The Rise of the Modern Welfare State, Ideology, Institutions and Income Security: Analysis and Evidence[1]

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Abstract: In the twenty five year period between 1960 and 1985, there was a great expansion of social insurance and transfer programs in all Western countries. The fraction of GDP accounted for by government expenditures approximately doubled in much of Europe, and grew by 40-50% in most other OECD nations. After 1985, there has been relatively little growth in the scope of the welfare state relative to other parts of the economy. This paper explores the extent to which institutions and ideological shifts may have accounted for the period of rapid growth, for differences in the extent of that growth, and for the subsequent reduction in the growth of welfare state programs.

Key Words: Public Choice, Social Insurance, Public Finance, Constitutional Choice and Institutional Analysis, Welfare State, Public Policy, Ideological Change

JEL Categories: H4, D6, P5

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I. Introduction

Western social insurance and transfer programs have a long history in the West. Germany's social security program began in 1889, Sweden's in 1909, and the United Kingdom's in 1911. The social security programs of the United States and Switzerland were adopted somewhat later, in 1935 and 1947, respectively. These early programs were often adopted by conservative or liberal coalitions and so, initially, could be said to be "liberal" in their general structure and in their benefit levels. The early programs were relatively small and had relatively small benefit levels, although they represented significant expansions of central government responsibilities. If the welfare state is a "nanny" state with a relatively high "safety net," it emerged only in the late 1980s after two or three decades of rapid expansion. Social insurance programs increased from 4% to 13.4% of GDP in Japan, from 7% to 15% in the United Kingdom, from 12% to 18% in Germany, and from 13% to 18% in France in less than three decades. Social security transfers in the United States rose from 5% of GDP in 1960 to 13% during roughly the same period.

In previous work, Congleton (2007) has argued that the initial emergence of a "liberal" welfare state is consistent with a demand for private insurance, that is, with private economic advantages associated with national provision of income security relative to supply through private income insurance clubs or firms.[2] In many circumstances, a national government can be a better source of income security than private clubs or local governments, because governmental programs can more economically address adverse selection and moral hazard problems. That efficient risk
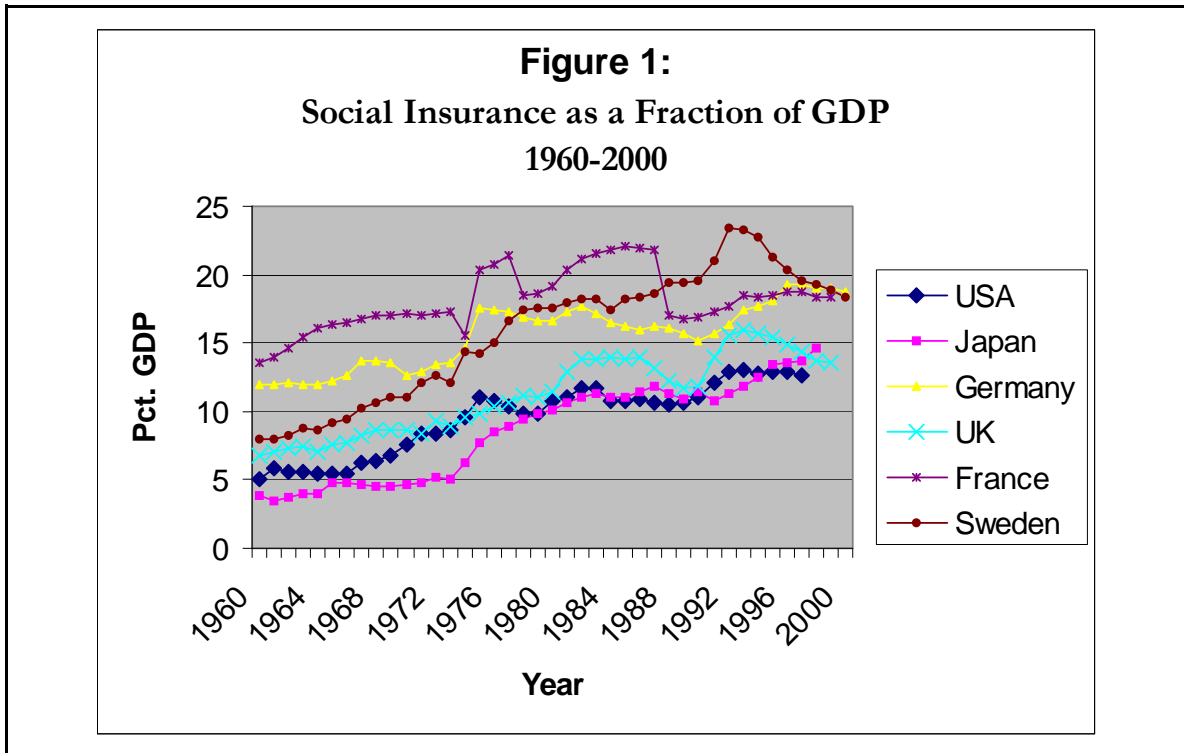
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[2] He uses the term "liberal" in its older European sense, although in a manner somewhat broader than its current usage in Europe. In Europe, liberals are the right-of-center defenders of democracy, markets, and civil equality. In the United States, the term liberal refers to the left-of-center defenders of democracy, markets, and civic equality who might be considered moderate social democrats in Europe. For historical analysis, it is often useful to use the term liberal to describe all proponents of democracy, markets, and civic equality, particularly in nineteenth century Europe. Before World War I, not very much difference existed between European and U.S. usage, although a significant shift took place afterward.

pooling, rather than egalitarian redistribution, account for the durable features of many long-standing social insurance programs is consistent with the level of funding and benefits provided in the period before World War II and is also broadly consistent with Tanzi and Schuknecht's (2000) empirical evidence that only modest changes in the income distributions of Organisation for Economic Cooperation and Development (OECD) countries can be attributed to the size of national social insurance programs during the twentieth century.[3]

The rapid expansion of these programs after World War II, however, is not so easily explained. Electoral support for social insurance programs tends to increase with income, because insurance is a normal good, but unless social insurance is a luxury good, its income elasticity will be less than or equal to 1, rather than far greater, as is required to explain the period of rapid expansion.[4] Unless perceived economic risks increased in this period—and they did not by most accounts—the rapid post-war expansion of social insurance programs in the West can only be partially explained by economic advantages associated with governmentally provided insurance. Social insurance and other government programs might also have expanded if the cost of providing them decreased dramatically during the postwar period, but this does not seem to be the case. Although there have been technological and taxation changes that modestly reduced the cost of such programs—for example, the cost of computers and software fell, while their power increased—these do not seem sufficient to account for the dramatic increase in the fraction of GDP devoted to such programs, or for the variation in program expansions among Western countries. The main costs are not administrative, but rather the dollars paid to beneficiaries. Average and marginal tax rates increased in the postwar period, which suggests that marginal tax costs have increased, rather than fallen, in the period of interest.

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[3]   Private demands for insurance, whether publicly or privately provided, tend to have a small effect on the distribution of national income, because they moderate variations in income due to exogenous economic and health shocks, rather than redistribute income from rich to poor.[1] Unemployment insurance and health insurance tend to shift money to those who are unfortunate, rather than from rich to poor per se, although clearly bad luck reduces personal wealth in the short run.

[4]   See, for example, Mantis and Farmer (1968) or Gruber and Poterba (1994), for estimates of insurance demand. Both report positive coefficients for income consistent with a less than unitary income elasticity for the demand for insurance.

Figure 1:
Social Insurance as a Fraction of GDP
1960-2000

This paper explores the role that political ideas and institutions, in addition to economic interests, may have played in determining the effective demand for social insurance programs. Section 2 develops a model of an individual voter's demand for social insurance programs based on personal insurance and ideological interests. It uses the voter model to show how alternative democratic constitutional settings affect the effective political demand for government-provided safety nets. Section 3 undertakes some tests of the hypotheses developed in section 2, using data from 18 OECD countries. The statistical evidence suggests that ideological shifts, income changes, and institutions all contributed to the emergence of the welfare state in the postwar period.

II. A Model of Voter Demand for Social Insurance

Consider a slight modification of the setting explored by Congleton (2007), in which a debilitating disease randomly strikes people and saps their ability to work and play. Assume that only these two states of health are possible and that the probability of being sick is *P* and being healthy is *1-P*. When healthy, a typical person (who we will refer to as Alle) has *H* hours to allocate between work, *W*, and leisure, *L*, and that when sick, he or she has only *S* hours to allocate between work and leisure. Work produces private good *Y*, which is desired for its own sake, with $Y_i = \omega W_i$, where ω is the marginal and

average product of labor. In addition to economic interests, a person's labor-leisure choices may also be affected by normative theories that affect the rewards of work, as with a personal work ethic or culture of work. A variety of norms evidently affect private decisions and voting behavior. For example, voter turnout levels is evidently largely determined by civic duty, rather than net income–maximizing behavior.[5]

The norms of greatest interest for the present purposes are social or ideological norms.[6] To explore the political implications of such normative theories, the typical voter, Alle, is assumed to maximize a strictly concave utility function defined over good Y (private consumption), leisure, and the extent to which the actual society, I, departs from his or her ideological notion of the good society, I^{**}, as with $U = u(Y_i, L_i, |I\text{-}I_i^{**}|)$. We assume that a person's ideology does not affect his or her demand for work or for private insurance, $U_{YI} = U_{LI} = 0$, although it may affect his or her demand for social insurance.[7]

In the absence of an income insurance program, Alle maximizes:

$$U^{woH} = u(\omega W_i, H - W_i, |I\text{-}I_i^{**}|) \tag{1}$$

and when unhealthy, she or he maximizes:

$$U^{woS} = u(\omega W_i, S - W_i, |I\text{-}I_i^{**}|) \tag{2}$$

where H is the number of hours available for work when healthy and S is the number of hours available when sick. In either case, her work day (or work week) will satisfy similar first order conditions:

$$U^T_Y \, \omega - U^T_L = 0 \tag{3}$$

Alle works at the level that sets the marginal utility of the income produced by her (or his) work equal to the marginal cost of that work in terms of the reduced utility from leisure. The implicit function theorem implies that Alle's work day can be characterized as:

$$W_i^* = w(\, T, \omega, I, I_i^{**}\,) \tag{4}$$

In general, Alle's work day varies with her marginal product (wage rate), state of health $T = H$ or $T = S$, and vision of the good society. The assumed separability of the ideological effects on a typical voter's utility function, however, implies that Alle's ideal work day and income varies from $\omega w(H, \omega, ., .)$ to $\omega w(S, \omega, ., .)$ according to her health in the work period of interest.

A. Labor-Leisure Choices in with a Government-Provided Safety Net

Now consider the case in which Alle can take advantage of a government-sponsored program that collects a fraction of the output produced by each taxpayer-resident through earmarked proportional taxes, t, and returns it to "sick" residents through conditional demogrants, G. This program provides a "safety net" of G units of the private consumption good Y for persons who are unable to work. Given that program, Alle's net income when unable to work is $Y^S = (1-t)\,\omega_i\,W^S + G$, rather than $\omega_i\,W^S$. If there are N members in the community eligible for the program of interest, PN qualify for benefits during a typical work period. The tax revenues are earmarked for the safety net program, so the income guarantee is $G = (t\omega_i\,\Sigma\,W^T_j)/PN$.

Of course, the initiation of such a program changes Alle's behavior. Alle now maximizes:

$$U^H = U(\,(1-t)\,\omega_i\,W, H - W, |I-I_i^{**}|) \tag{5}$$

when healthy and

$$U^S = U(\,(1-t)\,\omega_i\,W + G, S - W, |I-I_i^{**}|) \tag{6}$$

when sick. The first-order conditions that characterize Alle's work day (or work week) during healthy and ill work periods are similar to each other.

$$U^T_Y [(1-t)\, \omega_i + t\omega I\, /N] - U^T_L = 0 \equiv Z \qquad (7)$$

Equation 7 differs from equation 3 in that Alle now equates the marginal utility of net income produced by working (which now includes effects from taxes and the government's income-security guarantee) to the marginal opportunity cost of time spent working. The implicit function describing Alle's work day becomes:

$$W_i^* = w(\, T,\, \omega_i,\, t,\, N,\, I,\, I_i^{**}) \qquad (8)$$

(G is determined by the fiscal constraints, given the tax rate, risk factors, wage rate, and size of the community.) Equation 8 is the same as equation 4 if the taxes and benefits equal zero. T again represents the individual's state of health and takes the value H if he or she is healthy, and S if he or she is sick.

Alle again works more when she is healthy than sick, but generally works less when she is covered by a social insurance program than when she is not.

$$W_i^*{}_T = [U_{YT} [(1-t)\, \omega_i + t\omega\, /N] - U_{LL}]\, /\, {-}[Z_W\,] < 0 \qquad (10)$$

$$W_i^*{}_t = [U_{YY}\, (W\omega_i + \omega_i\, \Sigma\, W_j/N)\, ((1-t)\, \omega_i + t\omega_i\, /N) +$$
$$U_Y(-\omega_i + \omega_j/N)\ - U_{LY}\, (W\omega_i + \omega_i\, \Sigma\, W_j/N)]\, /\, {-}[Z_W] < 0 \qquad (11)$$

$$\text{where } Z_W = U_{YY}\, [(1-t)\, \omega_i + t\omega_i\, /N]^2 - 2\, U_Y\, [(1-t)\, \omega_i + t\omega_i\, /N] - U_{LL} < 0$$

Strict concavity of the utility function along with the assumed club funding structures (proportional taxation and conditional demogrants) allow both derivatives to be signed unambiguously.

B. The Political Demand for Government Insurance

For most day-to-day purposes, the parameters of a government-sponsored social insurance program are exogenous variables for the individuals who take advantage of them. The exception occurs on election day, when the parameters of the program are indirectly controlled by voters. On that day, and perhaps most others, elected representatives are induced by competitive pressures to pay close attention to the

preferences of voters. Our characterization of the typical voter's utility function implies that her (or his) interests combine those of a "public choice pragmatist," who chooses G to advance her own economic interest, with those of a political idealist, who uses public policies to advance her vision of the good society. We assume for the purposes of this paper that each voter's conception of the good society includes a "socially ideal" safety net, which is represented as G_i^{**}. The voter's ideological dissatisfaction with current social insurance levels is, consequently, an increasing function of $|G-G_i^{**}|$ where G is the existing program.

Alle's ideal public safety net, G_i^*, varies with her circumstances and ideology, and also with the fiscal circumstances of the government that sponsors the service. To see this, suppose that the public safety net is financed with an earmarked proportional tax (as is actually the case in many countries) and that the budget is to be balanced (on average). The balanced budget constraint can be characterized in terms of the income of the average person and the average risk of being less able to work. Let ω_A denote the wage rate of the "average person" and suppose that N taxpayer-voters are in the community of interest. In this case, the relationship between the height of the safety net and the tax rate implied by the balanced budget constraint is:

$$PNG = tNW_A^* = tN\ \omega_A w(T, \omega_A, t, N, G, G^{**})$$

which implies $\ t = PG\ /\ \omega_A\ w(T, \omega_A, t, N, G, G^{**}) = PG/W_A^*$ \hfill (12)

The ideal public demogrant program for Alle takes account of tradeoffs between her personal economic goals (income and risk management) and her ideological interest in the good society. Alle maximizes:

$$U_i^e = (1-P)U(\ (1-t)\ \omega_i\ W_i, H - W_i, |G-G_i^{**}|)\ + P\ U(\ (1-t)\ \omega_i\ W_i + G, S - W_i,|G-G_i^{**}|)$$

which, after substituting for the balanced constraint, becomes:

$$U_i^e = (1 - P)\ U[(1 - PG/W_A^*)\ \omega_i\ W_i, H - W_i, |G-G_i^{**}|]$$
$$+ P\ U(\ (1- PG/W_A^*)\ \omega_i\ W_i + G, S - W_i,|G-G_i^{**}|)\ \ \ \ \ (13a)$$

Differentiating 13a with respect to G allows Alle's ideal safety net program to be characterized:

$$(1-P) \, U^H_Y \left[- (P/W_A{}^* - PGW_{AG}/(W_A{}^*)^2) \, \omega_i \, W_i^H + (1-PG/W_A{}^*) \, \omega_i \, W^H_{iG} \right] - U^S_L \, W^H_{iG} + U^H_I +$$
$$(P) \, U^S_Y \left[1 - (1/W_A{}^* - PGW^*_{AG}/(W_A{}^*)^2) \, \omega_i \, W_i^S \right.$$
$$\left. + (1-PG/W_A{}^*) \, \omega_i \, W^S_{iG} \right] - U^S_L \, W^S_{iG} + U^S_I$$
$$= 0 \quad (for \ G < G_i{}^{**}) \tag{14a}$$

The implicit function theorem implies that a voter's preferred government-provided safety net can be characterized as a function of the parameters of his or her optimization problem:

$$G_i{}^* = g(\omega_i, \omega_A, P, N, S, H, G_i{}^{**}) \tag{15}$$

The typical voter's demand for social insurance varies with his or her wage rage, that of the average voter, the probability of being sick, the lost hours associated with being sick, the number of taxpayers, and his or her ideological welfare norm. For most voters, tradeoffs exist between personal net receipts that are partly generated by effects on the size of the tax base similar to those in Meltzer and Richard's (1981) analysis, and also tradeoffs generated by personal ideological goals. Tradeoffs do not always exist between a voter's narrow and broader goals, but the model implies that such tradeoffs exist for most voters with respect to social insurance.

An interesting special case of this optimization problem is the one that the average voter confronts. In this case, $W_i = W_A$ and $\omega_i = \omega_A$, which allows equation 13a to be written as:

$$U^e = (1-P)U((\omega_A \, W_A{}^*, H - W_A{}^*, /G_A - G^{**}|)$$
$$+ P \, U((1-t) \, \omega_A \, W_A{}^* + G, S - W_A{}^*, /G_A - G^{**}/) \tag{13b}$$

If the average voter is risk neutral, differentiating equation 13b, setting the result equal to zero, and applying the envelope theorem implies that:

$$U^e = (1-P) \, U^H_I + P \, U^S_I = 0 \tag{14b}$$

If the average voter is risk neutral, $U^H_I = U^S_I$, and *G is chosen to minimize ideological dissatisfaction.* A risk-neutral average voter has the ideal point: $G_A* = G_A**$.[8]

For other voters, however, the partial derivatives of equation 15 cannot be signed without making additional assumptions, although conventional economic intuitions and evidence suggest that more social insurance tends to be demanded as income increases, risks increase, and as the ideological norms favoring social insurance increase. The median voter has the median preference for the safety net and can be characterized by substituting values for median wage rates and ideology into equation 15. If median income is below average income, a risk-neutral median voter's preferred safety net tends to be somewhat *above his or her ideological ideal*, because he or she tends to be a net beneficiary of general tax-financed income guarantees. A *normative tension* also tends to exist between advancing general ideological aims and maximizing one's own expected income.[9]

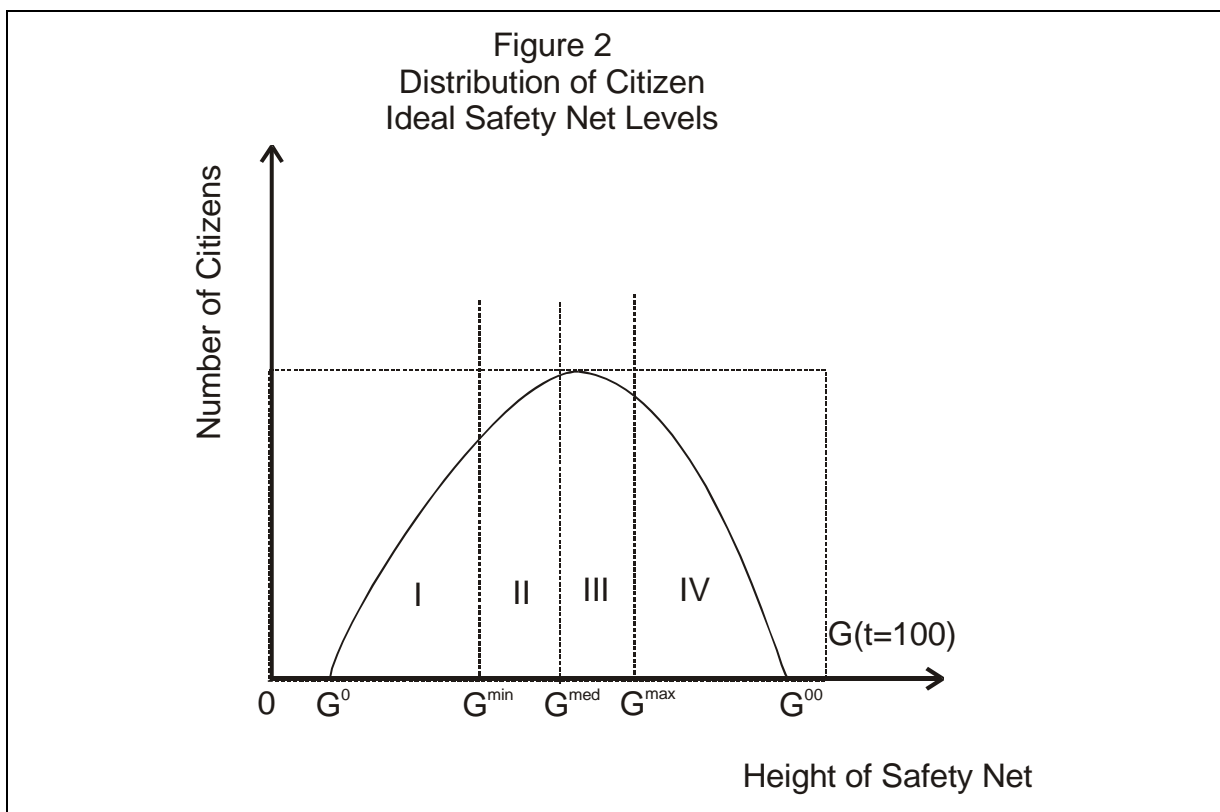### C. Institutions, Voter Demands, and the Safety Net

For every distribution of utility functions, wages, and norms, a frequency distribution of voter ideal income security programs can be determined using equation 15. (Each voter's ideal safety net, as a real number, can be rank ordered from low to high and counted.) Figure 2 illustrates a typical frequency distribution of voter ideal points. As depicted, it is assumed that the ideal points are interior solutions to equation 14a, although the existence of a few voters with corner solutions would not materially affect the conclusions, as long as interior solutions were sufficiently common that the median voter has an interior solution.

We assume policies are adopted through a sequence of votes over a sequence of small proposed changes in program levels and that each new proposal is judged relative

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[8]   A similar result occurs for cases in which the insurance provides an exact "replacement rate" for wages lost because of illness or other misfortune, $G_i = g*\omega_i (W^h - W^s)$, and each risk class (S) is self-financing. In such cases, the Meltzer and Richard's expected net income effects also disappear, and voter policy preferences are again the ideologically driven, as in equation 14b; although, ideology may differ by risk class for reasons unconnected with social insurance per se.
[9]   Tensions between personal and ideological interests are often mentioned in the expressive voting literature. See, for example, Brennan and Hamlin 2000. The conflict implied here, however, is actually the opposite of that stressed by Brennan and Hamlin. There is clearly a sense in which a "disinterested" voter may regard it better to aim for the good society than to maximize expected median voter utility, narrowly defined.

to the last one to obtain majority approval. If citizen preferences are stable and approximately spatial as they tend to be, the model developed above—because the concavity, continuity, and budget constraint assumptions imply a single degree of freedom—figure 2 can be used to illustrate how different constitutional procedures for choosing income security levels affect the policies chosen. Under these assumptions, spatial voting implies that the median voter's ideal program tends to be adopted, G^{med}, regardless of the starting point. Once the median voter's ideal becomes the status quo, no other proposed level of G will gain majority support. Under majority rule, standing policies are reformed only if the median voter's preferred policy changes. The level of the social safety net changes if wage rates or ideological norms change in a majoritarian polity.

Figure 2
Distribution of Citizen
Ideal Safety Net Levels

Under more complex collective decision procedures, however, both the institutions and the starting point of program negotiations will also matter. For example, consider a series of small increases adopted by a two-thirds supermajority rule with 0 as the initial point of departure. This procedure yields an income security program that is

smaller than that preferred by the median voter, because at some point a bit more than a third of the voters will oppose further increases. That point is labeled G^{min} in figure 2, and occurs where area I is twice as large as area II. The same voting rule will produce an income security program that is larger than that desired by the median voter if the status quo ante is initially above the median citizen's ideal and incremental reductions are voted on. The policy chosen in that case will be G^{max}, where area IV is twice as large as area III.

Although no Western governments routinely use supermajority rule to make ordinary policy decisions, several widely used institutions tend to have this effect. For example, presidential systems of government with bicameral legislatures have three veto players, and because of differences in district sizes, voter-turnout, and the timing of elections, representatives to each body are selected by somewhat differing electorates. If elected representatives cast their votes in government in a manner consistent with their campaign promises or to advance the contemporaneous interests of their respective median voters, more complex architectures will tend to increase the effective size of the majorities required to pass laws within a given legislature.[10]

These supermajority-like effects imply that rising income and ideological shifts to the left (increases in the ideologically ideal level of the safety net, G^{**}) tend to induce smaller increases in the government-sponsored safety net in countries with bicameral parliaments than in those with unitary ones, and somewhat different final outcomes when increases in demand are temporary, rather than permanent. Policy adjustments tend to be still smaller in countries that include both a bicameral legislature and a president with veto power.

It bears noting, however, that institutionally biasing parameters of social safety net programs to values below those desired by the median voter ($G<G^*$), may yield a safety net that is *closer to average ideological norm* of the electorate, so nonmajoritarian institutions

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[10]   This point was first noted by Buchanan and Tullock (1962). An important difference among contemporary democratic institutions involves the number of veto players, and their manner of election, which varies widely among contemporary democracies (Tsebelis 2002, Congleton and Swedenborg 2006).

   More formally, G_{min} is the solution to $\int^+_{Gmin} f(G) = 100 - \phi$, where f(G) is the distribution of voter ideal points implied by equation 15, given the existing distribution of ideologies and wages, and ϕ is the implied supermajority requirement for the political institutions of interest. Similarly, G_{max} is the solution to $\int^{Gmax}_- f(G) = 100 - \phi$. Note that Gmax = Gmin when $\phi = 50\%$.

are not necessarily undesirable. (Recall that the median voter's preferred safety net tends to be higher than G^{**} if he or she has below average income.)

III. Data and Estimates

To test for the hypothesized income and ideological influences on voter demands for social insurance and for the static and dynamic effects of political institutions on the public policies adopted in response to those demands, we collected panel data for 18 democratic countries. These include Germany, United States, Sweden, Australia, Austria, Belgium, Canada, Denmark, Finland, France, Ireland, Italy, Japan, Netherlands, New Zealand, Norway, Switzerland, and United Kingdom.[11] The countries focused on are the same ones covered in the widely used *Comparative Welfare States Data Set*, for whom a good deal of reliable data is available for the period of interest. The data assembled cover the period during which the modern welfare state emerged, 1960–2000.

The average income variable, real per capita gross domestic product, is taken from the World Bank's 2007 *World Development Indicators* data base. (Alternative estimates using somewhat older data from the Penn-World Tables, versions 6.1 and 6.2, were also undertaken. The results are similar, but are not reported.) Our measure of the ideology of the median voter is taken from Kim and Fording (2001). The Kim and Fording estimates of median voter ideology rest on three assumptions: first, in industrialized countries, there exists a left-right ideological spectrum; second, the left-right spectrum is a primary determinant of votes cast in Western democracies; third, the left-right spectrum can be compared across countries (Kim and Fording 2001: 159). Given these assumptions, median voter ideology is measured using a three-step process. First, ideology scores are obtained for the platforms of each party contesting a given national election. Second, the supporters of the party are identified on the left-right spectrum. Third, the percentage of votes received by each party in the election is gathered. The median position is then found by using the formula for the median of a grouped frequency distribution (Kim and Fording 2001: 163). We use their "Riteleft" variable,
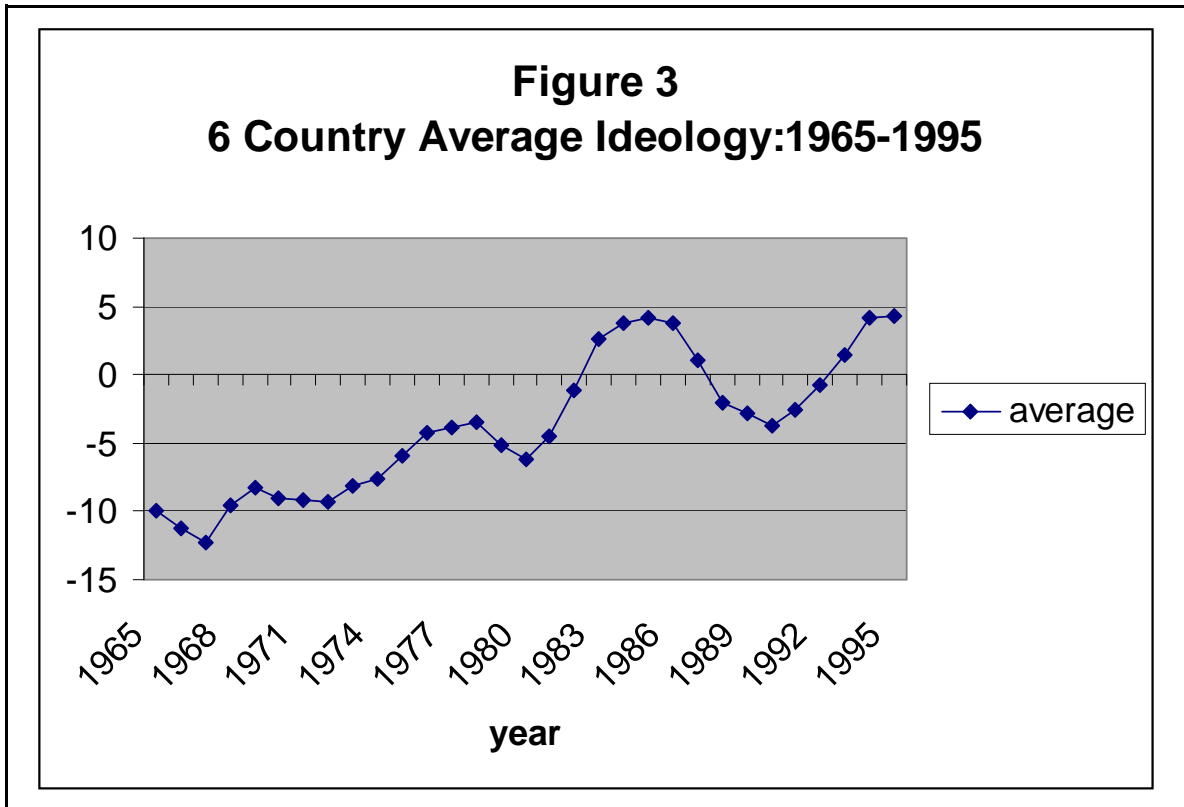
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[11]   The "Comparative Welfare States Data Set" was originally assembled by Evelyne Huber, Charles Ragin, and John D. Stephens in December 1997 and was updated by David Brady, Jason Beckfield, and John Stephens in April 2004.

which is available for the election years of the 18 countries in our sample. Missing annual values are computed through linear interpolation.

Riteleft is a better measure of voter ideology than most available alternatives, although it is not perfect. It is a better measure, for example, than the percent of seats held by left (or right) of center parties or vote shares of a particular national party, because it takes account of platform changes that occur through time as a consequence of political competition. The latter have been very substantial during the postwar period. The common political spectrum used for their index also avoids problems associated with using international parties in cross-sectional studies. Parties with similar names may have quite different platforms across countries. It also has some advantages over answers to survey questions, because it avoids framing effects and shifts in the meaning of political terminology through time and among societies. Riteleft does not, however, distinguish between the ideological and income basis of voter demands for government services. Fortunately, this turns out not to be a problem in the period of interest here, because party platforms were evidently more driven by ideological than economic interests during this period.[12]

Figure 3 depicts the average ideology of the median voters of the six countries, whose social insurance expenditures are depicted in figure 1. The individual country experiences varied substantially, and several shifts to the left and right are evident in this six-country average. Overall, however, there is a general drift to the left in the thirty-year period of interest here.

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[12]   Ideology and income are only weakly correlated in this data set. A simple regression of per capita rgdp on ideology in election years (the point at which riteleft is calculated) has an $R^2 < 0.02$ and the estimated coefficient for income that is not statistically different from zero at the 10% level of significance. A similar regression using the interpolated values also has an $R^2 < 0.02$, although the income coefficient is significant in that estimate.

Figure 3
6 Country Average Ideology:1965-1995

The rest of the data is largely from the *Comparative Welfare States Data Set* (April 2004), which is assembled from OECD and World Bank sources for the most part. The variable used to represent the magnitude of the social safety net is from the OECD Historical Statistics (2001). This index of aggregate social transfers (sstran) includes most national safety net programs—benefits for sickness, old age, family allowances, social assistance grants, and welfare—and is measured as a percent of national GDP, which provides a convenient measure of the relative importance of safety net programs and avoids a variety of currency conversion and index problems. The constitutional design variables of interest are from the same data set. The strength of bicameralism variable is coded 0 if there is no second chamber or second chamber with very weak powers, coded 1 when there is weak bicameralism" and 2 when there is strong bicameralism (Huber and others 1997). The presidential system variable is coded 0 for parliamentary systems and 1 for president or collegial executive.

In addition to the presidential and bicameral variables, we also included measures of institutional characteristics studied in previous work on government size and responsiveness (see, for example, Persson and Tabellini [2006] or Mueller [2006]). The single-member district variable is coded 0 for proportional representation, 1 for modified

proportional representation, and 2 for single-member plurality systems. The federalism variable is coded 0 for none, 1 for weak, and 2 for strong. All such discrete representations of political institutions are open to interpretation by those doing the coding. For example, the United Kingdom's House of Lords is not considered to be a significant chamber of the legislature in the bicameral index, and so the United Kingdom is coded as 0 rather than 1 under the bicameralism measure. For the purposes of this study, we simply accept the Huber and others (1997) coding of institutions.

Data availability varies somewhat among OECD countries, but in most cases was completely available for the period in which the modern welfare state emerged, 1960–1985 and for the 15 years after, 1985–2000; however, a few observations were unavailable for the ideological index and for the extent of social insurance transfers for the first few years and for the last few years of the period of interest. Together the missing values reduced the usable sample size by about 60 observations, but did not affect the main period of program growth. Table 1 provides descriptive statistics for our data set.

Table 1: Descriptive Statistics

Mean, Standard Deviation,

Minimum and Maximum for the key variables

	Mean	Standard Deviation	Minimum	Maximum
Ideology (right-left)	–3.85	12.891	–39.94	42.88
Bicameralism	0.68	0.814	0	2
Presidential	0.22	0.416	0	1
Single-Member District	0.60	0.816	0	2
Federalism	0.577	0.843	0	2
Social Insurance (sstran)	13.33	4.947	3.50	28.80
Real GDP/capita (WDI, 1960–2000)	17,302.88	6,615.57	4,987.67	37,164.60
Real GDP/capita (WB Penn 6.1, 1950–2000)	14,862.44	5,794.26	2,417.02	33,308.40
Gov. Share (WDI, 1960–2000)	18.46	4.188	7.66	29.94
Gov. Share (WB Penn 6.1–6.2, 1950–2000)	18.72	5.865	7.86	32.06

The data set is used to estimate linear forms of equation 15, augmented by constitutional effects. Four models of policy formation are of interest: two electoral models and two institutional models. If the average voter determines the extent of social welfare programs and the pivotal voter is approximately risk neutral, then the height of the social welfare net is determined by ideological and institutional variables. If the median voter determines the extent of social welfare programs, then income variables are relevant as well. Well-functioning representative institutions may have two types of effects on public policies in a democracy. The first is the static effect of institutional "biases" that are widely estimated in this literature (Congleton and Swedenborg 2006). Institutions may bias policies away from median voter's preferred policy for a variety of reasons, including the ones modeled above. The second "dynamic" source of "bias" arises, because changes in voter preferences have different effects on public policy according to the number of veto players that must be satisfied to induce policy reforms. The dynamic effect of political institutions depends on the geometry of the distribution

of voter preferences and whether it changes as the median preference changes. For example, if a leftward shift in the median reflects a relatively larger leftward shift in the demands of moderate and left-or-center voters than of right-of-center voters, the result under supermajority rule will be a smaller change than implied by changes in the median preference. The estimated equations implicitly assume that all safety net programs can be adjusted at the margin every year, even if their essential tax and benefit schedules are not easily reformed.[13]

Table 2 reports four estimates of the institution-augmented "average" voter model. A variation of the fixed effects approach is used in which countries are identified by the share of GDP they devoted to social insurance in 1960.[14] The first and third estimates focus on the veto-player effects of bicameral legislatures and independently elected presidents, analyzed above, both of which tend to introduce supermajority-like effects. To these, we add the effects of single-member districts and federalism in columns 2 and 4, which have been studied in previous work, although their channels of influence were not characterized in our model. Static institutional effects are tabulated on the left and dynamic ones on the right. They are included to test the robustness of the model and to demonstrate that the ideological and institutional effects focused on in this paper differ from the institutional effects studied in previous work, but complementary to previous work.

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[13]   Quasi-constitutional program parameters tend to make social insurance policies "sticky." These effects will show up in the results as time dependency among the residuals, which are found in the estimates below. To account for such changes properly requires a more disaggregated approach than developed above. For example, Congleton and Shughart's (1990) estimate of social security programs in the United States takes account of the median voter's age, income, years to retirement, expected longevity, and the size of the retired population. A less aggregative analysis of the entire welfare state is left for future work.

[14]   This approach and other fixed effect approaches may introduce bias insofar as the starting value of a nation's social insurance programs is not entirely independent of national institutions. To the extent that any bias is introduced by this approach, it tends to reduce the estimated effects of the stable institutional variables.

Table 2
Estimates of the Welfare State as a Fraction of GDP
Average Voter Model
1960–2000, 18 OECD Countries

	Static		Dynamic	
	OLS	OLS	OLS	OLS
C	6.857 (11.93)***	8.634 (14.84)***	7.140 (12.12)***	8.561 (14.51)***
SStran (1960)	0.867 (14.64)***	0.829 (14.65)***	0.844 (14.07)***	0.850 (14.90)***
Ideology	0.034 (2.37)**	0.080 (5.79)***	0.058 (3.03)***	0.060 (3.44)***
Bicameral	–0.733 (–3.32)***	–0.341 (–1.37)	–0.783 (–3.39)***	–0.601 (–2.32)**
Presidential	–0.101 (–0.24)	0.540 (1.41)	0.144 (0.32)	0.684 (1.62)*
Single-Member Districts		–1.63 (–7.85)***		–1.40 (–6.08)***
Federalism		–1.219 (–4.90)***		–1.363 (5.28)***
Ideo x Bicam			–0.039 (–2.11)**	–0.035 (–1.67)*
Ideo x Pres			0.007 (0.22)	0.075 (2.15)**
Ideo x Singmem				0.087 (4.22)***
Ideo x Fed				–0.023 (–0.84)
R^2	0.279	0.390	0.284	.415
F-Statistic	63.72***	69.81***	43.37***	46.19***
nobs	663	663	663	663

Notes: T-statistics appear in the parentheses, *** denotes statistical significance at the 1% level,** at the 5% level, and * at the 10% level.

The results are more or less as predicted by the model. Both ideology and institutions affect the height of the social safety net in the expected manner. The more to the left the ideology of the median voter, the higher is the social safety net, ceteris paribus. Countries that have multiple veto players tend to have relatively smaller welfare states. Evidence also exists of a dynamic effect from bicameralism that tends to reduce the extent to which social insurance programs are affected by ideology. Somewhat surprisingly and in contrast to their static effects, the dynamic effects of presidential systems and single-member districts may make social insurance policies more responsive

to changes in the median voter's ideology, rather than less; although it bears noting that the effect of presidential systems on the size of the welfare state tends to be small and is only significantly different from zero in the estimate reported in the last column.

Strictly speaking, federalism per se creates an outside central government "interest group," rather than a formal veto player, so it is not surprising that federalism exerts static, but not dynamic effects. Federalism may serve to inhibit the growth of central government social insurance programs by defending similar programs already provided at the state or provincial level.

The second series of estimates focus on the median voter model. That model implied that both income and ideology affect voter demand for social insurance, and the level adopted is in turn affected by institutional features of the polity of interest. Unfortunately, taking proper account of the income and distributional effects using comparative data is quite difficult. Median voter wage and income data are not readily available, because turnout variation implies that the median voter's income is not the same as median income. And, it is not entirely clear whether the income of interest is permanent income or current income. Because of life-cycle effects, permanent income tends to be closer to average income than current income (Benebou 2000). Moreover, both average and median income are endogenous in the model, because the optimal work week varies with the social insurance program and these income effects are taken into account by the median voter.[15]

In cases in which average and median income tend to move in more or less the same direction, a possible solution exists for these data problems. If the ratio of median to average income remains more or less constant in each country during the period of interest, the net income effect can be estimated using either median or average wage rates and the distributional effect is captured with the national fixed effect variable. In the estimates below, average income is used as a proxy for the median voter's permanent

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[15]   Both the permanent income hypothesis and quasi-constitutional aspects of social insurance programs are evident in the residuals, which are characterized by significant auto-correlation; however, modeling such persistence effects is beyond the scope of the present analysis. The present analysis focuses on year-to-year adjustments in the programs generated by short-term changes in voter income and ideology. The use of corrected standard errors (for example, White's heterogeneity corrected standard errors) produces only very slight increases in the t-statistics listed in the table; however, such corrections require strong assumptions about the functional form of the more complete model.

income and two-stage least squares is used to take account of the endogenous nature of per capita income in our model.[16] "Static" and "dynamic" equations similar to those reported in table 2 are estimated and reported on the left- and right-hand side of table 3.

	Static		Dynamic	
Table 3 Estimates of the Welfare State as a Fraction of GDP Median Voter Model 1960–2000, 18 OECD Countries				
	2SLS	2SLS	2SLS	2SLS
C	–5.936 (–6.79)***	–4.372 (–5.28)***	–5.412 (–6.41)***	–4.046 (-5.01)***
SStran (1960)	1.205 (20.48)***	1.206 (22.40)***	1.177 (20.32)***	1.206 (22.57)***
Ideology	0.022 (1.69)*	0.073 (5.91)***	0.070 (4.02)***	0.080 (5.13)***
RGDPpp	0.0007 (18.33)***	0.0006 (19.86)***	0.0006 (19.00)***	0.0006 (20.22)***
Bicameral	–1.328 (–6.13)***	–0.351 (–1.59)	–1.069 (–4.88)***	–0.275 (–1.19)
Presidential	–1.833 (–4.68)***	–0.892 (–2.56)**	–2.00 (–4.85)***	–1.076 (–2.81)***
Single-Member Districts		–0.976 (–5.185)***		–0.623 (–3.01)***
Federalism		–2.222 (–9.68)***		–2.248 (-9.60)***
Ideo x Bicam			–0.036 (–2.08)**	–0.024 (–1.33)
Ideo x Pres			–0.132 (–4.15)***	–0.063 (–2.00)**
Ideo x Singmem				0.064 (3.51)***
Ideo x Fed				–0.031 (–1.24)
R2	0.387	0.531	0.420	0.557
F-Statistic	127.55***	133.85***	97.90***	92.18***
nobs	652	652	652	652
Notes: T-statistics in parentheses, *** denotes statistical significance at the 1% level,** at the 5% level, and * at the 10% level.				

The median voter model results are very similar to those of the average voter model, although it accounts for more of the variation in the size of the welfare state than

[16]   Estimated values of real per capita gross domestic product for the two-stage estimates use all of the exogenous institutional and ideological variables plus year as explanatory variables. The latter is a useful first approximation for the gradual accumulation of capital and for technological advance. The others are implied by the model of labor-leisure choice developed above.

the average voter model. Ideological, income, and institutional variables affect the height of the social safety net in the predicted manner. The more to the left the median ideology and the greater the income of the median voter, the higher is the public safety net, ceteris paribus. Again, the countries that have multiple veto players tend to have smaller welfare states than those that do not. And again, the dynamic effects of multiple veto players (bicameralism) tends to reduce the extent to which the welfare is affected by ideology. All the dynamic institutional effects, except that of single member districts, have the same sign in the median voter estimates. The dynamic effects of single-member districts made the polity more responsive to changes in the median voter's ideology in both specifications. Federalism again has static effects, but not dynamic ones.

Overall the estimates of the institutionally augmented average and median voter models provide clear evidence of ideological, income, and institutional effects on the provision of government-provided income security programs. Ideology and institutions affect the height of the social safety net, and more complex political decision-making procedures tend to reduce the responsiveness of government policies to median voter interests.

IV. Conclusion

The foundations of contemporary social welfare programs were laid in the late nineteenth century by Bismarck in the years before he was forced into retirement by Friedrich III. These programs were widely copied throughout Europe in the next few decades and somewhat later by other democracies on other continents. Given this, one might have expected the modern welfare state to have emerged a half century earlier than it did. Instead, the early social insurance programs remained at relatively low (liberal) levels for several decades. The present analysis provides a possible explanation for the observed delay and for the great expansion that took place after World War II.

First, median voter ideology may not have been compatible with the great expansion of the welfare state in the years prior to World War II. Although, left-of-center movements existed during the prewar period, electoral outcomes suggest that the median voter remained more or less in the moderate or liberal camp were inclined to proceed slowly on the expansion of social insurance programs. Even in Sweden, the "center party" (old farmer's party) was pivotal prior to World War II, rather than the Social

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Democrats, although the Social Democrats "controlled" government for most of the period from the late 1920s onward. After World War II, particularly in the 1960s and 1970s, Western politics shifted significantly to the left, which may have reflected generational shifts as well as rhetorical success by activists and political philosophers to the left of the previous center. Second, the constitutional designs adopted before or at the dawn of the welfare state often included multiple veto players, which tended to cause public policies to be a bit behind the median of ideological tides. Indeed, governments were often more decentralized and bicameral systems were often stronger in 1920 than in 1960. Here, it bears noting that the most generous welfare states, Sweden and Denmark, eliminated their second chambers shortly after World War II, while Great Britain and France weakened theirs. Third, favorable economic conditions generated new electoral support for more extensive social insurance after the recoveries from the Great Depression and World War II were complete. The estimates of table 3 imply that voters regard social insurance as a normal good. Rising personal incomes tended to increase the demand for normal goods in both the private and public sector, including social insurance.

The statistical evidence also suggests that political institutions affected the extent to which changes in voter demand for social insurance generated changes in those programs. Multiple veto players tend to make national government less responsive to median voter preferences than simpler majoritarian institutions. The policies of more complex political institutions are, however, not necessarily less "democratic" or their policies less "ideal." Most voters prefer a social safety net that differs from their ideologically ideal level (see equation 15 above). If the median voter has below average income, providing less social insurance than desired by the median voter may be closer to the mainstream ideological ideal than the policies demanded by the median voter. And, it bears noting that political institutions are often adopted with such dampening properties in mind. In his or her 'heart of hearts', even the median voter may believe that a somewhat smaller safety net than what he or she privately favors is actually ideal.

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