Public and Private Welfare State Institutions: A Formal Theory of American Exceptionalism

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Abstract

I construct a model of public policy development, and use the model to explain why the United States has a comparatively small public sector, but instead a large "private welfare state" with employment-based benefits. The key actors are politically organized firms and labor unions. These interest groups can use campaign support to influence a political decision-maker who decides whether to implement a social benefit. In addition, the firms can influence the outcome indirectly by privately providing their own workers with the benefit. This setup leads to three possible outcomes. In the first, no one is provided the social benefit. In the second, all workers receive it through government provision. In the third, some workers receive the policy, through their employers. I argue that the features leading to the third equilibrium correspond closely to political institutions and industry characteristics of the US, while the features of the second equilibrium better describe European countries.

1 Introduction

Why does the United States, in comparison with other industrialized nations, have a small public sector but a large "private welfare state" in the form of private and firm-based social benefits? This is the question I address in the first chapter. In my effort to provide an answer, I construct a formal model of policy change and use this model to develop a theory that is based on differences in industry and interest group structures as well as political institutions.

These public-private welfare state differences are, of course, part of the broader question of why the European and US welfare states are so different, and closely related to the literature on differences between countries in redistributive efforts. Most of the formalized attempts to answer these questions have used different versions of, and extensions to, the median voter theorem. Perhaps the best-known study along these lines is Meltzer and Richard (1981), where the level of redistribution is derived to be a function of the level of (pre-tax) inequality. Subsequent work, for instance by Benabou and Ok (2001), has extended this model to take into account uncertainty and mobility, and has challenged the straight-forward link between inequality and redistribution. In addition, recent work using more sophisticated frameworks than the median voter model has investigated the effects of ethnic/racial heterogeneity, beliefs about social mobility, religion and the role of political constitutions.[1]

While this body of literature has significantly enhanced our understanding of the differences in redistributive efforts between countries, at least two major issues have thus far been neglected by economists and positive political theorists. The first is the role of interest

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[1]Austen-Smith and Wallerstein (2003) and Lee and Roemer (2006) are two theoretical models of the effects of ethnic and racial diversity on redistributive public spending. Alston and Ferrie (1993, 1999) present a related argument, with a specific focus on the role of the South in U.S. legislative politics. Scheve and Stasavage (2006a, 2006b) analyze the relationship between religion and preferences for social insurance. Piketty (1994) shows that experienced social mobility can affect preferences for public spending and the level of redistribution in a society. Persson and Tabellini (2003) is a detailed investigation of the role of constitutions. Alesina and Glaeser (2004) provide an overview of these and other theories, in an attempt to explain the differences between the US and Europe.

groups in welfare state development. The second is the fact that there are differences in the shape and mode of delivery, and not just the size, of welfare states. Both of these topics are closely linked to the question I attempt to answer here, and therefore merit further discussion.

While models of special interest politics have been applied extensively to particular economic issues, notably trade policy and industrial regulation, economists have largely neglected the role of interest groups in the development of welfare states.[2] This neglect is striking considering the fact that the comparative welfare state literature - a literature that spans the fields of political science, history and sociology - assigns central roles to organized employers and workers. For instance, the influential analytical approach typically referred to as "power resource theory" is based on the idea that the extensiveness and shape of a welfare state is a function of the strength of labor unions relative to organized employers.[3] In addition, scholars within the leading alternative framework referred to as "historical institutionalism," appear to be moving towards incorporating organized labor *and* employers in analyses of social policies and labor market regimes.[4]

In addition to neglecting the role of interest groups, (political) economists typically fail to recognize that the differences between the welfare states that developed during the 20th century, in particular between the US and Europe, are not limited merely to the *level* of redistribution. There are also significant differences in the *structure* of the welfare states. Most European countries, in a somewhat simplified characterization, have larger public sectors and

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[2]The theoretical literature on interest groups is too large to summarize here. Early influential papers on the role of special interest groups in shaping regulation include Stigler (1971) and Peltzman (1976). Becker (1985) is an influential paper following in the Chicago tradition of Stigler and Peltzman, though with a more general focus. The seminal paper on interest groups and trade policy is Grossman and Helpman (1994). The recent theoretical interest group literature is summarized by Grossman and Helpman (2001, 2002). A non-technical overview of the early literature is provided by Mitchell and Munger (1991). Two studies that do employ economic reasoning in the context of interest groups and welfare state development are Mares (2003) and Lindert (2004). These studies, however, focus on a set of questions quite different from this paper.

[3]The power resource theory is most closely associated with the work of Korpi (1978, 1983). In addition, the influential work of Esping-Andersen (1990) draws heavily on this theoretical framework. Critical evaluations of the power resource theory are given by O'Connor and Olsen (1993) as well by Hicks and Misra (1993).

[4]This point is made by Swenson (2004). See, for instance, Thelen (2004) for a work in the tradition of historical institutionalism that incorporates both employers and labor unions in the analysis.

an extensive range of publicly provided universal policies. The US, on the other hand, has a smaller public sector and fewer universal policies. However, it also has an extensive system of benefits provided by employers, sometimes referred to as a "private welfare state."[5] Perhaps the best-known example of these differences is health insurance, which is generally provided universally through the public sector in Europe while largely tied to jobs/employers in the US. In addition, there are a number of social policies, such as sickness pay, child care and paid paternal leave, that, when available, are typically provided through the public sector in Europe, but in the US tend to be private and firm-based benefits available to some segments of the workforce.

This neglect of the private welfare state is not limited to economists. Most of the research on the development of welfare states in related fields, such as political science, history and sociology, has also focused almost exclusively on the public sector, i.e. on the activities of the state.[6] Recently, however, there has been a surge of interest in the development of the private welfare state in the US.[7] Much of this work has combined the interest in the private welfare state with interest group politics. Among the things that have emerged from this small but growing literature is a clear connection between these two topics. That is, the public and private welfare state structures are, to a significant extent, the result of interactions between economic interest groups, such as labor unions and business organizations. These studies, however, have focused primarily on describing and understanding the details of the American experience, leaving open the question of why the US came to differ from other

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[5]The term "private welfare state" does not refer to a well-defined concept. Absent better alternative I will use it here simply to refer to a system of firm-based social benefits.

[6]This is, to a large extent, true even for research that has been focused precisely on understanding the differences between welfare states, such as the already mentioned influential work by Esping-Andersen (1990), as well as the research of Korpi and Palme (1996) and Rothstein (2001) on universal/encompassing vs selective/minimal welfare state. Gottschalk (2000) argues convincingly that this lack of political science research on privately provided social benefits is the outcome of an artificial and problematic distinction between the fields of industrial relations and political science.

[7]Among these recent studies are Gottschalk (2000), Klein (2002) and Hacker (2001). Related is also the comparative work on the US and Sweden by Swenson (2002). Note that there is also an older literature on welfare capitalism in the US in the *beginning* of the 20th Century, before the Great Depression and the New Deal. Brandes (1976) and Tone (1997) are two examples. However, as will be clear in later sections, this literature is not of primary interest to the analysis in this paper, as the focus here is on a later period.

advanced welfare states.[8]

In this essay, I develop a model of political decision-making with respect to a given social policy interpreted as a "welfare state benefit." The model allows for private (firm-based) provision as well as public (government) provision of this benefit. In the model, economic interest groups - business organizations representing firms and labor unions representing workers - can use campaign contributions to influence a political decision-maker who has to decide whether to implement a universal social benefit, e.g. government-provided universal health care. In addition, the firms can influence the outcome indirectly by privately providing their own workers with the same social benefit, thereby reducing the interest of the workers and the unions in having it provided universally. Workers receive a positive utility from the policy and would like to see it implemented by the government, unless their employers have provided them with the same benefit directly. The firms, who pay a significant share of the tax burden if the benefit is provided by the government but place no intrinsic value on its adoption, would prefer not to see it implemented. The model has two industrial sectors, and asymmetries across the two sectors (e.g. in profits) imply that the firms in one sector dislike governmental provision to a greater extent than the firms in the other sector.

This setup leads to three possible outcomes. In the first, no one is provided the social benefit. In the second, all workers receive it through the public sector. In the third, some but not necessarily all of the workers receive the benefit privately, through their employers. I argue that the underlying characteristics of the third equilibrium correspond more closely to the industrial features and political institutions of the US, while the second equilibrium is a better description of European countries. More specifically, the model shows

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[8]Hacker (2001) does provide a theory of why the US came to differ from other countries. His theory is based primarily on the idea of "path dependence," that small and possibly random initial differences can lead countries into different policy paths. This essay differs in that I try to use a formal model to identify initial (underlying) economic conditions that would lead countries into different paths. Hence I view the theory developed here as a complementary rather than competing framework to that of Hacker. Another commonly held view is that wage ceilings in the US during World War II lead firms to introduce non-wage benefits. I do not dispute that this can explain *some* part of the development of firm-based benefits. However, as shown by Hacker, most of the increase in non-wage benefits happened after the war, hence cannot be explained by these wage controls.

that an outcome with (some) private but not public provision is more likely in a country with greater asymmetries across the two sectors. For instance, private provision is more likely in a country where the firms in the modern industrial sector of the economy are particularly profitable, and where the unions in the traditional, non-industrialized sector of the economy are particularly weak. Furthermore, in an extension to the baseline model, I show that there are interaction effects between the interest group structures and political institutions of a country; a fragmented political system with multiple veto points is shown to inhibit outcomes with public provision, and possibly also favor outcomes with private provision. Since these are all characteristics of the US economic and political system, in the decades following World War II during which the welfare states grew into their current structures, I claim that the model provides a possible explanation for the unique way in which the American welfare state developed.

I now proceed, in Section 2, by describing the theoretical model. An informal overview is followed by a formal characterization of the setup. Section 3 is the heart of the theoretical analysis. I first derive some straight-forward auxiliary results that characterize the structure of equilibrium contributions, then characterize the different types of equilibria of the full model. In a series of propositions, I show how the outcome depends on the industry characteristics and the effect that privately provided benefits have on public opinion. In Section 4, I extend the model by introducing a second political decision-maker with veto power and show that this can have an effect on the outcome. In Section 5, I discuss how the actual characteristics of the US and other industrialized nations compare to the different equilibria of the theoretical model. This discussion draws upon multiple strands of existing work, including the already mentioned work on the private American welfare state, the work of business historians on industry structures, comparative research by labor economists on unionization rates, and comparative work on institutional fragmentation by political scientists. Finally, Section 6 contains a conclusion and a discussion of potentially fruitful extensions.

2 The Model

2.1 Setup

The formal model has five players: a political decision-maker, two unions and two business organizations. The political decision-maker, which may be interpreted as an individual politician or a party, has one choice to make: whether to implement a given social policy. The decision-maker cares about two things, the general public opinion (the "public support" for the policy) and the support in the form of contributions from the four interest groups. Each union represents the unionized workers in one of two industrial sectors. It has one decision to make: how much to contribute to the politician. Each business group represents all the firms in one of the two industrial sectors. Like the unions, the business organizations have to decide how much to contribute to the politician. In addition, the business organizations have the option of having its members (the firms) provide its workers with the social policy as the politician may implement.

The firms are homogeneous within each sector: all firms employ the same number of workers and make the same pre-tax profits (π). However, the number of workers and profits per firm may differ between the two sectors. All workers earn the same pre-tax wage (w). The unions do not necessarily represent all of the workers, and the union membership rates (m) are potentially different between the two sectors. As the focus is on the political game, this economic structure is exogenous to the model and the profits, wages and union membership rates in both sectors are parameters of the model.[9]

If the political decision-maker decides to implement the policy, all workers receive a benefit of given value (v). The policy is then financed by a linear tax (t) on profits and labor income. (As will be clear, the tax burden of primary interest is the one leveled on the

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[9]The idea behind the two-sector structure is that the first sector represents capital-intensive industries with large firms, while the second sector represents more traditional, labor-intensive industries with smaller firms. This is relevant primarily in the context of the application, as there is nothing inherent in the theory that forces this interpretation. Still, it is useful to keep in mind that the model is developed to analyze not the economic structure of today but an earlier part of the 20th century, and that the first sector represents what used to be the "modern" part of the economy.

firms.) If a business organization decides that its firms should provide the policy privately to the workers within its sectors, the workers in the sector derive the same value (v) as if the policy was provided by the government. A worker who has received the policy privately receives no additional utility from public provision. Private provision is costly to the firms and gives them no direct benefit; hence the only reason the firms in a sector would want to provide privately is that it may change the decision of the politician.

The timing of the baseline model is the following. First, the two business organizations decide whether their firms should offer the policy privately to their workers. Then all the interest groups communicate how much they (i.e. their members) would be willing to contribute to the politician, as a function of the political decision. Finally, the politician decides whether to implement the policy, and the interest groups deliver their contributions as communicated in the previous stage.[10]

To formally define the game, subscripts $i, j \in \{1, 2\}$ is used to denote the sector while superscripts u, b indicate unions and business respectively. The set of fundamental parameters is $\{\pi_1, \pi_2, w, k, k_2, k_2, v, L_1, L_2, N_1, N_2, m_1, m_2\}$. In addition to parameters already introduced, k is the per-worker cost of providing the policy in the public sector and k_i is the cost of provision in sector i. L and N denote the number workers and firms respectively.

The vector $y \in Y \equiv \{1, 0\}^2$ indicates which of the two business organizations that have decided to provide the benefit privately. For instance, $y = (1, 0)$ indicates that the employers in the first but not in the second sector provide the policy privately to their workers. The function $R : Y \to \mathbb{R}$ gives the increase in public support that follows from implementation of the policy. This function maps private provision decisions into a level of public support, which means that the public support for government provision is allowed to depend on the private provision decisions of the firms.[11]

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[10]Here, as in virtually all existing models of interest group politics, the capacity of interest groups to commit to future contributions is simply assumed. Ideally, however, the relationship between interest groups and policy-makers should be modeled as a repeated game, without exogenously imposed commitment capacities.

[11]When intepreting the results I will assume throughout the paper that $R(0,0) > R(0,1)$, $R(1,0)$ and $R(0,1)$, $R(1,0) > R(1,1)$, which means that public support for provision decreases as more workers are provided the benefit privately. I believe these are natural assumptions, and they simplify the interpretation

Lowercase letter c denotes what an individual firm/worker contributes, whereas uppercase C denotes what an interest group contributes in total. For instance, c_i^u denotes the political contributions of one union member working in sector i, whereas C_i^u gives the sum of the contributions of all unionized workers in that sector. The reader should keep in mind that the contribution offers are made conditional upon the political decision (denoted p), as I will sometimes leave this out to simplify notation. Finally, the tax rate, which will be pinned down by assumptions, is denoted by t. Using this notation, the game can be defined formally by:

- Set of players: $\{B_1, B_2, U_1, U_2, P\}$

- Strategy set for a business group: $\{1,0\} \times \{C_i^b : Y \to \mathbb{R}_+^2\}$

- Strategy set for a union: $\{C_i^u : Y \to \mathbb{R}_+^2\}$

- Action set for the policy-maker: $P = \{1,0\}$

- Utilities for individual workers, firms and the decision-maker:

$$
u_i^b = \begin{cases} \left[1 - t^b\right] \pi_i - c_i^b, & \text{if } B_i \text{ does not provide} \\ \left[1 - t^b\right] \pi_i - c_i^b - k_i \left[L_i / N_i\right], & \text{if } B_i \text{ does provide} \end{cases}
$$

$$
u_i^u = \begin{cases} \left[1 - t^l\right] w - c_i^u + vp, & \text{if } B_i \text{ does not provide} \\ \left[1 - t^l\right] w - c_i^u + v, & \text{if } B_i \text{ does provide} \end{cases}
$$

$$
\Delta^p = R(y) + \left[C(1) - C(0)\right]
$$

where Δ^p represents not a utility, but the *difference* in utility for the policy-maker between choosing $p = 1$ and $p = 0$. That is, $\Delta^p > 0$ means that the political decision-maker receives a greater utility from implementing the policy than not implementing it.

The strategies and utilities need some further explanation. Starting with the *business groups* (B), the first part of a strategy is the decision whether their members should provide

of the theory. However, strictly speaking, they are not necessary for the theoretical results.

the policy privately. The second part is a function that maps the private implementation decisions into a two-dimensional contribution schedule. The set $\left\{C_i^b : \{1,0\}^2 \to \mathbf{R}_+^2\right\}$ is the set of all such functions. (The schedule is two-dimensional because the interest groups have to announce what they will contribute conditional on the policy choice.) In the utility functions of the business groups, the first term is the post-tax income of each firm, the second term is the amount that each firm contributes. The third term is the amount a firm has to pay in order to provide the benefit to its workers.

As the *unions* (U) do not make private provision decisions, each union's strategy has only one component: a function that maps the business groups' implementation decisions into a campaign contribution schedule. The utility function of the unions is also similar to the one for the business groups, with the exception that the unions do not anything pay in the case of private provision. Instead there is the utility of the policy, v, received either in the case of private provision in the sector, or in the case of public implementation ($p = 1$).

Since the *political decision-maker* (P) has one decision to make, its action set consists simply of the actions "implement the policy" ($p = 1$) and "not implement the policy" ($p = 0$).[12] In the utility function, $[C(1) - C(0)] \equiv \sum_{i=1,2} \sum_{g=u,b} [C_i^g(1) - C_i^g(0)]$ captures how much more P would receive in future campaign support from the interest groups if it chose to implement the policy. As already mentioned, $R(y)$ is the increase in public support that would follow from implementation of the policy, normalized such that its effect is directly comparable to the effect of interest group contributions.

2.2   Assumptions on Taxes and Contributions

The assumptions imposed in this subsection pin down the link from strategies to payoffs, hence complete the setup of the model. First of all, the link from public spending to taxation has to be determined. I will assume throughout the chapter that the government has to

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[12]The strategy set of the politician is more complex than the action set. However, as equilibrium strategies of the politician will take on a very simple form (more on this in next section), only the action sets are used to define the game.

balance its budget. That is, the total cost of public provision, $L_1k + L_2k$, has to be met by the total taxes paid. Furthermore I assume that the full tax burden can be approximated by the tax on profits, and the tax on labor income can be ignored.[13] Together, these assumptions imply the following equation: $(N_1\pi_1 + N_2\pi_2)\,t^b = (L_1 + L_2)\,k$. Dropping the superscript, we can solve for the tax rate of firms' profits:

$$
t = \begin{cases} \frac{L_1+L_2}{N_1\pi_1+N_2\pi_2}k & \text{, if p=1} \\ 0 & \text{, if p=0.} \end{cases}
$$

For political contributions, I assume the following: if a business organization (union) decides to make contributions, all firms (unionized workers) within that sector will contribute the same amount. Hence, the total contributions, as functions of p, are:

$$
\begin{aligned}
C^u(p) &= m_1 L_1 c_1^u(p) + m_2 L_2 c_2^u(p) \\
C^b(p) &= N_1 c_2^u(p) + N_2 c_2^b(p).
\end{aligned}
$$

With respect to the cost of providing the social benefit, I assume that the firms are able to provide the policy privately at the same cost per worker as the public sector:[14]

$$
b_i \equiv \frac{L_1}{N_1}k_i = \frac{L_1}{N_1}k, \quad i = 1, 2.
$$

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[13] While conceptually a significant simplification, this assumption is not as restrictive as it may seem. Under mild restrictions none of the key comparative statics results depend on the level of labor taxation. A sufficient restriction for this to be true is that all workers, in the absence of any political contributions, would prefer an outcome with government provision over no provision. In formal terms, this means that for any feasible value of $t^l(1)$, it would be the case that $t^l(1)w \leq v, \ i = 1, 2$.

[14] This assumption matters for the interpretation of the effects of the cost parameters, not for that of the other parameters. For instance, it is possible that economies-of-scale in the provision of benefits would imply a higher, possibly even prohibitively high, cost per worker for small and independent firms. Alternatively, it might be the case that firms receive some direct benefit from private provision, e.g. from effects on wages or productivity, that should appropriately be modeled by setting $k_i < k$ for $i = 1, 2$. This would not change the key theoretical results, though it would affect the results with respect to the cost parameters themselves.

2.3   Equilibrium Selection

For most of the analysis that follows, standard subgame perfect equilibrium (SPE) is a suffi-
cient tool for analyzing the model. It is, however, expositionally and analytically convenient
to focus on equilibria that also satisfy the following restriction:

(ER1) Among the interest groups, the contribution schedules are not pareto dominated by
any other equilibrium contribution schedules.

This restriction means that in equilibrium the interest groups will not make contribution
offers such that they would wish for their least desired policy to be the outcome of the
political process. Note that this restriction is not vacuous: it will in fact rule out some
equilibria. In addition, for most of the chapter the focus will be on pure strategy equilibria.
The notion of equilibrium used in the rest of the chapter can now be defined:

Definition 1 *Unless otherwise stated, an **equilibrium** will refer to a subgame perfect equi-
librium in pure strategies that satisfies (ER1).*

Before moving on to the analysis, there is one more indeterminacy of the model that
needs to be dealt with. If two interest groups offer strictly positive contributions conditional
on a particular policy choice (either $p = 0$ or $p = 1$), there is nothing in the model so far that
pins down each group's equilibrium share of the total contributions. The restriction used
in deriving comparative statics results will be to focus on equilibria where, if two interest
groups offer strictly positive contributions in two different subgames, their relative shares
of the total contributions are the same in both of these subgames. Any bargaining process
that represents this restriction will deliver the results below, and I will stay agnostic on the
specifics and simply let these relative shares be exogenously given.[15] More specifically, I will
let s_i denote the share of campaign contributions offered by the interest groups in sector i

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[15]An implication of this is that the bargaining among groups pushing for the same outcome will not be a
central component of the theoretical analysis. One could imagine different ways of modeling this bargaining,
such as the Nash or Kalai-Smorodinsky solutions. However, while possibly of theoretical interest, a more
careful analysis of this process is of limited interest for the purpose of this paper.

against public implementation of the policy. That is, s_i is the share of the total contributions following policy choice $p = 0$ that is offered by a group in sector i. Similarly, s_j will denote the share of campaign contributions offered in favor of public implementation (i.e. following $p = 1$) by a group in sector j. This notation is imprecise, but the use of s_i and s_j should be clear in context. In any case, these parameters will completely characterize the outcome of the bargaining process when there are several interest groups that offer contributions towards the same policy choice and their shares have to be determined.[16]

3 Baseline Model Results

Under this setup there are six possible outcomes: no provision, public provision, private provision in sector 1 only, private provision in sector 2 only, private provision in both sectors, and public together with private provision. We can, however, easily rule out the last case. To see this, note simply that if one of the business groups decides that its firms should provide the benefit privately, and the policy is also implemented publicly, the business group can always remove both the private provision and all contributions to the politician. The worst possible outcome is that the policy is still implemented publicly, in which case the group will have saved the cost of private provision. The key point here is that the policy has no intrinsic value to the employers, hence there is no reason for the business group to provide privately if it does not affect the political outcome.

Remark 1 *There cannot be an equilibrium outcome in which there is both public and private provision.*

Furthermore, the two cases with private provision are identical to analyze. I order the sectors such that if there is private provision in one of them it will be in sector 1, and leave

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[16]In the analysis that follows, I will assume that if $V^b - R(y) \leq V^u$ then $\left[V^b - R(y)\right] s_j \leq V_j^u$ for $j = 1, 2$, and similarly if $V^b \geq V^u + R(y)$ then $V_i^b \geq \left[V^u + R(y)\right] s_i$ for $i = 1, 2$. These assumptions guarantee interior solutions to the equlibrium conditions. While not without loss of generality, this greatly simplifies notation and exposition. Furthermore, a more careful analysis of corner solutions would deliver qualitatively unchanged results.

out the characterization of the equilibrium with private provision in sector 2.

3.1 Auxiliary Results

It is useful to start the analysis by characterizing equilibrium behavior in the subgames starting in period two. Let us start with the politician. Remember that the private provision decisions by the firms are given by vector y. The following remark, which fully characterizes what behavior of the politician that is consistent with equilibrium, is immediate from the setup:

Remark 2 *In equilibrium the politician chooses to implement the policy if $C(0) < C(1) + R(y)$, and vice versa. If $C(0) = C(1) + R(y)$, any action taken by the politician is consistent with equilibrium behavior.*

Turning to the structure of the contribution schedules, we can show the following:

Lemma 1 *In any SPE, $C^u(0) = 0 \Rightarrow C(0) = C^b(0)$. Similarly, $C^b(1) = 0 \Rightarrow C(1) = C^u(1)$.*

Proof. See Appendix A. ■

In words, the lemma says that only unions could be contributing in favor of political implementation, and only business groups could be contributing against. Though simple, this result is useful as it means that the original "menu auction" setting (with two choices on the menu) can be analyzed in a manner similar to a first-price auction. The lemma also implies that, when characterizing equilibrium behavior, we can drop the superscripts indicating whether a contribution is offered by a union or a business organization.

For the business organizations, we can now define the maximum willingness to contribute, equal to the value placed on a change in the political decision, in the following way:

$$
\begin{aligned}
V_i^b &\equiv t\boldsymbol{\pi}_i N_i, \quad i = 1, 2 \\
V^b &\equiv t\left(\pi_1 N_1 + \pi_2 N_2\right).
\end{aligned}
$$

Similarly, for the unions, the values placed on a change in policy in their desired direction are:

$$V_i^u \equiv vm_iL_i, \quad i = 1, 2$$

$$V^u \equiv v\left(m_1L_1 + m_2L_2\right).$$

Using these definitions, we can show the following:

Lemma 2 *In any equilibrium with only public provision the unions together contribute $V^b - R(0,0)$, and the business organizations offer to contribute V^b. Similarly, in an equilibrium without any provision the business groups contribute $V^u + R(0,0)$, and the unions offer to contribute V^u. In an equilibrium with private provision in sector 1 but no public provision the business groups contribute $V_2^u + R(1,0)$, and the unions offer to contribute V_2^u.*

Proof. See Appendix A. ∎

This lemma captures two things. First, in any equilibrium it must be the case that the political decision-maker is indifferent. Secondly, the losing interest groups must be offering to contribute exactly as much as a different policy outcome would be worth to them.

In order to analyze the conditions leading to each type of equilibrium, this is all we need. Before moving on to equilibrium characterizations it might, however, be of interest to pay some attention to when an equilibrium exists, as well as when there is a unique equilibrium. Formal results regarding existence and uniqueness are relegated to the appendix. The results, however, are easily summarized. In brief, there always exists an SPE of the game, and there always exists one that satisfies (ER1). Finally, if we also impose some inter-sectoral bargaining rule (e.g. the one described in section 2.3) for determining the relative shares of the total contributions offered by groups trying to influence the political outcome in the same direction, then the equilibrium is unique.

3.2 Equilibrium Characterizations

Let us start by looking at equilibria with no provision. Lemma 1.2 directly implies that in any such equilibrium it must be the case that $C(1) = V^u$ and $C(0) = V^u + R(0,0)$. Left to examine are then only the incentives for the business groups. In an equilibrium with no provision, the firms represented by these business groups do not pay any taxes. They do, however, have to contribute a total of $R(0,0) + V^u$ to the politician. Hence, in any equilibrium with no provision, the payoffs to the two business groups equal $-[R(0,0) + V^u]s_i$, $i = 1, 2$.

The business groups could potentially increase their utility by adjusting their contribution offers. An increase in the offered contributions would not change the political outcome. Any decrease in the contributions would, however, lead to the policy being implemented. Hence, the most profitable deviation for a business group, if one exists, is to offer the politician nothing and accept that the policy will be implemented by the government. For the deviating group this delivers a payoff of $-t\boldsymbol{\pi}_i N_i = -V_i^b$.

In addition to adjusting the contribution offers, the firms in sector 1 could potentially increase their utility by offering their workers the policy privately, as a way to reduce the contributions the firms have to pay the politician. It would then have to pay $L_1 k$ directly to its own workers. As the workers in sector 1 no longer have an interest in public provision the unions' willingness to contribute politically drops, but the business groups would still in order to prevent public provision have to outbid U_2 by offering the politician $R(1,0) + V_2^u$. Hence, for the business group in sector 1 not to want to provide privately it must be the case that $L_1 k + [R(1,0) + V_2^u]s_1$ exceeds the $[R(0,0) + V^u]s_1$ that it contributes in the conjectured equilibrium with no provision. This concludes the analysis of the business groups' incentives, and we can summarize with the following proposition:

Proposition 1 *The following inequalities are necessary and sufficient conditions for the*

existence of an equilibrium with no provision of the policy:

$$[R(0,0) + V^u] s_i \leq V_i^b, \ i = 1, 2 \tag{1}$$

$$[R(0,0) + V^u] s_1 \leq L_1 k + [R(1,0) + V_2^u] s_1. \tag{2}$$

To illustrate the idea behind the comparative statics, let us assume that condition (2) is always satisfied. (While theoretically a possibility, it is perhaps far-fetched to think that firms would provide this policy privately only to change the amount of contributions they have to make to the politician.) Furthermore, in order to remove the dependency on the inter-sectoral bargaining parameters (s_i) we can add conditions (1) together. Substituting back in the expressions for V^u, V_i^b, V_2^u and t then leaves us with the following necessary condition:

$$R(0,0) + v(m_1 L_1 + m_2 L_2) \leq (L_1 + L_2) k$$

We can use this condition to analyze what happens as individual parameters change. Focus, for instance, on the union membership rate in sector 1 (m_1). By inspection, we see that the necessary condition is more easily satisfied the lower this unionization rate is, hence a lower value of m_1 means that a no-provision equilibrium exists for a wider range of values of the other parameters. The interpretation for this result is straight-forward: a higher unionization rate means politically stronger unions that are willing to contribute more, which in turn means that the business groups have to contribute more in order to convince the politician. At some point there will be a cutoff where the unions are strong enough, and the business groups are no longer willing to contribute what is necessary in order to prevent an outcome with public provision. The same argument is true for the unionization rate in the other sector (m_2), and similar inspections deliver analogous results for other parameters. Specifically, we can see that the parameter set under which there exists an equilibrium with no provision is increasing in the cost of provision (k), while decreasing in the value of provision (v) as well as in the level of public support that exists when no

workers receive the policy privately ($R(0,0)$). These results should not be surprising, but they serve as a useful background to the analysis that follows.

Moving on to equilibria with public provision, Lemma 1.2 implies that in any such equilibrium it must be the case that $C(0) = V^b$ and $C(1) = V^b - R(0,0)$. As in the no-provision case, these conditions imply that in the absence of any private provision the "losing" groups, in this case the business organizations, are already offering to contribute exactly as much as they are willing to pay in order to change the outcome. There are then two things that have to hold in order for there to exist an equilibrium with public provision. First, it has to be optimal for the unions to actually make the contributions that follow from Lemma 1.2. Secondly, it has to be the case that B_1 prefers the conjectured outcome with public provision over outcomes where it first provides its workers with the benefit privately then (together with B_2) contributes enough to prevent public implementation. Formally, we can show the following result:

Proposition 2 *Inequalities (3) and (4) are necessary and sufficient conditions for the existence of an equilibrium with public provision of the policy.*

$$V_i^u - \left[V^b - R(0,0) \right] s_j \; \geq \; 0, \; i = 1, 2. \tag{3}$$

$$V_1^b \; \leq \; [R(1,0) + V_2^u] \, s_j + L_1 k_1. \tag{4}$$

Proof. See Appendix A. ∎

In (3), the left-hand side equals the unions' payoffs from following the conjectured strategies, while the right-hand side gives their (highest) payoffs if the policy is not implemented publicly. In (4), the left-hand side is the cost to B_1 under the conjectured equilibrium (its share of the tax burden), while the right-hand side represents the total cost to B_1 if it provides the policy privately and this provision prevents the policy from being implemented publicly. Note, however, that this second condition is only relevant if the business groups are strong enough, relative to U_2, to prevent public implementation.

We could again use these equilibrium conditions to see how changes in the parameter values affect the equilibrium parameter set. However, as the next subsection contains a joint analysis of the equilibria with public and private provision let us hold off on this and move on to the equilibria with private provision in one sector. Remember that the sectors are ordered such that if the firms in one but not both of them want to provide privately it is the firms in sector 1. With that in mind, Lemma 1.2 tells us that in any equilibrium with private provision in sector 1 (only) the following must hold: $C(1) = V_2^u$ and $C(0) = V_2^u + R(1,0)$. These conditions are similar to the no-provision conditions above, with two differences. First, the level of public support is $R(1,0)$ instead of $R(0,0)$. Secondly, the offered contributions from the unions equal V_2^u instead of V^u, this from the fact that the union in sector 1 no longer finds it in its members interest to offer any contributions, as they receive the same benefit no matter what the political decision is.

In order for there to exist an equilibrium with private provision, two additional things have to be true. First, both of the business groups must prefer to pay their offered contributions to paying the taxes that comes with public provision. Secondly, it has to be the case that it is in the best interest of B_1 to provide its workers privately. Whether this is the case depends on what would happen if B_1 instead chose not to provide privately. Such a deviation would be profitable if the business groups still were strong enough (relative to the unions) to prevent public implementation, but not necessarily otherwise. The following proposition formalizes:

Proposition 3 *Inequalities* (5) *and* (6) *are necessary conditions for the existence of an equilibrium with private provision by the firms in sector 1. Furthermore, if $V^u + R(0,0) \geq V^b$, these are also sufficient conditions, while otherwise there cannot exist an equilibrium of this kind.*

$$[R(1,0) + V_2^u]\, s_i \quad \leq \quad V_i^b, \ i = 1,2 \tag{5}$$

$$[R(1,0) + V_2^u]\, s_1 + L_1 k_1 \quad \leq \quad V_1^b. \tag{6}$$

Proof. See Appendix A. ∎

In (5), the left-hand side gives the political contributions of each of the business groups in the conjectured equilibrium, while the right-hand side gives their willingness to contribute in order not to see it implemented publicly. In condition (6), the left-hand side is the sum of the private provision payments and the political contributions made by B_1, while the right-hand side again gives B_1's willingness to contribute, which equals the tax payments if the policy is implemented publicly.[17]

Let us again hold off on the interpretation of these conditions, and instead directly move on to characterizing equilibria with private provision in both sectors. Note that if the workers in both sectors are provided privately, neither of the unions are willing to offer any contributions to the policy-maker. Hence, Lemma 1.2 implies that in any such equilibrium it must be the case that $C(1) = 0$ and $C(0) = R(1, 1)$, and the contributions of the business groups would have to equal $R(1, 1)s_i$, $i = 1, 2$. In addition, the firms in both sectors would have to spend a total of kL_i in order to provide for their workers privately. Adding up, we have that the payoffs to the business organizations equal $-R(1, 1)s_i - kL_i$. We compare this to the payoff of $-V_i^b$ following from public provision. Hence, in order for there to exist an equilibrium with private provision in both sectors, the following two conditions must hold: $R(1, 1)s_i + kL_i \leq V_i^b$, $i = 1, 2$.

In addition to these conditions, we also need to make sure that the second period conditions hold, i.e. that it is in the interest of business organizations to offer enough contributions to make the political decision-maker not implement the policy publicly. This, however, is automatically satisfied from the fact that the groups prefer private provision *and* political contributions to paying the taxes that come with public provision. Hence, we have the following equilibrium characterization:

Proposition 4 *Inequalities* (7) *are necessary conditions for the existence of an equilibrium*

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[17]Note that there is some redundancy among the condition is Proposition 3. Specifically, condition (6) implies that one of conditions (5), the one for $i = 1$, is automatically satisfied. The proposition is left in this form for ease of interpretation.

where the firms in both sectors provide the policy privately to their workers:

$$R(1,1)s_i + kL_i \leq V_i^b, \quad i = 1, 2. \tag{7}$$

To analyze this type of equilibrium, plug the fundamental parameters back into expressions (7). This gives us the following conditions:

$$
\begin{aligned}
R(1,1)s_1 + kL_1 &\leq k(L_1 + L_2)\frac{\pi_1 N_1}{\pi_1 N_1 + \pi_2 N_2} \\
R(1,1)s_2 + kL_2 &\leq k(L_1 + L_2)\frac{\pi_2 N_2}{\pi_1 N_1 + \pi_2 N_2}.
\end{aligned}
$$

We can use these equilibrium conditions to get a sense of when this type of equilibrium might exist. One way to do so is to start from a completely symmetric setting and see what happens as we move away from symmetry. That is, assume that the industry and bargaining structure is complete symmetric, in particular that $L_1 = L_2$, $N_1 = N_2$, and $\pi_1 = \pi_2$. Focus on any two parameters, say π_1 and π_2, that have the same meaning in the two sectors (e.g. the profits in sector one and sector two). Then look at deviations away from symmetry in the form of changes that increase the ratio π_1/π_2 while preserving the sum of these two parameters. We then have that any such deviation away from symmetry implies that an equilibrium with private provision in both sector cannot exist. Formally, if one of the two conditions (7) hold strictly the other cannot hold: $kL_1 < k(L_1 + L_2)\frac{\pi_1 N_1}{\pi_1 N_1 + \pi_2 N_2} \Rightarrow \frac{L_1}{L_1 + L_2} < \frac{\pi_1 N_1}{\pi_1 N_1 + \pi_2 N_2} \Rightarrow \frac{L_2}{L_1 + L_2} > \frac{\pi_2 N_2}{\pi_1 N_1 + \pi_2 N_2} \Rightarrow kL_2 \not\leq k(L_1 + L_2)\frac{\pi_2 N_2}{\pi_1 N_1 + \pi_2 N_2}$. Intuitively, this follows from the fact that in an asymmetric world, public provision implies that one sector will "subsidize" the other by carrying a larger share of the tax burden. The subsidized sector will then have no interest in providing privately, as it always finds the taxes from public provision less burdensome. Furthermore, note that both of conditions (7) can hold with equality only if $R(1,1) = 0$. That is, the necessary conditions can hold only if the firms do not have to pay any political contributions in order to prevent the policy from being implemented by the decision-maker.

Remark 3 *Private provision in both sectors requires a perfectly symmetric industrial struc-ture. Furthermore, if the firms always have to pay some amount of contributions in order to convince the politician not to implement the policy publicly, then there cannot exist an equilibrium with private provision in both sectors.*

This remark suggests that an outcome with provision in both sectors should be quite unlikely to exist in the real world. Furthermore, the specific purpose of this essay is to use the model to analyze a real-world scenario that is inherently asymmetric (with one traditional, competitive sector, and another new sector with larger and more modern firms). Hence, in moving towards the application part of the chapter, I will disregard the equilibrium with private provision in both sectors. From now on, a "private-provision outcome" will simply refer to an outcome where there is provision in one sector only. It is worthwhile, however, to keep in mind that the equilibrium with provision in both sectors might still be of theoretical interest, and that symmetry then is a key feature of this type of equilibrium.

3.3   When to Expect Private Provision

I view as the main contribution of this theoretical model that it shows that we may get privately provided benefits for political reasons, and that it delivers conditions suggesting when we might expect to see private provision. With that in mind, let us examine in greater detail which conditions that favor private provision, and let us do this with a focus on the case where public provision would follow if there were no private provision. Formally, this means that for the rest of the subsection we assume $V^u + R(0,0) \geq V^b$.

We now have a "clean" setting where we can analyze the decision-problem facing B_1 in the first stage of the game. Not providing the policy would lead to a total tax burden of $V_1^b = t\boldsymbol{\pi}_1 N_1 = [\boldsymbol{\pi}_1 N_1 / (\boldsymbol{\pi}_1 N_1 + \boldsymbol{\pi}_2 N_2)] (L_1 + L_2) k$ for the firms in sector 1. Providing the policy would lead to a direct payment of $L_1 k_1$ for the firms. In addition, the firms in sector 1 would have to contribute $[R(1,0) + V_2^u] s_1 = [R(1,0) + vm_2 L_2] s_1$ to the political decision-maker, assuming that after provision the firms are strong enough relative to the

union in sector 2 to prevent the policy from being publicly implemented. If the firms are not strong enough, even after private provision in sector 1, to prevent public implementation they would again have to pay the taxes, which equals $t\boldsymbol{\pi}_1 N_1$ for the firms in sector 1. Putting this together we have that the total cost for the firms in sector 1 if they provide the policy is $L_1 k + \min\{[R(1,0) + km_2 L_2]\, s_1,\ t\boldsymbol{\pi}_1 N_1\}$. This leaves us with the following condition:

$$L_1 k + \min\{[R(1,0) + vm_2 L_2]\, s_1,\ t\boldsymbol{\pi}_1 N_1\} \leq t\boldsymbol{\pi}_1 N_1. \tag{8}$$

This is the condition that has to be satisfied for the business organization in sector 1 to decide that its firms should provide privately. From this condition a number of results follow immediately. First, we can now see formally that there cannot exist an equilibrium with both public and private provision (as argued informally above). To see this, note simply that the private-provision condition can never be satisfied if the left-hand side of (8) includes $t\boldsymbol{\pi}_1 N_1$.

Second, we can see from condition (8) that asymmetries in profits favor private over public provision. Note first that if the groups always have to contribute at least a small amount to the politician ($R(1,0) > 0, \forall y \in Y$), then condition (8) shows that asymmetries in profits per worker are necessary for an equilibrium with private provision to exist. (Formally, if $\boldsymbol{\pi}_1 N_1 / L_1 = \boldsymbol{\pi}_2 N_2 / L_2$ then the right-hand side of (8) simplifies to $L_1 k$, which is strictly greater than the left-hand side if $R(1,0) > 0$.) Furthermore, if we move away from asymmetry then one group, the one that pays less taxes, becomes even less interested in providing privately. It follows that at most one of the two groups could be interested in providing the benefit privately. Finally as the asymmetries in profits increase, the parameter set under which the group that may provide will choose to do so increases. To see that this is true, note that if $[(\boldsymbol{\pi}_1 N_1) / (\boldsymbol{\pi}_1 N_1 + \boldsymbol{\pi}_2 N_2)]$ increases then the right-hand side of (8) increases and the condition is satisfied for a larger set of the parameters. Hence asymmetries in profits favor an outcome with private provision.

Third, asymmetries in union membership rates also favor outcomes with private provision.

To see this, note that if we hold fixed the aggregate union membership $(m_1 L_1 + m_2 L_2)$, an increase in the ratio m_1/m_2 makes condition (8) more easily satisfied. Alternatively, as only the membership rate in the second sector enters the condition, we see that a decrease in the union membership rate in sector 2 favors private provision. Intuitively, buying off its own union with private provision has a greater political effect for the employers in sector 1 if the union that the firms still have to lobby against in the second stage is weak. This suggests that when looking at the role of labor unions in the development of welfare states we should make sure not to overemphasize the importance of unions in the sector with large and modern industrial firms. Rather than the unionization in this sector, it might be the (lack of) unionization in other parts of the economy that we should focus on. (More on this in the application part of the chapter.)

Fourth and finally, we can see from the condition that a lower value of $R(1,0)$ favors private over public provision. This should not be too surprising. A lower value of $R(1,0)$ means that there is less political resistance left for the business groups if they provide the policy in the first stage. In a similar way as with the union membership rate in sector 2, the political payoff from private provision is greater the more political resistance it buys off.

3.4   Summary of Baseline Results

To sum up the baseline model, note that for each type of equilibrium we have been able to identify individual parameters that have unambiguous effects on its existence. First of all, certain conditions are associated with an outcome that lacks any form of provision. The no-provision equilibrium is the most straight-forward scenario, and here the results should not be too surprising. For instance, the model tells us that a high ratio of cost to value - that is, a high value of k or a low value of v - favors an outcome with no provision. More importantly, if unionization is limited in all sectors, the theory tells us to expect an outcome without any kind of provision. Similarly, if the public opinion, in the absence of any form of provision, is unsupportive of government provision, we should not expect to see any kind

of provision. As we move away from these conditions, for instance as public support for legislative action increases or unions grow stronger, it becomes more likely there will be *some* provision in the resulting equilibrium. However, what kind of provision - public or private - that will result depends on the parameters in more subtle ways. From the analysis of private provision in the previous section we have the following results that will provide the basis for the interpretation of real-world structures:

$$[R(1,0)/R(0,0)] \downarrow \quad \Rightarrow \quad \text{Private provision favored}$$

$$[m_1/m_2] \uparrow \qquad \qquad \Rightarrow \quad \text{Private provision favored}$$

$$[\boldsymbol{\pi}_1/\boldsymbol{\pi}_2] \uparrow \qquad \qquad \Rightarrow \quad \text{Private provision favored}$$

4 Multiple and Separated Political Powers

The effects of political institutions on major policy reform, and economic policy more generally, is a topic that has received extensive theoretical interest. Typically, however, the effects of institutions are studied separately from the study of interest groups. In this section I use a very simple model to study one particular type of interaction between institutions and interest groups. Specifically, I investigate how the mechanisms outlined in the previous chapters play out in a model with a power separation that generates multiple veto points.[18]

Fragmented powers are represented here in the simplest possible way: One more political decision-maker, with veto power over the implementation of new policies, is added to the baseline model. This second decision-maker has preferences identical to the first. The decisions are made sequentially, with the second decision-maker observing the choice of the first before acting. Hence, we can think of the second player as a President, Governor,

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[18]The literature on separation of powers and vetoes is far too vast to review here. Of particular relevance to this study, however, is the *veto player* framework developed by Tsebelis (2002), and the *veto bargaining* literature including McCarty (1997), Groseclose and McCarty (2000) and Cameron (2000), and summarized by Cameron and McCarty (2004). In addition, there does exist a limited number of papers that formally analyze the interaction between interest groups and legislative institutions, including Snyder (1991), Groseclose and Snyder (1996), Helpman and Persson (2001), Bennedsen and Feldmann (2002), and to some extent also Denzau and Munger (1986). Neither of these studies, however, speak directly to the topic of interest here.

second chamber or any other decision-maker or institutional point with the power to veto a legislative change implemented by someone else.

The specific timing of this extended game is the following: First, the business groups decide whether they want to implement the policy privately or not. Second, all interest groups make contribution offers to the first politician that are contingent upon the political decision. Third, the first politician decides whether to implement the policy or not. Fourth, all interest groups make contribution offers to the second politician. Fifth, the second politician decides whether to implement the policy or not. Finally, all contributions are paid out according to the (decision-contingent) promises made, and if *both* politicians have agreed to implement, the policy is implemented through public provision.

Note that stages one through three are exactly the same as in the baseline model - it is in this sense that the extension represents the simplest possible way of introducing multiple veto players into the interest group framework developed above. Note, furthermore, that the extended model is deliberately kept free from any additional institutional features, as the idea is to have a framework that is sufficiently general to allow for comparisons across countries whose political systems differ along other dimensions.

The results in this section are divided into two parts, both providing comparisons with the baseline model. The first result focuses on the case in which the policy, under the baseline model setup, would have been implemented publicly:

Proposition 5 *Compared to the baseline political model, public equilibria exist under a strictly smaller set of parameters.*

Proof. See Appendix A. ■

That adding another political decision-maker with veto power should have a tendency to reduce the possibility of the policy being implemented publicly is not particularly surprising. However, the proposition is stronger: it says that it is never the case that the policy is implemented publicly in the model with multiple veto points unless it would also have been

implemented publicly in the model with a single political decision-maker, while the reverse may be true.

This result is sufficient for concluding that having multiple legislative veto powers in a political system does not favor public implementation. However, the proposition does not tell us whether no provision or private provision will occur instead of public provision. Specifically, it does not tell us whether the addition of a veto point could switch the predicted outcome from public to private provision. The following proposition establishes that this indeed can, for some parameter values, be the case:

Proposition 6 *There exist parameter values such that the unique equilibrium (type) of the extended model is one with private provision of the policy, even when there is a unique equilibrium with public provision in the baseline model.*

Proof. See Appendix A. ∎

However, this is not the only way that adding another veto point can change the predicted outcome. As the following proposition establishes, a public provision outcome might also turn into an equilibrium outcome with no provision:

Proposition 7 *There exist parameter values such that the unique equilibrium of the extended model is one with no provision (neither public nor private) of the policy, even though the unique equilibrium of the baseline model is one with public provision.*

Proof. See Appendix A. ∎

Together, these three propositions can be summarized in the following way: introducing multiple, separated powers affects the interaction between interest groups and politicians in such a way that social benefits are less likely to be provided publicly. When fragmented powers lead to public provision being prevented, this can lead either to no implementation or to private (and non-universal) implementation. Both things can happen, but they happen for different parameter values. In the real world, since some of the underlying parameters

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(e.g. public support) can be different for different types of policies, one interpretation of this extension to the model is the following: in countries with more fragmented political systems, we should probably expect to see less public provision. In aggregate terms we should also expect to see more private provision, though this does not have to hold for every individual type of social benefit.

5 The American Welfare State

In this section I suggest that the insights from the theoretical model may be used to understand the distinct path of welfare state development taken by the United States during the 20th century. The two subsections that follow are devoted to a discussion of the real-world features corresponding to the explained and explaining features of the model. In the first subsection, I note that in the US, as opposed to other industrialized nations, a significant share of social benefits are provided privately through large employers. I also provide some evidence suggesting that the theoretical equilibrium with private provision is in fact a reasonable description of the American outcome. In the second subsection I piece together evidence from different literatures, indicating that the relevant economic and political conditions of the US did resemble the theoretical conditions shown to lead to private-provision equilibria. Together, this give us a possible explanation for the unique and largely private path of American welfare state development, where the model presented above gives the mechanism that can link the two subsections.

5.1 The US as a Private-Provision Equilibrium

In this section, I argue that the relevant real-world outcomes and strategies in the US during the 20th Century came to resemble the theoretical equilibrium with private provision in one sector. For such an argument to be credible, there are at least three explained parts of the model that have to be verified: first, that a significant share of social benefits were provided

privately through employers; second, that workers of large firms did receive more privately provided benefits than workers of small firms; third, that the labor movement was in fact divided, with some unions being more satisfied with their privately obtained benefits and thus less interested in the development of a public welfare state.

That the first of these endogenous parts was true, and that the US in this sense has been a outlier during the second half of the 20th century, has already been discussed in the introduction. While perfect evidence does not exist, we can make this statement somewhat more precise with the help of the OECD Social Expenditure Database (SOCX). This database includes measures of both public and (mandated and voluntary) private social expenditures for OECD countries. Unfortunately, data for the mid-20th century, the period of primary interest here, is not available. Data on current spending levels show, however, that in the US about 10 percent of GDP is spent in a voluntary private manner on social expenditures, significantly more than in any other country. Furthermore, the OECD data shows that the ratio of private to public social expenditures is .6 in the US, about twice that of the country with the second highest ratio (the Netherlands with a ratio of .33), and six times the average ratio for the OECD countries. Figure 1 displays these ratios, for the richest OECD countries.[19]

The figure is meant to be indicative, and does not represent a perfect measure of any part of the theoretical model. Of course, the share of private spending is far from 100 percent in the US, nor is it zero in any other country. However, the fact that the model only predicts pure outcomes - either no, public or private provision - does not imply that total expenditures will be of only one kind, as several of the fundamental parameters (say, the value v or the cost k) may differ across different types of public policies. Hence, there is no reason to expect that a country will find itself in the same type of equilibrium in all policy

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[19]The values shown in the figure are the 2003 ratios of the unedited "totals" available directly from the aggregate data series on the OECD (SOCX) website: www.oecd.org/els/social/expenditure. The main social policy areas included in the expenditures are: old age, survivors, incapacity-related benefits, health, family, active labor market programs, unemployment and housing. Related calculations based on the same data source are available in Hacker (2001).
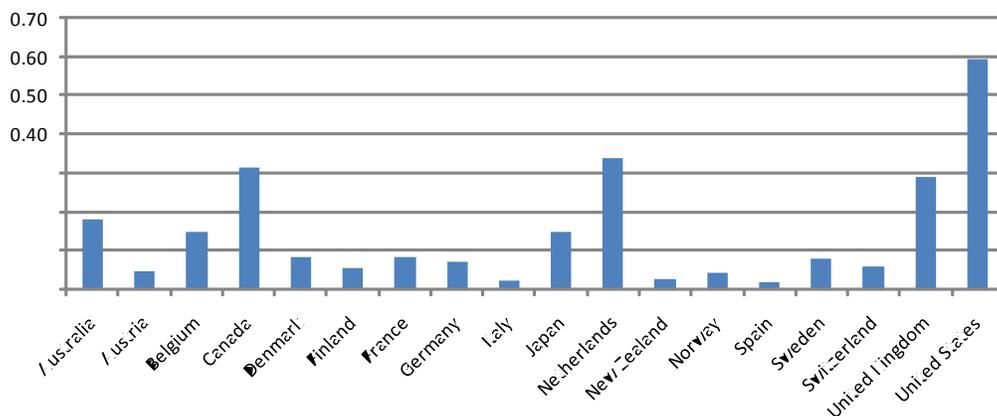
Figure 1: Ratio of Private to Public Social Expenditures

areas. What matters for this study is that the share provided through the public sector is smaller in the US than in the countries of comparison, while the private and firm-based part is significantly larger. And as the figure indicates, the US does appear to be a unique outlier.[20]

With respect to the second endogenous part, there is no question that workers in large and unionized American firms did (and still do) receive significantly more non-wage benefits than other workers. For instance, in 1950 about 95 percent of the members of the CIO unions, representing primarily workers in oligopolistic industries with large firms, received some form of health and welfare plans. The corresponding share for the members of the AFL unions, primarily representing craft workers in more competitive industries, was approximately 25 percent (Gottschalk, 2000, p. 44). To a significant extent these differences have persisted until today. For instance, in 1993, in firms with more than 100 employers, 62 percent of the employees had dental plans, compared with 33 percent in smaller firms. Similarly, 78 percent had retirement benefits compared to 45 percent in smaller firms, and 90 percent would get

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[20]The unique nature of the US implies that the empirical argument of this section has to be qualitative rather than quantitative (econometric) in nature. Though some variation does exist among the other countries, this variation is limited and I view explaining the outlier status of one data point as the relevant task here.

paid for jury duty leave compared to 58 percent in smaller firms (Tone, 1997, p. 253).

When it comes to the third endogenous part, the American story during the post-war years again resembles the characteristics of the model's private-provision equilibrium. There were significant divisions within the labor movement with far from unified support in favor of expanding the *public* welfare state. This was certainly not an obvious outcome; many of the influential unions in the US did come out of the New Deal with the intention of extending the welfare state in a universal direction through the public sector. However, if one looks at the response of major unions to various attempts to increase the public welfare state later during the 20th century, such as efforts to introduce a universal (public) health insurance system, many (though not all) of the large unions favored the system of private and firm-based benefits. Clearly, during the decades after the New Deal, the labor movement was in no way unified.

Why did we seen this lack of a unified approach among the labor unions? The studies by Tone (1997) and Gottschalk (2000) suggest the following answer: during the decades following the New Deal, the years of peak union strength, a split occurred between the unions representing large firms in the modern, manufacturing sector and unions representing traditional, smaller firms in more competitive industries. In the words of Gottschalk:

> Organized labor was not of a single mind in the late 1940s and 1950s on whether to put most of its energies into collective bargaining for private-sector benefits or continue pushing for public-sector solutions like national health insurance. [...] In a surprising twist, the AFL unions continued to push hard for national health insurance while the industrial unions associated with the CIO quickly accepted the privatization of social welfare provision. [...] The CIO's industrial unions, whose members tended to work for oligopolistic firms largely insulated from local competitive pressures, were better positioned than the AFL craft unions to establish viable private-sector welfare plans in the immediate postwar years. (Gottschalk, 2000, p. 43-44)

Similarly, Tone comments on the fact that "it was the CIO, not the AFL, that was chiefly responsible for ushering what economists have called the postwar 'fringe benefits revolution'" (Tone, 1997, p. 250). The picture that emerges is that the unions representing workers in larger and more profitable firms lost interest in pushing for the development of publicly provided benefits, as their members gradually received more firm-based benefits of the type frequently implemented through the public sector in other industrialized nations.

I have argued that the key endogenous features of the model's private-provision equilibria have corresponding features in the post-war American economy. We can, however, tighten the connection between theory and actual outcomes by trying to assess *strategies*. Again the aforementioned studies on the private American welfare state are useful. While different in purpose from the present study, and at times normative, these studies may nevertheless be valuable here as they suggests how real-world behavior corresponded to the equilibrium choices of the players in the model. Of particular interest is the point that firm-based benefits were part of strategies of employers to affect the demand for a public welfare state. That this was in fact the case emerges from both Klein (2001, 2003) and Gottschalk (2000), and to some extent also from Tone (1997).[21] For instance, with respect to health care, Klein writes:

> As part of their larger struggle to establish broad-ranging social security and job rights - legacies of the New Deal - labor unions tried to promote health programs that would transcend the limits of firm-based collective bargaining and would have broken the links between benefits and the firm. Moreover, organized labor hoped to use the power of the federal government to bolster these efforts, tightening the connection between workers and the state.
>
> After World War II, American employers fought to sever the links between workers and the state through both public and private strategies. [...] They

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[21] Tone (1997) focuses on welfare capitalism in the US *before* the 1930s. However, her final chapter discusses the period from the New Deal on. In that chapter, Tone presents a view that is similar to that of Klein and Gottschalk.

could not restore the political economic order of the pre-Depression era, but in the 1950s business interests were able to alter the role of the state in industrial relations politics and in fact use it to sustain an increasingly insular, private, firm-centered definition of security. (Klein, 2003, p. 205-206)

Similar accounts are given by Gottschalk (2000) and Tone (1997). Gottschalk also makes the connection to the strategies of labor unions, by noting a surprising lack of support by many unions, later during the 20th Century, for attempts to introduce national health insurance:

Labor's tepid and hesitant response to this new push for national health insurance must be understood within the larger context of the development of the private welfare state. The private welfare state of job-based benefits developed since World War II to impede the efforts of organized labor secure universal and affordable health care in the US. (Gottschalk, 2000)

Similarly, with respect to regulation, Tone concludes that large firms voluntarily took on private provisions to reduce the pressure for political action:

While independent industrialists in small and medium-sized establishments often endorsed the National Association of Manufacturers' antilabor extremism, big business were able to express its antipathy to state-sponsored social provisions through the extension and promotion of private provisions. Working to achieve their own "triumph of conservatism," employers used voluntary reforms to thwart the enactment of more stringent provisions. (Tone, 1997, p. 8)

In summary, while not the primary goal of this section, the assessment of strategies does reinforce the general picture, painted by the earlier discussion of outcomes, of the US as a country with features that correspond to the endogenous elements of the private-provision equilibrium of the theoretical model. Yet to be established is *why* this particular

outcome - private, non-universal and largely firm-based - occurred in the US and not in other industrialized nations. It is to this question I now turn.

5.2 Did US Conditions Favor a Private-Provision Equilibrium?

Comparing exogenous attributes of the theory to characteristics of real economies is complicated, as many of the features of the model do not have exact real-world counterparts. Still, piecing together evidence from several fields, including business history, labor economics and comparative political science, it is possible to get some sense of how the features underlying the different equilibria of the model compare to real-world structures.

First of all, in comparison with most other countries the United States has a political system characterized by fragmented institutions and a legislative process with a large number of veto points. This is shown, for instance, in the measure of institutional veto points developed by Huber, Ragin and Stevens (1993) and displayed in Figure 2.[22] In the extension to the baseline theoretical model, we saw that this kind fragmentation should imply a tendency for social policies not to be implemented through the public sector. Even without considering economic and industrial characteristics, the model thus gives us reason to expect less publicly provided benefits in the US. Remember, however, that under the addition of veto points, any of the two other outcomes can replace the one with public provision. What this means is that political institutions alone does not tell us whether we should expect more private provision in the US, or simply less provision of benefits overall.

Turning to the structure of the economy, we might be able to gain some clues about the relevant economic characteristics from the history of American industrial development. Some background on the longer trends of industrial development is helpful. As a starting point, the 1890s are often referred to as the beginning of American industrial dominance, and sometimes also as the beginning of the modern industrial era in the Western world. A merger wave in

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[22]That the United States has a large number of veto points is well-established. In addition to Huber, Ragin and Stevens (1993), see for instance Tsebelis (2002) for a comparison of veto points between different countries.
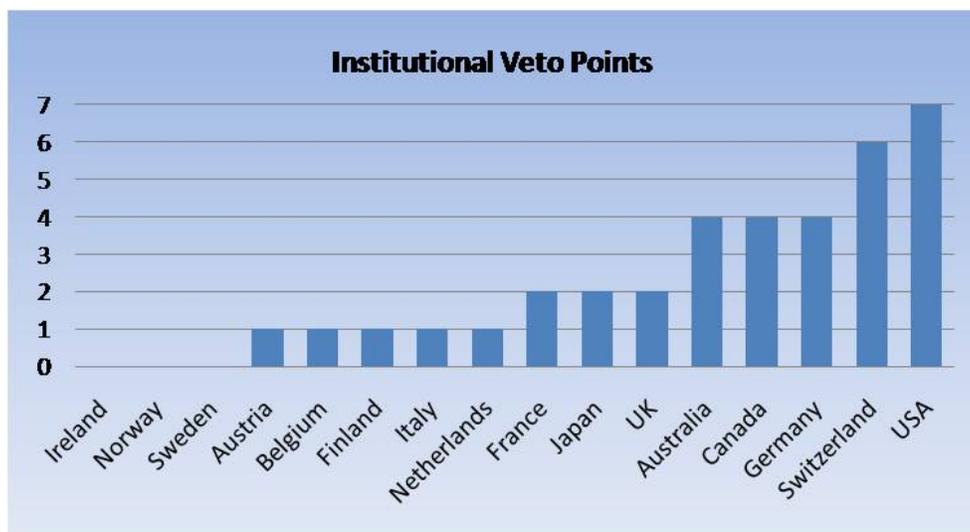
Figure 2: Ranking of Countries by Number of Veto Points

the US around the break of the century created industrial giants of previously unwitnessed scale, and by World War I the industrial structure of the US had taken shape. Large, integrated companies had developed and come to dominate in capital-intensive industries. The US superiority was clear, and the country remained dominant well past World War II.[23]

The development of a new part of the economy, with modern, capital-intensive firms, was not unique to the US. All now-industrialized countries to some extent experienced a similar development. Hence, the two-sector setup of the theoretical model, with a traditional sector (sector 2) as well as a modern and more capital-intensive sector (sector 1), applies not only to the US but to other countries as well. What is distinct about the US is the fact that the large, modern firms were particularly capital-intensive and significantly larger than their counterparts in most other countries. This particular American development is described by Nelson and Wright (1992), who conclude that "American manufacturing firms and their technologies not only were resource and capital intensive, but operated at much greater scale than did their counterparts in the United Kingdom and on the Continent." (p. 1939) In *Scale and Scope*, business historian Alfred Chandler (1990) gives a similar description

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[23]For descriptions of the rise of big business in the US, and analyses of the great merger movement at the break of the Century, see for instance Atack (1985), O'Brien (1988) and Lamoreaux (1985).

of the American industrial development from the late 19th century to middle of the 20th century. Chandler describes capital-intensive industries with very large firms as a central part of the American manufacturing dominance:

> ... the United States and Germany to a lesser degree, showed a dramatic transformation from an agrarian to modern society in which almost half of the employment centered in industry. Within the manufacturing subdivision the branches that showed the greatest growth in the United States from 1880 to 1948 were those capital-intensive industries in which large firms dominated. (Chandler, 1990, p. 4)

While these accounts are closely related to key features of the theoretical setup, we need to take the description of the US economy one step further to say something about the profits of American firms in an international comparison. (Remember that the model does not generate unambiguous predictions based on the size of the firms and their capital and labor intensities, but it does make predictions based on profits.) Reliable profit-data is sparse. Furthermore, as the relevant data is really the perceived and expected, as opposed to present and recorded profits, straight-forward international comparisons are not possible. Absent the ideal profit data it might still, however, be possible to get some indication of how profitable the leadership of large companies expected their firms to be. The most relevant information for this purpose is company size and industry concentration levels.

Regarding firm size, one of the central points in Chandler (1990) is that in the early parts of the 20th century there were non-exploited economies-of-scale in many industries. Furthermore, the most successful companies were typically the ones that, through organizational and managerial innovations, managed to grow to the (large) size where the economies-of-scale were (just) exhausted. Hence, if one believes Chandler's argument, it is reasonable to expect profitability on average to be greater the larger the firms. Regarding industrial concentration, the argument linking it to profits is more straight-forward. Most basic oligopoly models

(at least in the Cournot, quantity-competition tradition) deliver the result that greater concentration leads to greater profits.

With this in mind, the evidence presented by Chandler (1990) and related studies, such as Schmitz (2002), suggests that the expected profits of US firms were large. First of all, the US had more modern industrial enterprises early on than any other country. As early as World War I new and large firms dominated a significant number of industries in the US and many of them became long-term leaders in their industries, both at home and abroad. According to Chandler (1990), the US had far more very large and very successful companies than any other country, from the early years of the 20th century to the 1970s. For instance, as late as in 1973, when many European countries had (almost) caught up with the US standard of living, the US still had 211 "large" corporations according to Chandler's classification system. This is a striking number compared with the 190 that existed in *all* other countries together.[24]

Furthermore, it was not simply the case that the American firms were industrial giants because of the greater size of their country and domestic markets. During the decades around and just after World War II - the time in which most of the growth in public spending occurred in the industrialized nations - it appears that the major US corporations were also large and dominant in their country, relative to similar firms in other countries. Chandler (1990) comments on the fact that many of the US industries were oligopolies (p. 84-89) and that the number of very large companies in the US was even greater than what the US share of output might indicate (p. 47-49). Schmitz (2002) lends further support to that view by comparing the US to some European countries. He shows that around the time of world wars, the total industrial concentration, measured by the share of total output accounted for by the largest 100 companies, was greater in the US than in both Germany and France.

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[24]Note that Chandler views the 1970s as the break point at which the industrialized world entered into a new era with increased competition and significant differences in industry organization. The 1970s also marks something of a break point for the welfare states, after which fewer new programs were developed and significant dismantling occuring in many countries. Since this study is primarily concerned with the creation and growth of welfare state programs, the period up until the 1970s is the one of primary interest. Hence, the work by Chandler discussed here provides an appropriate background.

Connecting this to the theoretical model, where greater profits for the firms in sector 1 favors private-provision equilibria, it appears as if the real-world industry and profit characteristics of the US correspond quite well to the underlying conditions of the equilibrium with private provision in one of the sectors.

Turning to the union structure, cross-country comparisons for the relevant time periods are again difficult to perform, due to problems of measurement and differences in the meaning of unionization between countries. There does, however, exist some evidence that provides us with links between the theoretical model and the real-world outcomes: Pearce (1990) compares unionization in large and small firms in the US, and shows that the unionization rates of large firms in the US are, and have been for a long time, significantly greater than for small firms. Blanchflower and Freeman (1992) include cross-country comparisons of unionization rates in the manufacturing sector versus other parts of the economy in the early 1980s. Figure 3 displays the ratios of union membership in the different parts of the economy for all five countries included in their study. As this figure shows, the gap between unionization rates in the manufacturing sector and other parts of the economy is greater in the US than in other industrialized countries. Again it appears that the structures shown theoretically to favor an equilibrium with private provision - in this case a higher unionization rate in the sector with large and modern firms than in the more traditional sector - resemble the real features of the US economy, to a greater extent than for other industrialized nations.

Finally, assuming that political decision-makers care at least to some degree about public opinion, the theoretical results imply that the effect on public opinion from private provision of benefits matters for what type of outcome we should expect. Specifically, a greater negative impact on public support from private provision (in sector 1) implies that the conditions for a private-provision equilibria are more easily satisfied. The question is then whether there are reasons to expect that firm-based provision of social benefits would affect public opinion differently in the US than in other countries. This is a difficult case to make, as public support is notoriously difficult to measure. Furthermore, political scientists as well

Figure 3: Union Membership Ratios

as economists tend to reject the idea that there is a clear, one-directional link between a distinct American culture and whatever differences in public policies that exist between the US and other industrialized nations.[25]

Nevertheless, as Alesina and Glaser (2004) among others point out, beliefs about economic opportunities and attitudes towards redistribution are likely to interact with, and to some extent be shaped by, political and economic institutions. Furthermore, remember that what matters here is not so much public opinion in general as the effect that private provision would have on public support. It is certainly imaginable that in the US, a country with a historical lack of class structures and the image as a land of opportunities, private provision of social benefits in some part of the economy would have a significant impact on the general support for public and universal provision, and one might also imagine that this impact on public opinion would be greater in the US than in other countries.[26] With this in mind, the real world characteristics with respect to public opinion in the US appear at least not to be

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[25] See, for instance, the introductory discussion in Steinmo and Watts (1995). For a discussion by economists, see Alesina and Glaeser (2004).

[26] To what extent the US in fact is a "land of opportunity" is a topic of much debate, not to be resolved here. During the 20th Century social mobility rates do not appear to have been notably greater in the US than in European countries. However, it is the *perception* of opportunities that matters for the formation of public opinion, and perception may lag behind real conditions. Social mobility does appear to have been greater in the US during the 19th Century; see Ferrie (2005) and Ferrie and Long (2007).

inconsistent with the features underlying the model's private-provision equilibria. That is, it seems unlikely that the effects of public opinion would work against the other points made in this subsection. That, however, is about as much as we can say; it would be too strong to claim that it strengthens the argument in a significant way.

We are now in a position to summarize the discussion of the model's key explaining features. The main point is the following: the industry, interest group and political (institutional) features of the US during the mid-20th century appear to correspond to the theoretical model's equilibrium with private, firm-based and non-universal provision of social benefits. The comparison is made primarily with European countries, whose structures to a greater extent resemble the features underlying the equilibrium with public provision. This is true specifically for the period from the New Deal until roughly 1970s, i.e. the time when most welfare states developed into their current forms.

6   Concluding Discussion

In this essay, I develop a formal model of political decision-making over broad, redistributive policies, with political decisions being made under the influence of labor unions and business organizations. At the core is a theoretical analysis that shows that the following characteristics favor the outcome with private provision over the one with public benefits: high profits in the modern, industrialized sector relative to the traditional sector, a low level of unionization in the traditional sector, and a public opinion that reacts more strongly to private provision. These are insights that follow directly from the model and are new to the comparative welfare state literature. In addition, I show that an outcome with public provision is less likely in a country with a more fragmented political system that has a greater number of institutional veto points. Furthermore, I show that with additional veto points, conditions that otherwise would have lead to public provision may (though do not have to) lead instead to an outcome with firm-based provision.

After having characterized the equilibria theoretically, I use the model to interpret the unique American development, with respect to public and private social expenditures, during the 20th century. I look at existing evidence on industry characteristics, political institutions and welfare state development, and argue that the real-world characteristics of the US, during the decades after the New Deal, correspond to the features of the equilibrium with (partial) private provision. The Western European countries can be thought of as the "counterfactual," and their conditions to a greater extent resemble those underlying the model's second equilibrium, the one with public provision. Based on this, I claim that the model provides a possible explanation for the particular form of American exceptionalism of interest here: a comparatively small (public) welfare state but an extensive (firm-based) private welfare state.

The theoretical framework developed here is based on the *political* role of social benefits. There also exist theories of firm-based benefits that do not rely on this political role. Of particular interest as a comparison is the work of Moriguchi (2003), as this to my knowledge is the only formalized alternative framework. Moriguchi develops a theory based on the idea that generous benefits could induce high effort and loyalty among workers.[27] In principle, Moriguchi's theory competes with the one presented in this essay. However, one of Moriguchi's central conclusions is that the effort-inducing reasons behind the firm-based provision of social benefits disappeared (in the US) along with the Great Depression.[28] Hence, as the theory I develop here is primarily focused on the provision of private benefits during the decades following the Depression and World War II, the two frameworks complement each other. That is, while I propose an explanation for the development of the private wel-

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[27] Formally, Moriguchi's work is based on an implicit contract model, and can be thought of as a version of the theory of efficiency wages developed by among others Akerlof (1982) and Shapiro and Stiglitz (1984). Closely related to the theoretical framework of Moriguchi is the (non-formal) comparative work of Swenson (2002) on Sweden and the US. Related is also the work of Jacoby (1997), a case-history focused on the attempts of three large corporations to use wages and benefits to stave off unionization and government regulation. Furthermore, some work on industrial development, including the classic text by Piore and Sabel (1984), contains elements of these arguments.

[28] According to Moriguchi, events during the Great Depression punctuated the high-effort equilibrium in the repeated interaction model that forms the basis of her theory.

fare state during the post-war years, the work of Moriguchi offers us a theory of why (some) firm-based benefits also existed during the earlier part of the 20th century.

There are a number of potentially fruitful extensions to this study. The most obvious would be to extend the quantitative evidence in the application section. In terms of the outcome (private vs public spending) the US is a unique outlier, and cross-country econometric work is probably not a reasonable approach. But even if the empirical part has to remain primarily qualitative, and suggest rather than test the appropriateness of the model setup, it might be possible to add empirical evidence to the input side, i.e. to the measurement of parameters such as profits and unionization. Unfortunately, appropriately defining and measuring relative parameter values in ways that are comparable across countries, for earlier decades, is a task that has turned out to be difficult. Hence I simply note for now that more quantitative evidence would be valuable.

In order to present a limited number of specific insights transparently, the model is kept as clean from confounding elements as possible. This, however, means there exist a number of possible extension to the model that might be of theoretical interest in different contexts. First, I view the interaction between political institutions and interest groups as one of the areas within political economy that are poorly understood and deserve greater attention. Section 4 of this essay provides the embryo of such an analysis, but this part is limited to one of many possible institutional features that could be added. Secondly, it would be of interest to evaluate the effects of relaxing the commitment assumption, i.e. the assumption that interest groups actually deliver on their promised support. The question to answer here would be what kind of outcomes that could be enforced without exogenous commitment mechanisms. A third possible extension would be to analyze explicitly the severity of various collective action and coalition formation problems, for instance in a model with a greater number of sectors and with the possibility of some employers receiving benefits from government provision. These suggested extensions are of more general nature and fall outside the scope of this essay, but the framework used here might be a useful basis for

insights beyond the topic of welfare state development.

A final possible extension, more directly relevant for this chapter, would be to build on the theory to analyze questions about institutional persistence. Clearly, the underlying economic realities of welfare states have changed during the past decades, and the political calculations of interest groups (and decision-makers) are probably quite different from what they were half a century ago. Yet we see significant institutional persistence: current policies and political decisions, in the US as well as other countries, are conditioned by the existing structures. The work of Hacker (2001) indicates that this is important in the particular context of private and public American welfare state structures. A greater theoretical understanding of institutional persistence and path dependence would therefore be of interest in attempts to assess how policy-making today constrains future political decisions. I end therefore by noting that questions of persistence in institutions are perhaps the most interesting among the possible extensions to this study.

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7 Appendix: Proofs

Proof of Lemma 1.1: Suppose there exists a SPE in which this is not true, i.e. that either $C^b(1) > 0$ or $C^u(0) > 0$. Suppose that $C^b(1) > 0$, and focus on a business group B_i that offers positive contributions, $C_i^b(1) > 0$. If the policy is implemented in equilibrium, $u_i^b = -c_i^b(1) - t\pi_i$. By setting $C_i^b(1) = 0$ the worst thing that can happen to B_i is that the policy is still implemented, in which case $u_i^b = -t\pi_i > -c_i^b(1) - t\pi_i$. Hence, $C_i^b(1) = 0$ is a profitable deviation. If, on the other hand, the policy is not implemented in equilibrium, $u_i^b = -c_i^b(0)$. Then if the incentive constraint of the politician is strict, i.e. $C(0) > C(1) + R(y)$, there exists another contribution offer $\widetilde{C}_i^b(0)$ such that $\widetilde{C}_i^b(0) < C_i^b(0)$ and $\widetilde{C}_i^b(0) + C_{-i}^b(0) > C(1) + R(y)$. The politicians decision does not change, but B_i contributes less. If, instead, the incentive constraint holds with equality, $C(0) = C(1) + R(y)$, there exists another contribution schedule $\widehat{C}_i^b$, with $\widehat{C}_i^b(1) = 0$ and $\widehat{C}_i^b(0) \in \left(C_i^b(0) - C_i^b(1), C_i^b(0)\right)$ such that $\widehat{C}(0) > \widehat{C}(1) + R(y)$. Again, the politicians decision does not change, but B_i contributes less. Together, these results imply that there always exist a profitable deviation, which contradicts the assumption that this is an equilibrium. Hence, in any SPE it must be the case that $C^b(1) = 0$. (The proof showing that $C^u(0) = 0$ in any SPE is similar and omitted.)

Proof of Lemma 1.2: Focus first on a SPE in which the policy is not implemented. By Remark 1.2 it follows that in any such equilibrium, $C(0) \geq R(y) + C(1)$, which combined with Lemma 1.1 implies that $C^b(0) \geq R(y) + C(1)$. If the inequality is strict, i.e. $C^b(0) > R(y) + C(1)$, for both business groups we can find deviations $\widetilde{C}_i^b(0) \in \left(R(y) + C(1) - C_{-i}^b(0), C_i^b(0)\right)$ such that the politician still does not implement the policy and the contributions are strictly smaller. Hence, in any SPE it must be the case that $C(0) = R(y) + C(1)$. To show that $C(1) \geq V^u$, suppose that $C(0) = R(y) + C(1)$ and $C(1) < V^u$. Then at least one union can increase the contribution offer to $\widetilde{C}_i^u(1) \in (C_i^u(1), V_i^u)$, which leads to the policy being implemented and a strict increase in the union's utility. Hence, in equilibrium we must have $C(1) \geq V^u$. Furthermore, note that if there exists an equilibrium in which $C(0) = R(y) + C(1)$ and $C(1) > V^u$, then there also exists an equilibrium in

which $C(0) = R(y) + V^u$ and $C(1) = V^u$. Note also that among the interest groups, the contribution schedules in the latter of these two equilibria pareto dominates the schedules in the first. Hence, the first equilibrium violates (ER1). (The proof for the case in which the policy is implemented is similar and omitted.)

Proof of Proposition 1.2: For there to exists a public-provision equilibrium, it has to be optimal for the unions to contribute in order to affect the outcome in their desired direction. The utility of the unions under the conjectured equilibrium is $V_i^u - \left[V^b - R(0,0)\right] s_j$, for $i = 1, 2$. The first term equals the value placed by the union in sector i on the benefit and the second term equals the union U_1's share of the political contributions. If, instead, one of the unions choose not to contribute, the optimal thing for it to do is to decrease its offered contributions to zero and accept that the policy will not be implemented, and the resulting utility for that union is equal to zero. Hence, in an equilibrium of this kind, the following conditions have to hold:

$$V_i^u - \left[V^b - R(0,0)\right] s_j \geq 0, \ \ i = 1, 2.$$

Turning to the analysis of private provision, note that the utility of B_1 under the conjectured public-provision equilibria is $-t\pi_1 N_1 = -V_1^b$. If, instead, B_1 decides in the first stage to provide its workers privately, the utility of B_1 depends upon what will happen in the subgame following $y = (1,0)$. If $V_2^u + R(1,0) > V^b$, the only possible outcome is one of public provision. In this case there is no reason for B_1 to provide privately. Formally, the utility from deviating is equal to $-t\pi_1 N_1 - N_1 b_1$, less than $-t\pi_1 N_1$. If, on the other hand, $V_2^u + R(1,0) < V^b$, the only possible outcome in the the subgame following $y = (1,0)$ is one of no public provision. B_1's utility from deviating in the first stage is $-\left[R(1,0) + V_2^u\right] s_j - N_1 b_1$. The first term represents B_1's share of what the business organizations have to contribute to the politician and the second term represents the total cost of private provision in sector

1. We thus have another necessary condition for existence of a public-provision equilibrium:

$$V_1^b \leq [R(1,0) + V_2^u] \, s_j + N_1 b_1.$$

Finally, remember from the assumptions above that the business groups are ordered in such a way that if there for B_2 exists a utility-increasing deviation from its strategy that includes private provision, then there also exists a deviation for B_1 that includes private provision and increases its utility. Hence, the second inequality implies that B_2's incentives are also satisfied. This concludes the analysis of the business groups, as well as the proof.

Proof of Proposition 1.3: In order for there to exist an equilibrium with private provision in sector 1, it must be the case that both of the business groups prefer to pay their offered contributions to paying the taxes that comes with public implementation. Following the logic of the no-provision case, adjusted for the setting with private provision, this implies the following conditions:

$$[R(1,0) + V_2^u] \, s_i \leq V_i^b, \ \ i = 1, 2.$$

Furthermore, it has to be the case that B_1 actually prefers to provide its workers privately. Its utility from doing so equals $- [R(1,0) + V_2^u] \, s_1 - N_1 b_1$. Whether this is optimal or not depends upon what B_1 expects to happen if it chooses not to provide. Suppose first that $V^u + R(0,0) < V^b$. In this case, the only possible outcome in the the subgame following $y = (0,0)$ is one of no public provision. For B_1, this means a utility from deviating equal to $- [R(0,0) + V^u] \, s_1$. Hence, the necessary condition for this case would be $[R(1,0) + V_2^u] \, s_1 + N_1 b_1 \leq [R(0,0) + V^u] \, s_1$. Note, however, that the assumptions made in section 2.3 already rule this out as a possible equilibrium, as the only reason for providing privately would be to decrease the contributions paid to the political decision-maker.

Suppose then instead that $V^u + R(0,0) > V^b$. In this case, if B_1 decides to remove its private provision, a public-provision outcome would follow. The utility from deviating is then equal to the tax B_1 has to pay for public implementation: $-t_1 N_1 = -V_1^b$. Hence, the

necessary condition for equilibrium in this case is:

$$[R(1,0) + V_2^u] s_1 + N_1 b_1 \leq V_1^b.$$

In this case the condition could be satisfied, so a private-provision equilibrium could exist. As the incentives for all players have been examined, this concludes the proof.

Proof of Proposition 1.5: Suppose that, in the baseline model, there is an equilibrium in which the policy is implemented publicly. Then it must be the case that $C(1) = V^b - R(0,0)$, and the unions contribute $C_i(1) = [V^b - R(0,0)] s_i$, $i = 1,2$. As this, by assumption, is an equilibrium outcome, the unions must prefer this outcome to one with no contributions and no public implementation. Their equilibrium utilities equal $-C_i(1) + L_i v$, and the greatest utility they can receive if they deviate equals zero. Hence, it must be the case that $-C_i(1) + L_i v \geq 0$, for i=1,2. Focus now on the extended model with the additional veto point. From the results pertaining to the baseline model, we know that if the policy is implemented publicly, it must be the case that the unions offer $C_i(1)$ to the second decision-maker, and end up contributing this amount, while the business groups offer V^b but contribute nothing in the end. Using this result, we can analyze the incentives of the interest groups when they make their contribution offers to the first decision-maker. At that stage, the business groups know that if the first decision-maker votes in favor of implementing the policy, they will end up not contributing anything in the latter stage. Hence, they are, again, willing to offer the first decision-maker a contribution of V^b in return for voting against implementation. Hence, in any equilibrium in which the policy is implemented publicly, the unions would have to contribute $C(1)$ to the first decision-maker. However, knowing that they will have to contribute an equal amount in the latter stage, this will be in their interest if and only if $-2C_i(1) + L_i v \geq 0$. That is, for there to exist an equilibrium with public provision, it must be the case that $-2C(1) + Lv \geq 0$. Note that this is a more stringent condition than the condition for a public-provision equilibrium in the baseline model. Hence,

unless there is a change in the private provision decisions, equilibria with public provision will exist under a strictly smaller set of parameters.

This completes the first part of the proof. Note, however, that we have only looked at the subgames that follow after decisions not to provide privately. To show that public-provision equilibria exist under a smaller set of parameters, we also have to check the incentives for B_1 in the first stage. That is, we have to make sure that private-provision equilibria of the baseline model are not replaced by public-provision equilibria of the extended model. Suppose first that, in the baseline model, there does not exist equilibria in which a decision not to provide privately is followed by public provision. It follows immediately from the first part of this proof that there still will not exist equilibria with public provision, in the extended model. Hence, there is no need to investigate the incentives to provide privately. But suppose instead that, in the baseline model, a public-provision outcome would follow after a decision not to provide privately. Suppose further that public provision is still an equilibrium outcome, in the extended model. Then a private-provision equilibrium could, in principle, turn into a public-provision equilibrium when the model is extended to include the additional veto point. Note, however, that this could happen only if, following a private-provision decision, the contributions required from the business groups to prevent a public-provision outcome increase as we move from the baseline to the extended model. But since the equilibria considered are such that the policy is not implemented publicly (on the equilibrium path), the logic of the first part of the proof applies again. That is, it can only get less costly for the business groups to prevent public implementation. It immediately follows that the utility of B_1 of providing the policy privately is at least as great as in the baseline model, hence private-provision equilibria will not be replaces by public-provision ones. This concludes the proof.

Proof of Proposition 1.6: Suppose first that $V^u > 2V^b - R(0,0)$. Then, in the absence of private provision, there would also be an absence of public provision. Note that the condition implies that this is true for the extended model, which implies that

it must be true also for the baseline model. Suppose further that $R(1,0)s_1 + N_1b_1 < V_1^b < \left[R(1,0) + V_2^b\right]s_1 + N_1b_1$. The second of these two inequalities implies that B_1 does not want to provide the policy privately in a baseline model equilibrium. The first one implies that in the extended model there does exist an equilibrium in which the business group prefers to provide privately, rather than accept the public implementation that would happen otherwise. Finally, note that there does exist parameters such that all of the these conditions are simultaneously satisfied. This concludes the proof.

Proof of Proposition 1.7: Suppose first that $N_1b_1 > V_1^b$. This ensures that B_1 would never choose to provide the policy privately. Suppose further that $V^b - R(0,0) < V^u < 2V^b - R(0,0)$. The first of these inequalities implies that there can only exist a public equilibrium of the baseline model, whereas the second implies that the only equilibrium of the extended model is one with no provision. Note finally that there exist parameters such that these three conditions are simultaneously satisfied. This concludes the proof.

Proposition 8 *There always exists a subgame perfect equilibrium.*

Proof. There are four subgames starting in the second period of the game, following $y = 00$, $y = 01$, $y = 10$ and $y = 11$. In any such subgame, either $V^b \leq V^u + R(y)$ or $V^b > V^u + R(y)$. In the first case, there exists at least one SPE in which the policy is implemented publicly. For instance, let $C_1(1) = V_1^u$, $C_2(1) = V^u - V_1^u$, $C_1(0) = C_2(1) = 0$. These contribution schedules constitute an equilibrium of the subgame following private provision decisions y. Using a similar logic, if the inequality is reversed the same subgame has at least one SPE in which the policy is not implemented. Hence, there exists a SPE of any subgame starting in period two. Rolling back the equilibrium payoffs from the subgames, we can think of period one as a discrete game with two actions available to each of the business groups. Basic game theory results tell us that at least one equilibrium exists for such a setting. ∎

Proposition 9 *Suppose (i) that it would never be in the interest of one of the interest groups to provide the policy privately. Then, for any parameter values, there exists a pure-*

strategy equilibrium. Furthermore, suppose (ii) that if two or more interest group make positive contribution offers towards the same policy choice, there exists some rule that pins down the distribution of payments among these groups, with no payment exceeding any groups willingness to contribute. Then, for any parameter values, there exists a unique pure-strategy equilibrium.

Proof. Building on Proposition 1.8, we know that there exists at least one SPE in pure strategies of every subgame starting in period two. Fix one SPE in each subgame. If only one of the business groups is able to provide the policy privately, this group faces a simple choice between implementing or not implementing in the first stage, with known continuation payoffs following each choice. Hence we can think of the first stage as a game with one player and two possible pure strategies; as there exists a pure strategy equilibrium of this reduced first-stage game, there exists a pure-strategy equilibrium of the full game. Furthermore, if we impose some rule that pins down the distribution of payments among groups that offers contributions towards the same policy, there is a unique SPE in each subgame starting in period two. Hence, there exists a (generically) unique equilibrium of the full game. ∎