is that it disconnects support for the welfare state from attitudes about redistribution. In other words, the institutional feedback approach hypothesizes that within universal welfare states support for the welfare state is high precisely because support for redistribution is *not* a proxy for support for the welfare state.

A more complete examination of the predictions of the institutional feedback approach requires a recognition of the complexity of welfare state design and public attitudes toward it. One solution to this problem is to develop a more nuanced set of measures that capture the complexity of welfare state variation (Jæger, 2006). This approach is limited by two factors. First, the limited number of advanced capitalist countries severely constricts the degrees of freedom needed for multiple national-level indicators of regime type. Second, the approach is still limited to utilizing a dependent variable that may

obscure the complexity of individual and mass attitudes. An alternative solution decomposes the welfare state into distinct policies and attempts to link design characteristics of these policies to public support for these specific sectors of the welfare state. This strategy reduces the imprecision associated with previous research by explicitly linking specific characteristics of the welfare state to public support for those characteristics. This project adopts this second strategy. In the next section, I discuss how an analysis of the link between health care institutions and public support for national health care provides an ideal case for the study of institutional feedback effects.

Health Care Institutions and Attitudes

With the notable exception of the United States, all industrial democracies have established some form of national health care scheme that guarantees universal access to medical care. Though most countries share a common commitment to national health care, there exists substantial variation in how states organize the health care system. Each national health care system must address a myriad of policy questions including payment schemes, the organization of doctors, the role of the private sphere, and the regulation of pharmaceuticals, to name a few (Freeman, 1999; Wessen, 1999). The responses of states to these questions fit together to form a complicated set of interlocking policies that defy easy description.

Despite the complexity of national health care systems, it is possible to discern broad patterns of cross-national variation that allow for meaningful comparison. As with any typology, when classifying health care systems it is important to emphasize the elements of variation of interest while recognizing that significant amounts of variation may be overlooked. Drawing on the previous discussion, the institutional feedback literature focuses on the degree of universalism as a key determinant of public support. At first glance, universalism may appear to be a defining characteristic of all national health care systems; however, closer inspection reveals a significant degree of variability in how citizens are incorporated into national health care systems. Hacker's (2004) simple dichotomy between *hierarchical* and *decentralized* health care systems serves as a useful tool for drawing out the appropriate distinctions.

Hierarchical health care systems place centralized control over health care in the hands of the state. In these systems, the state establishes a universal right to health care for all citizens financed through general tax revenues. Private health insurance may exist at the margins of the system, but the goal of the state is to provide equal access to a high-quality, publicly financed health care system for all citizens regardless of income. The hierarchical health care

system thus represents a social democratic organizational strategy emphasizing social solidarity and universalism. Though hierarchical health care systems may be organized in a variety of different ways, the prototypical case is the British National Health Service (BNHS). The BNHS provides free-at-point-of-access care for the full range of medical services to all citizens without regard for ability to pay. Private medical care is allowed at the margins of the BNHS, but its practice is highly restricted and is considered at most a minor supplement to publicly provided care.

In contrast to hierarchical systems, decentralized health care schemes rely on a combination of private health insurance and nonprofit social insurance funds to guarantee coverage. The common feature of decentralized systems is the division of the public into subgroups with different benefit levels and contribution rates. The decentralized class of health care systems allows for a more diverse set of possible organizational strategies. Germany is a representative example of a decentralized national health care system built on social insurance principles. In Germany, workers are organized into a series of nonprofit health insurance funds organized by industry. The government plays the role of regulator and financial guarantor, but the health insurance funds operate independently to purchase health care for and raise revenue directly from their clients. Competition between funds and differences in the health profiles of their clientele result in variation across funds in contribution rates and benefit levels.[1] Other examples of decentralized systems include the Australian and Irish systems. In these states, the public system is formally organized as a single-payer system like that of the BNHS above; however, both heavily depend on private health insurance to provide for the wealthy and middle classes. In Ireland, for example, the public system provides health care directly to the poorest third of the population in a way similar to that of the hierarchical model; however, those above the minimum income level must pay either out of pocket or through private insurance. Finally, the United States represents an extreme version of the decentralized model with the government insuring the elderly and the poor through Medicaid and Medicare in a medical market dominated by private health insurers.

Despite the high degree of internal variation within each category, the distinction between hierarchical and decentralized systems captures an important component of health care systems for the study of institutional feedback effects. Hierarchical systems are based on a social solidaristic vision that emphasizes the role of the state in guaranteeing equality of access to all citizens. Decentralized systems, on the other hand, create clear divisions in the recipient population that highlight differences between class groups. Differences in contribution rates and benefit levels increase opportunities for

conflicts of interest between differently situated beneficiary groups. Moreover, the provision of benefits on the basis of social status may erode solidarity and highlight value- and interest-based conflicts between higher and lower status recipients.

The distinction between hierarchical and decentralized health care systems highlights two important features of the national health care system that make it a valuable arena for studying institutional feedback effects. First, the nature of health care ensures that the national health care system is one of the most visible social policy arenas. Unlike other sectors of the welfare sector, individuals from across the social spectrum are likely to have numerous and frequent contacts with the health care system. As a result, individuals are potentially more knowledgeable concerning the structure of the national health care system than any other sector of the welfare state. The high visibility of the health care system increases the likelihood that its structure is actually known to the public and can therefore directly affect their attitudes. A second benefit to examining national health care lies in the disconnect between the structure of national health care systems and more conventional welfare state typologies (Bambra, 2005). As is demonstrated below, the distinction between hierarchical and decentralized health care systems is not synonymous with Esping-Andersen's three worlds of welfare capitalism. Social democratic countries have all adopted hierarchically organized health care systems; however, states within the conservative and liberal regime categories do not share a unified strategy of health care organization. Instead, the hierarchical and decentralized health care strategy has been adopted by states in both the conservative and liberal welfare regime categories. This disconnect between the structure of the national health care system and the broader welfare state allows the independent effects of the structure of the health care system on public attitudes to be isolated from the effects of the broader welfare state.

Applying these arguments to the discussion of institutional feedbacks from above generates two testable hypotheses. First, hierarchical health care systems should increase the size of the beneficiary population and generate a common self-interest in the continuation of national health care across income classes. Moreover, delinking contributions from benefits makes it more difficult to distinguish between net contributors and net beneficiaries to the health care system. This should in turn reduce the saliency of value conflicts and reinforce social solidarity. Alternatively, decentralized systems create more internal divisions within the beneficiary population. By emphasizing the role of private insurers or semiprivate sickness funds, decentralized health care systems highlight class distinctions and the visibility of redistribution within

the health care system. As a result, the institutional feedback approach predicts higher levels of support for national health care in countries with hierarchically organized schemes than in those with decentralized models of national health care.

Along with increasing overall support for the welfare state, the institutional feedback approach suggests that welfare programs may reshape the nature of welfare politics by creating new cleavages that replace or at least complicate earlier patterns of class conflict (Pierson, 1994, 1996). Specifically, universal programs by broadening the constituency of the welfare state are expected to reduce the saliency of class status in welfare politics. By bridging the gap between the interests of the middle and working classes, universal programs should boost overall levels of support and dampen class conflict. Applied to the politics of national health care, this leads to an expectation that hierarchical health care systems will reduce the impact of class on support for national health care when compared to decentralized systems. This discussion suggests two testable hypotheses derived from the institutional feedback literature to be tested in the following sections:

> *Hypothesis 1:* Ceteris paribus, states with hierarchical health care systems have higher public support for national health care than those with decentralized health care systems.
>
> *Hypothesis 2:* Ceteris paribus, states with hierarchical health care systems have less class polarization of support for national health care than those with decentralized health care systems.

Data and Variables

The International Social Survey Program's 1996 Role of Government III survey interviewed individuals across 23 countries concerning their attitudes toward the responsibility of government for managing the economy. Thirteen countries met the initial classification criteria of advanced industrial democracies for which sufficient data were available: Australia, Canada, France, West Germany,[2] Ireland, Italy, Japan, New Zealand, Norway, Spain, Sweden, the United Kingdom, and the United States.

Support for national health care is measured from a single response question that asks, "On the whole, do you think it should be or should not be the government's responsibility to provide health care for the sick?" Respondents were given four potential responses to the question ranging from *definitely should be* to *definitely should not be*.[3] The question wording probes respondents' general attitudes toward the government's responsibility for

national health care rather than their support for the existing health care system. This distinction is potentially important as respondents may be quite dissatisfied with the current health care system and yet support the principal of national health care.

The major independent variable of concern is the structure of the health care system. Given the relatively small number of countries under examination, it is important to minimize the number of national-level variables to reduce multicollinearity and maximize the leverage within the data. A simple dichotomous variable distinguishes between decentralized and hierarchical states as defined above. This variable is coded in accordance with Hacker's (2004) original framework with the exception of Ireland, which was not included in the original discussion. As discussed above, in 1996, the Irish health care system maintained a multitiered benefit scale that clearly distinguished between net beneficiaries and net contributors. As such, Ireland is coded as a decentralized system.

The second hypothesis above requires an analysis of the relationship between class status and support for national health care. In a comparative context, class is typically measured on the basis of occupational categories that distinguish between skill level and degree of control over working conditions (Erikson & Goldthorpe, 1992). Respondents' occupations were coded into a 9-point class scale according to the newly developed European Socio-Economic Classification schema (Rose & Harrison, 2007). Individuals were placed into nine class categories on the basis of their most recent occupation, ranging from large employers and higher level managers at the top of the scale (coded 1) to "routine" workers at the bottom (coded 9). Married individuals were given the highest class status of their or their spouse's occupation.[4] Within this coding scheme, higher values represent lower class individuals. As a result, the class variable is predicted to be positively correlated with support for national health care. This approach to measuring class reduces the number of countries considered in the final analysis to 11 by eliminating Japan and Italy because of insufficient data.

Underlying the decision to disaggregate attitudes toward the welfare state is the assumption that individuals can assess their support of particular programs such as health care independently from their attitudes toward the broader welfare sate. Attitudes toward the health care system are clearly not wholly independent from overall welfare state attitudes; however, it is important to control for attitudes toward the broader welfare state to help isolate the independent effects of the structure of the health care system on specific health care attitudes. A measure of overall support for the welfare state helps to control for the effects of other welfare state institutions and cultural factors

and to isolate the ways in which attitudes toward the health care state may deviate from overarching patterns of support for the welfare state.

A measure of general support for the welfare state requires an index that captures broad attitudes toward the role of government in society. The welfare support index includes a battery of questions concerning the government's responsibility for managing and regulating the economy by controlling inflation, regulating wages, creating jobs, reducing business regulation, and redistributing income between rich and poor. The variable is a standardized index across the entire sample ($\alpha = .77$). Zero values represent the average response of the entire survey sample. Positive values represent above average levels of support for the welfare state, whereas negative values represent below average support.

The analysis also includes a number of control variables at the individual level. Sex and age are included as demographic variables that may influence individuals' ideological perspective as well as their interpretation of self-interest (Edlund, 1999; Svallfors, 1997). Preliminary analysis suggested the possibility of a curvilinear relationship between age and support for national health care in which aging has a declining (but always positive) effect on support for national health care. A squared term helps to account for this nonlinear relationship. Dummy variables for students, retirees, and the self-identified unemployed helps to control for "transfer classes" that may be current welfare recipients and therefore have a unique set of interests.

Method

Cross-national survey data present a number of challenges for statistical analysis. Survey respondents are more similar to other respondents within their country than those from other countries as the result of their shared social and political environments. This relationship between respondents may generate heteroscedasticity in the error term, violating assumptions of independence built into standard statistical techniques. If left uncorrected, the correlation of the error terms within countries may artificially suppress standard errors and increase the risk of Type I errors (Steenbergen & Jones, 2002).

White's cluster-robust or sandwich errors provide a straightforward correction for the problems of heteroscedasticity associated with the clustering of errors by country.[5] A drawback of clustered standard errors is that they assume a large number of macro-level units (countries). As the number of macro-level units declines below 30, cluster-robust errors become increasingly unreliable. In an analysis of this type with only 11 countries, these problems may pose a significant challenge. Following Franzese (2005), a simple small-sample

correction is applied to inflate the standard errors to account for the small number of upper level categories.[6]

Ordered probit is used to accommodate for the ordinal nature of the dependent variable. Ordered probit is an extension of the traditional probit model that calculates unique intercepts (thresholds) for each value of the dependent variable (Daykin & Moffatt, 2002). A significant drawback to ordered probit is the difficulty of interpreting coefficients. The standard problems of interpretation are exacerbated in the case of interaction terms in which both the standard errors and coefficients may be misleading (Brambor, Clark, & Golder, 2006; Norton, Wang, & Ai, 2004). One technique for simplifying interpretation involves the presentation of predicted probabilities of support for national health care under different conditions. The method adopted here generates a sample of predicted probabilities based on model coefficients and their standard errors (King, Tomz, & Wittenberg, 2000). This simulated sample of predicted probabilities allows for a straightforward presentation of model coefficients and their statistical significance.[7]

Results

Hypothesis 1 above proposes that public support for national health care will be higher in countries with hierarchical models of health care than those with decentralized systems. As a preliminary test of this hypothesis, Table 1 presents the mean levels of support for the complete sample of 13 countries. Table 1 reveals high levels of support for national health care across the sample. On a 4-point scale with 4 representing strong support for the health care system and 1 representing weaker support, the average value is above 3 in all countries. The broad support for national health care may stem from the nature of health risks, which are more apparently random than factors such as unemployment or poverty (Oorschot, 2000).

The comparisons of mean levels of support for national health care between countries with hierarchical and decentralized health care schemes presented in Table 1 are generally consistent with Hypothesis 1. Mean levels of support in decentralized states are lower than those for hierarchical states, with the exception of Ireland. The mean support level in hierarchical health care systems of 3.73 is a statistically significant 0.31 points above that of the decentralized states ($p = .003$). These data reveal a pattern of support consistent with the predictions of the institutional feedback literature.

Table 1 also demonstrates that, as suggested above, the distinction between decentralized and hierarchical health care systems cuts across broader welfare state typologies. The fact that variations in the structure of the health care system

Table 1. Support for National Health Insurance by Structure of the Health Care System

	M	SD	n
Decentralized			
United States	3.19	0.78	1,241
Australia	3.36	0.60	2,095
Japan	3.36	0.75	1,134
France	3.37	0.79	1,277
Germany	3.47	0.58	2,293
Ireland	3.74	0.47	988
Hierarchical			
Canada	3.54	0.66	1,166
Sweden	3.66	0.59	1,189
New Zealand	3.68	0.55	1,154
Italy	3.79	0.45	1,099
Britain	3.80	0.45	973
Spain	3.80	0.42	2,459
Norway	3.86	0.38	1,327
Difference of means test[a]			
Decentralized average	3.42	0.18	6
Hierarchical average	3.73	0.11	7
t	−.386		
p value	.003		

a. Represents average of country averages.

cut across welfare regimes and cultural traditions suggests that the structure of the health care system is a better predictor of support for national health care than either the worlds of welfare or cultural approaches. More importantly, this reduces the probability that these results are merely reflections of reverse causality. If support for national health care is independent of broader cultural and political patterns, then it provides more support for the claim that health care institutions themselves generate their own patterns of public support.

The comparisons of mean levels of support are generally consistent with the hypothesized link between system structure and overall support for national health care; however, these effects may represent differences in the underlying population not captured by comparisons at the national level. To further examine the relationship between the structure of the health care system and public attitudes, Table 2 presents the results from the ordered probit analysis of the 11 countries for which sufficient data are available. Model 1 is a baseline model that does not include any effects of the structure of the health care system on support for national health care. As predicted,

Table 2. Determinants of Support for National Health Care

	Model 1	Model 2	Model 3	Model 4
Class	0.052***	0.003	0.050***	0.003
	(0.011)	(0.011)	(0.008)	(0.009)
Welfare state support		0.866***		0.855***
		(0.131)		(0.076)
Hierarchical health care system			0.690***	0.662***
			(0.181)	(0.149)
Sex	0.161***	0.006	0.144***	−0.008
	(0.031)	(0.052)	(0.034)	(0.039)
Unemployed	0.294***	0.075	0.170**	−0.041
	(0.091)	(0.076)	(0.076)	(0.068)
Retired	0.200	−0.001	0.145**	−0.055
	(0.141)	(0.150)	(0.061)	(0.076)
Student	0.189*	0.110	−0.003	−0.072
	(0.098)	(0.085)	(0.110)	(0.103)
Age	−0.003	0.005	0.001	0.008
	(0.011)	(0.010)	(0.007)	(0.006)
Age squared	0.000	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)	(0.000)
Threshold 1	−2.040	−2.537	−1.769	−2.274
	(0.371)	(0.339)	(0.306)	(0.291)
Threshold 2	−1.419	−1.812	−1.125	−1.525
	(0.347)	(0.307)	(0.290)	(0.261)
Threshold 3	−0.084	−0.290	0.284	0.072
	(0.267)	(0.231)	(0.207)	(0.183)
N (individuals)	12,777	12,756	12,777	12,756
N (countries)	11	11	11	11
R^2	.017	.119	.062	.157

Note: Results from ordered probit with cluster-robust standard errors. Standard errors with small-sample correction for small number of upper level cases are in parentheses.
*$p < .1$. **$p < .05$. ***$p < .001$.

the measure of class status is positively associated with the probability of support for national health care, suggesting that individuals in lower class strata are more likely to show higher levels of support for the national health care system. Model 2 introduces the measure of support for the broader welfare state. The welfare support index is positively associated with support for the health care system, suggesting that attitudes toward national health care are not wholly independent of broader attitudes toward the welfare state. Moreover, this suggests that the individual-level variables do not have an effect on attitudes toward the health care state that is independent of respondents'

Table 3. Predicted Probabilities of Strong Support for National Health Care

Structure of health care system	Predicted probability of high support	95% confidence interval	
		Lower	Upper
Decentralized	.553	0.492	0.617
Hierarchical	.788	0.732	0.839
Difference	.234	0.150	0.309

Note: Predicted probabilities based on Model 4 assuming all dichotomous controls set to median values and continuous controls set to means.

broader support for the welfare state. In other words, differences in individual levels of support for national health care and the broader welfare state are not explained by the individual characteristics considered here.

Models 3 and 4 present a test of the first hypothesis concerning the relationship between hierarchical health care systems and public support for the national health care system. Both models provide support for Hypothesis 1. Even after controlling for individual-level determinants, individuals living under hierarchically organized health care systems are significantly more likely to support national health care than those living in decentralized systems. Model 4 includes support for the overall welfare state as an individual-level control. As before, the inclusion of this variable eliminates the statistical significance of all individual-level controls, but it does not alter the statistical or substantive relationship between the structure of the health care system and the support for national health care. This lends credence to the claim that the structure of the health care system has an effect on the support for national health care independent of overall support for the welfare state.

To clarify the substantive relevance of these findings, Table 3 presents the predicted probabilities of individuals showing strong support for national health care (a score of 4 on the dependent variable) under each health care system based on the results from Model 4. As discussed above, these predicted probabilities are derived from simulations in which all continuous control variables are set to their means and all dichotomous controls to their median values. In a country with a hierarchically organized health care system, Model 4 predicts that a full 78.8% of these "typical" individuals show strong support for national health care. By contrast, in a decentralized health care system, strong support for the health care system would fall to 55.3% among similar individuals. This 23.4 percentage point difference is statistically significant with a margin of error of 7.5 percentage points. This provides a clear

demonstration of the substantive and statistical differences in levels of support under both health care models predicted by Hypothesis 1 above.

Hypothesis 1 dealt with the relationship between the structure of the health care system and overall support for national health care. Hypothesis 2 suggests that hierarchical health care systems not only raise mean levels of support but also may transform the nature of health care politics by reducing the salience of class status. This second hypothesis proposes an interaction among the structure of the health care system, class status, and support for national health care. Table 4 presents a test of Hypothesis 2. The first column reproduces the results from Model 4 from Table 2 for purposes of comparison. Model 5 includes a multiplicative interaction term between the structure of the health care system and class status. As suggested above, the signs of the coefficients and standard errors of interaction terms can be misleading and difficult to interpret, particularly with ordered probit models (Norton et al., 2004). The use of predicted probabilities once again facilitates the interpretation of the interaction terms (Brambor et al., 2006).

Table 5 presents the predicted probabilities of high support for national health care for "typical" individuals at the top and bottom of the class scale in both hierarchical and decentralized health care systems based on the results from Model 5. Within decentralized health care systems, the shift from the lowest to the highest class category reduces the predicted probability of high support for national health care by a statistically significant 0.175 points from 0.629 to 0.454. Under a hierarchical health care system, a shift from lower to upper class status is expected to diminish the probability of high support for national health care by a statistically significant 0.101 points from 0.832 to 0.731. The effect of class on health care attitudes remains statistically significant in both countries. Though the effect of class attitudes on support for national health care appears to be smaller in hierarchical health care systems, this differential effect does not appear to be statistically significant. Similar simulations using Model 6 (not shown) provide substantively and statistically similar results.

These results do not provide sufficient evidence to conclude with confidence that the structure of the health care system reduces or eliminates the impact of class status on support for national health care. At the same time, the results here do provide some evidence in favor of institutional feedback. Table 5 reveals that predicted support for national health care is higher among upper class individuals in hierarchical health care systems than among the lower class in decentralized systems. In other words, though class still affects the likelihood of high support for national health care in hierarchical systems, overall levels of support are incredibly high among all class groups in

Table 4. Determinants of Support for National Health Care

	Model 4	Model 5	Model 6
Class	0.003	0.056***	0.017
	(0.009)	(0.012)	(0.011)
Hierarchical health care system	0.662***	0.748***	0.798***
	(0.149)	(0.191)	(0.124)
Class × Hierarchy		−0.013	−0.031**
		(0.015)	(0.015)
Welfare state support	0.855***		0.859***
	(0.076)		(0.077)
Sex	−0.008	0.145***	−0.006
	(0.039)	(0.033)	(0.039)
Unemployed	−0.041	0.176**	−0.029
	(0.068)	(0.075)	(0.069)
Retired	−0.055	0.149**	−0.045
	(0.076)	(0.057)	(0.072)
Student	−0.072	−0.002	−0.067
	(0.103)	(0.109)	(0.100)
Age	0.008	0.001	0.008
	(0.006)	(0.007)	(0.006)
Age squared	0.000	0.000	0.000
	(0.000)	(0.000)	(0.000)
Threshold 1	−2.27	−1.74	−2.22
	(0.291)	(0.319)	(0.299)
Threshold 2	−1.53	−1.10	−1.47
	(0.261)	(0.301)	(0.269)
Threshold 3	0.07	0.31	0.13
	(0.183)	(0.215)	(0.184)
N (individuals)	12,756	12,777	12,756
N (countries)	11	11	11
R^2	.157	.062	.158

Note: Results from ordered probit with cluster-robust standard errors. Standard errors with small-sample correction for small number of upper level cases are in parentheses.
**$p < .05$. ***$p < .001$.

hierarchical systems, suggesting a broader consensus in support of national health care in those countries. Thus, class still affects the probability of high support for the national health care system, but hierarchical health care systems do appear to have broad, cross-class coalitions of support for the national health care system, consistent with the expectations of the institutional feedback literature.

Taken together then, these results provide some evidence in favor of the institutional feedback effects in the health care sector. The structure of the

Table 5. Predicted Probabilities of Strong Support for National Health Care Across Health Care Systems

	Structure of health care system	
	Decentralized	Hierarchical
Class status[a]		
Lower class	0.629	0.832
Upper class	0.454	0.731
Class effect[b]	0.175	0.101
95% confidence interval	(0.048, 0.301)	(0.024, 0.182)
Interaction effect[c]	−0.075	
95% confidence interval	(−0.227, 0.080)	

Note: Predicted probabilities based on Model 5 assuming all dichotomous controls set to median values and continuous controls set to means.
a. Upper class defined as a score of 1 on the class scale. Lower class represents a 9 on the class scale.
b. Effect of a shift from low to high class status (9 to 1 on class scale) on the predicted probability of high support for national health care within each health care system.
c. Difference in the effect of a change in class status on the predicted probability of support between hierarchical and decentralized health care systems.

health care system is related to levels of support for national health care, independent of broader attitudes toward the welfare state. Moreover, though hierarchical health care systems do not eliminate the effects of class altogether, they do appear to raise the overall levels of support for national health care across the class spectrum, resulting in even upper class individuals holding stronger levels of support for the national health care system than those in the lower classes of decentralized health care systems.

Conclusion

Comparative welfare state scholars have shown growing interest in the ways in which social policy institutions once in place reshape the surrounding political environment to create a new politics of the welfare state. In particular, research has focused attention on how the structure of welfare state institutions creates feedback effects that reshape patterns of public support for the welfare state. Existing research has found mixed evidence for institutional feedback partially as the result of approaches that do not adequately account for the complexity of welfare state design or the possibility that individuals will have program-specific opinions not captured by measures that attempt to gauge overall support for the welfare state or redistribution. The

analysis here attempted to correct this shortcoming by focusing on the link among the structure of a particular policy arena, health care, and attitudes toward it.

The evidence presented here provides some support for institutional feedback effects. Simple cross-sectional comparisons combined with more complex analysis of individual attitudes reveal that support for national health care is higher in states with hierarchically organized national health care systems than in those with more decentralized health care systems. Moreover, the distinctions between hierarchical and decentralized health care systems cut across traditional welfare state typologies, suggesting that the link between public support for national health care and the structure of health care institutions is not a mere reflection of preexisting patterns of public support based on cultural or ideological traditions.

As for the impact of institutions on the class patterns of attitudes, the evidence presented here provides much more limited support. The evidence presented here does not support the maximal claim of the institutional feedback approach that class polarization of support for national health care is erased by the structure of health care institutions. However, the results demonstrate that support for national health care in a hierarchical health care system has grown to very high levels across the class spectrum, providing some evidence in favor of the claim that hierarchical health care systems will help to generate broad, cross-class coalitions in favor of the health care system.

This research provides some evidence in favor of the institutional feedback hypothesis. The evidence presented here is clearly limited by the fact that it pertains to only one sector of the welfare state, the health care system, at a single point in time, the mid-1990s; however, it highlights the potential value of disaggregating both the structure of the welfare state and public attitudes to provide more fine-grained tests of institutional feedback. Future research should proceed by examining other sectors of the welfare state to further examine the interrelationship between the structure of welfare institutions and popular support.

Declaration of Conflicting Interests

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Notes

1. Recent reforms have significantly reduced cross-fund variations in contribution rates and benefits (Altenstetter, 1999); however, data limitations limit this discussion to 1996, at a time when cross-fund differences were just beginning to change.
2. In 1996, the East Germany health care system was in the midst of a transition from the hierarchically organized communist health care system into the decentralized West German system. As a result of this transition, East German public opinion may have been in a state of flux. East Germany was excluded to avoid any distortions in the results caused by this transition period whose effects on public attitudes are unknown.
3. To ease interpretation, the original variable was recoded so that higher values represent stronger support for national health care. The question as originally asked does not offer respondents a neutral category.
4. The coding of class from the available occupational classification systems in the International Social Survey Program 1996 was significantly aided by statistical code provided by Torben Iversen (http://www.people.fas.harvard.edu/~iversen/SkillSpecificity.htm), Harry Ganzeboom (http://iser.essex.ac.uk/research/esec), and the Institute for Social and Economic Research (http://iser.essex.ac.uk/research/esec/matrices-and-syntax). STATA code for the construction of this variable will be made available on request.
5. Two-stage hierarchical modeling offers an alternative method for addressing clustered standard errors. Franzese (2005) suggests that clustered standard errors perform at least as well as two-stage hierarchical modeling in most situations with the added advantages of easing interpretation and presentation of results. Clustered standard errors are capable of addressing the interactions between macro and micro levels of the data and are better suited for projects emphasizing the common effects of country-level factors. As a robustness check, the analysis was duplicated with a two-stage hierarchical model. The hierarchical modeling strategy yielded substantially similar results. Using clustered standard errors represented the most conservative choice and so was the strategy adopted here.
6. Specifically, Franzese (2005) suggests multiplying the standard errors by $[N/(N-k)][J/(J-1)]$ where N is the number of observations, k is the number of regressors, and J is the number of upper level clusters (countries). In this analysis, this correction represented an average increase in the standard errors of approximately 10%.

7. Simulations of predicted probabilities were created using STATA code graciously provided by Matt Golder.

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Bio

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