

Public and Private Welfare State Institutions*

A Formal Theory of American Exceptionalism

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Abstract

I develop a formal model of differential welfare state 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. In the model, the key actors are politically organized firms and labor unions. These interest groups can use campaign support to influence a political decision-maker who has to decide whether to implement a universal 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, but through their employers. I argue that the features leading to the third equilibrium correspond closely to the political institutions and industry characteristics of the US, while the features of the second equilibrium better describe European countries. Based on this, I claim that the model provides an explanation for the unique way in which the American welfare state developed.

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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? That is the question I attempt to answer in this paper. 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

¹Austen-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

²The 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 (though not formal) 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.

³The 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).

⁴This 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 segment 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 has 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, and why the US came to differ from other advanced welfare states is

⁵The 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.

⁶This 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.

⁷Among 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.

still very much an open question.

In this paper, 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 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. More specifically, 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 recent 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 model developed in this paper has a simple underlying economy with two industrial sectors. 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 for an early and mid-20th century context, with the first sector representing the “modern” part of the economy.

In the model, 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. There is one business organization (B) in each sector, representing all of the employers in that sector. Similarly, there is one union (U) in each sector, representing workers. All workers earn the same pre-tax wage (w). The unions do not necessarily represent all of the workers. Furthermore, the union membership rates (m) are potentially different between the two sectors.

Political decisions are made by a decision-maker (P), which may be interpreted as an politician or a party. This decision-maker cares only about its own future political success.⁸ The only political decision to be made is whether to implement a universal public policy. Implementation of the policy provides a benefit of given value (v) to all workers. If implemented, the policy is 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 firms.

The future success of the political decision-maker depends upon two things: the level of public support (R) for the decision it makes, and the contributions (C) it can raise from

⁸That the political decision-maker cares only about future political success is not the only possible interpretation of the setup; it is equally valid to think of a decision-maker that cares both about welfare and future political success, and trades off general welfare for campaign support.

the support of interest groups. This implies that the interest groups can use funds, raised from their members, to influence the politician by conditioning their support on the political decision.⁹ In addition, the business organizations (firms) have the option of providing the policy privately to the workers within their own sectors. Private provision is costly to the firms and gives them no direct benefit. It does, however, have two *political* effects: it changes public opinion, and it changes the willingness of the unions to contribute to the policy-maker. Both of these things can impact the political outcome, hence have an indirect impact on the utility of the firms.

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 or not, and the interest groups deliver their contributions as communicated in the previous stage.¹⁰

To formally define the game, subscripts $i, j \in \{1, 2\}$ will be used to denote the sector while superscripts u, b will 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. In addition, the cost for an individual firm of providing the policy privately to all of its workers will be denoted b_i .

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

⁹The political contribution schedules are meant to represent offers of long-term support, rather than short-term lobbying or bribes. This is the conceptual reason why the contribution game is modeled with offers that are conditioned on the actions taken by the political decision-maker.

¹⁰Here, 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.

function $R : Y \rightarrow \mathbb{R}$ 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

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. These are functions of the policy decision, denoted p . 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: $\{1, 0\} \times \{C_i^b : Y \rightarrow \mathbb{R}_+^2\}$
- Strategy set for a union: $\{C_i^u : Y \rightarrow \mathbb{R}_+^2\}$
- Action set for the policy-maker: $P = \{1, 0\}$
- Utility functions:

$$\begin{aligned}
 u_i^b &= \begin{cases} [1 - t^b(p)] \pi_i - c_i^b(p) & \text{if } B_i \text{ does not provide (N)} \\ [1 - t^b(p)] \pi_i - c_i^b(p) - b_i & \text{if } B_i \text{ does provide (I)} \end{cases} \\
 u_i^u &= \begin{cases} [1 - t^l(p)] w - c_i^u(p) + vp & \text{if } B_i \text{ does not provide (N)} \\ [1 - t^l(p)] w - c_i^u(p) + v & \text{if } B_i \text{ does provide (I)} \end{cases} \\
 \Delta^P &= R(y) + \sum_{i=1,2} \sum_{g=u,b} [C_i^g(1) - C_i^g(0)] \equiv R(y) + [C(1) - C(0)]
 \end{aligned}$$

¹¹I will assume throughout the paper that $R(0, 0) > R(0, 1)$, $R(1, 0) > R(1, 1)$, which means that public support for public provision decreases as more workers are provided the benefit privately. I will also assume that $R(1, 1) \geq 0$, meaning that the policy-maker would always gain in public support from choosing to implement. These assumptions simplify some expression but are imposed for expositional purpose only; none of them are necessary for the results that follow.

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 the policy privately. The second part is a function that maps the private implementation decisions into a two-dimensional contribution schedule. The set $\{C_i^b : \{1, 0\}^2 \rightarrow \mathbf{R}_+^2\}$ 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 Remember that the policy-maker cares only about future political success, and that success is a function of two things: the public support for the decision made, and future resources following from the contributions of interest groups. In the utility function, $[C(1) - C(0)]$ captures the second part: how much more P would receive in future campaign support from the interest groups if it chose to implement the policy, and as already mentioned, $R(y)$ is the

¹²The 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.

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 paper that the government has to 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:

$$\begin{aligned} C^u(p) &= m_1L_1c_1^u(p) + m_2L_2c_2^u(p) \\ C^b(p) &= N_1c_2^u(p) + N_2c_2^b(p). \end{aligned}$$

¹³While 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 $t^l(1)w \leq v$, $i = 1, 2$. Note, however, that since the firms, in the absence of contributions, would prefer an outcome with no provision, the workers have to prefer the outcome with public provision for there to be any conflict of interest. Hence, this assumption is in any case necessary for the model not to be trivial, and will hopefully appear as a natural restriction.

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

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

Moving to the willingness of the business groups to provide privately, I assume that the sectors can be ordered in the following way: take any strategy profile that does not involve private provision in any of the sectors. Then, assume that if there for B_2 exists a utility-increasing deviation that includes private provision, there also exists a utility-increasing deviation for B_1 that involves private provision. Intuitively, this means that the firms in the first sector have a natural advantage in providing the policy privately. While this assumption is not without loss of generality, the fact that the two sectors can be ordered by their potential willingness to provide the benefit privately will hopefully seem like an innocuous restriction.

Finally, I will assume that if there is private provision, it must be because the private-provision decision has an effect on the political decision, not just because it changes the amount a business group has to contribute to the political decision-maker. Formally, take any strategy profile such that when the strategies are restricted to the subgames starting in period two, these strategies form equilibria of each of the period two subgames. Then look at a business group whose strategy does not involve private provision, and assume the following: if, holding fixed the strategies of the other players, this business organization can improve its utility by changing to a strategy that involves private provision, that change of strategy must lead to a change in the political outcome (p).

¹⁴This 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, which 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 sufficient 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 paper the focus will be on pure strategy equilibria. The notion of equilibrium used in the rest of the paper can now be defined:

Definition 1 *Unless otherwise stated, an **equilibrium** will refer to a subgame perfect equilibrium 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 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 against

¹⁵An 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.

public implementation of the policy. That is, s_i is the share of the total contributions conditional upon 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 (conditional upon $p = 1$) 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 offers contributions towards the same policy choice and their shares have to be determined.¹⁶

3 Baseline Model Results

3.1 Auxiliary Results

Given the setup above, there are four outcomes of primary interest in this model: no provision (A), public provision (B), private provision in sector 1 only (C) and private provision in both sectors (D). Theoretically, there could also exist outcomes with public as well as private provision, but these outcomes can easily be ruled out as equilibria. To see this, note simply that if one of the business groups does offer the benefit privately and the benefit is also, later in the game, implemented publicly, the business group has the option of removing 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 here is of course that the policy has no intrinsic value to the employers. From this it should be clear that both public and private provision can never coexist in equilibrium.

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

¹⁶In the analysis that follows, I will assume that if $V^b - R(y) \leq V^u$ then $[V^b - R(y)] s_j \leq V_j^u$ for $j = 1, 2$, and similarly if $V^b \geq V^u + R(y)$ then $V_i^b \geq [V^u + R(y)] s_i$ for $i = 1, 2$. These assumptions guarantee interior solutions to the equilibrium 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.

With this in mind, we can focus on the remaining cases, A-D. The utilities of unionized workers and firms in these cases are:

	No Provision	Public	Private 1	Private Both
u_1^b	$-c_1^b(0)$	$-c_1^b(1) - t\pi_1$	$-c_1^b(0) - b_1$	$-c_1^b(0) - b_1$
u_2^b	$-c_2^b(0)$	$-c_2^b(1) - t\pi_2$	$-c_2^b(0)$	$-c_2^b(0) - b_2$
u_1^u	$-c_1^u(0)$	$v - c_1^u(1)$	$v - c_1^u(0)$	$v - c_1^u(0)$
u_2^u	$-c_2^u(0)$	$v - c_2^u(1)$	$-c_2^u(0)$	$v - c_2^u(0)$

Having outlined the possible types of equilibria, it is useful to start the analysis by characterizing the behavior of the political decision-maker. Remember that what the politician cares about is future political success, and that its only action is taken in the final stage of the game. The following remark, which fully characterizes what behavior of the politician that is consistent with equilibrium, follows directly:

Remark 2 *Let the equilibrium private provision decisions by the firms be given by y . Then, in any SPE, if $C(0) < C(1) + R(y)$ the politician chooses to implement the policy. If the inequality is reversed, the policy is not implemented. 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. ■

That is, in any equilibrium, only unions could be contributing in favor of political implementation, and only business groups could be contributing against. Though very simple, this result is useful, as it means that the original “menu auction” setting (with two choices on the menu) instead 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:

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

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

$$\begin{aligned} V_i^u &\equiv vm_i L_i, \quad i = 1, 2 \\ V^u &\equiv v(m_1 L_1 + m_2 L_2). \end{aligned}$$

Using these definitions, we can show the following:

Lemma 2 *In any SPE that satisfies restriction (ER1), it must be the case that $C(1) = V^b - R(y)$ and $C(0) = V^b$ if the policy is implemented. Similarly, $C(0) = C(1) + R(y)$ and $C(1) = V^u$ if the policy is not implemented.*

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 Appendix B. The results, however, are easily summarized. In brief, there always exists an SPE of the game, and there always exists one that satisfies (ER1). Furthermore, if we limit ourselves to an asymmetric setup in which only one of the interest groups would be willing to provide the

policy privately (which is not imposed theoretically but quite likely for any real-world setting) then there always exists a pure-strategy SPE. 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. In sum, there always exists a SPE, and for many of the settings we are interested in, but not for all possible parameter values, there exists a unique pure-strategy SPE that satisfies restriction (ER1).

3.2 Equilibria with No Provision

In order to establish whether an outcome with no provision (neither public nor private) can be sustained as an equilibrium, let us conjecture the existence of such an equilibrium outcome. Lemma 2 directly implies that in any such equilibrium it must be the case that:

$$\begin{aligned} C(1) &= V^u \\ C(0) &= V^u + R(0, 0). \end{aligned} \tag{1}$$

Under these conditions, the politician is indifferent between implementing and not implementing the policy, and the unions are offering to contribute exactly as much as they are willing to pay in order to change the outcome. 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 are:

$$u_i^b = - [R(0, 0) + V^u] s_i, \quad i = 1, 2.$$

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 $-t\pi_i N_i = -V_i^b$. For it not to prefer this outcome, it must be the case that:

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

For this type of equilibrium these conditions are all we need in order to guarantee existence. Hence, we can summarize with the following proposition:

Proposition 1 *The two inequalities given by (2) are necessary and sufficient conditions for the existence of an equilibrium with no provision of the policy.*

Using this result, we can get a sense of what conditions that favor a no-provision outcome, by analyzing the size of the parameter set under which such an equilibrium exists. In order to remove the dependency on the inter-sectoral bargaining parameters (s_i) we can add conditions (2) together. If we also substitute back in the expressions for V^u , V_i^b , V_2^u , t and b_1 , we are left with the following necessary condition expressed in terms of fundamental parameters:

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

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. That is, 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, such that the business groups are no longer willing to contribute what is necessary in order to prevent a public-provision outcome.

The same argument is true for the unionization rate in the other sector (m_2), and similar inspections deliver analogous results for the other parameters. Specifically, 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.

3.3 Equilibria with Public Provision

In a similar way as for the no-provision equilibria, Lemma 2 implies that in any public-provision equilibrium it must be the case that:

$$\begin{aligned} C(0) &= V^b \\ C(1) &= V^b - R(0,0). \end{aligned} \tag{3}$$

Again, these conditions imply that the incentives for the policy-maker are satisfied, with indifference between implementing and not implementing. Furthermore, the 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, and neither of them has any reason to change its contribution offer.

With this in mind, there are 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 contributions as given by condition (3). 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 (4) and (5) are necessary and sufficient conditions for the existence of an equilibrium with public provision of the policy.*

$$V_i^u - [V^b - R(0, 0)] s_j \geq 0, \quad i = 1, 2. \quad (4)$$

$$V_1^b \leq [R(1, 0) + V_2^u] s_j + N_1 b_1. \quad (5)$$

Proof. See Appendix A. ■

In (4), 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 (5), 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 can again use these equilibrium conditions to see how changes in the parameter values affect the equilibrium parameter set. Substituting the model's fundamental parameters back in, and adding the two conditions in (4) to remove as much as possible the dependency on the details of the inter-sectoral bargaining process between the two unions, delivers the following necessary conditions:

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

$$\frac{\pi_1 N_1}{\pi_1 N_1 + \pi_2 N_2} (L_1 + L_2)k \leq [R(1, 0) + v m_2 L_2] s_1 + L_1 k.$$

By straight-forward inspection of these conditions, we can see that the parameter set under which there exists an equilibrium with public provision of the policy is increasing in the value of provision (v), in the level of public support that would exist if the workers in

sector 1 received the policy privately ($R(1,0)$), in the level of public support that exist when no workers receive the policy privately ($R(0,0)$) and in sector 2 unionization (m_2).

The results with respect to sector 1 unionization (m_1) are somewhat more difficult to interpret. Holding all of the other parameters fixed, the equilibrium parameter set increases with this unionization rate. However, if we hold fixed the total level of unionization ($m_1L_1 + m_2L_2$), alternatively assume that the labor force is distributed evenly between the sectors ($L_1 = L_2$), the parameter set is increasing in the ratio of unionization in sector 2 to unionization in sector 1, i.e. in the ratio m_2/m_1 . Furthermore, the effect of unionization in sector 1 operates only through one of the conditions. Hence, the unionization in sector 2 appear to be of greater importance here.

In the other direction, the parameter set under which there exists an equilibrium with public provision is decreasing in the cost of provision (k). It also decreases in sector 1 profits (π_1). In addition, if we hold total profits ($\pi_1N_1 + \pi_2N_2$) fixed, the parameter set decreases in the share of profits going to sector 1, i.e. the set decreases in $\frac{\pi_1N_1}{\pi_1N_1+\pi_2N_2}$.

3.4 Equilibria with Private Provision

3.4.1 Private Provision in One Sector

The final type of equilibria to investigate are the ones in which the policy is provided privately. Let us first focus first on the case in which only one interest group (B_1) provides privately. Again using Lemma 2 we know that the following must hold:

$$\begin{aligned} C(1) &= V_2^u \\ C(0) &= V_2^u + R(1,0). \end{aligned} \tag{6}$$

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 , which follows from the fact that union leaders

in sector 1 no longer find it in their members interest to offer any contributions, as they receive the same benefit no matter what the political decision is. Together, this means that the total political contributions the business groups have to offer in order to prevent public implementation is lower than in the no-provision case.

In order for this to be an equilibrium, two additional things have to be true. First, 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 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. The assumptions imposed above imply that 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 this reasoning:

Proposition 3 *Inequalities (7) and (8) are necessary conditions for the existence of an equilibrium with private provision by the firms in sector 1. Furthermore, if $V^u + R(0, 0) \geq V^b$, then these are also sufficient conditions. If, instead, $V^u + R(0, 0) < V^b$ then there cannot exist an equilibrium with private provision (only) in sector 1.*

$$[R(1, 0) + V_2^u] s_i \leq V_i^b, \quad i = 1, 2 \quad (7)$$

$$[R(1, 0) + V_2^u] s_1 + N_1 b_1 \leq V_1^b. \quad (8)$$

Proof. See Appendix A. ■

In (7), 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 (8), 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

As these results are somewhat more complex than the previous results, the comparative statics are less straight-forward. However, considering that the empirical part of this paper mainly concerns the comparison between public and private equilibria, with a specific interest in the use of private provision as a way to impede public provision, let us focus on the case where public provision would follow if there were no private provision in sector 1. Formally, suppose for the rest of this subsection that $V^u + R(0, 0) \geq V^b$. Suppose also that $R(1, 0) + V_2^u \leq V^b$, so that if B_1 decides to provide privately the firms are strong enough, relative to the union in sector 2, to prevent the benefit from being implemented by the government.

Now, focus on the decision-problem facing B_1 in the first stage of the game. Under these additional assumptions, the proposition tells us that B_1 would receive a negative utility of $[R(1, 0) + V_2^u] s_1 + N_1 b_1$ from providing the benefit privately, while not providing would lead to public provision and a tax burden equal to V_1^b . Substituting the fundamental parameters of the model back in, this leaves us with the following condition:

$$[R(1, 0) + km_2L_2] s_1 + L_1k \leq \frac{\pi_1 N_1}{\pi_1 N_1 + \pi_2 N_2} (L_1 + L_2) k.$$

We can use this conditions to get a sense of when we might expect to see an outcome with partial, private provision. Starting with the conditions favoring this type of outcome, the parameter set under which there exists an equilibrium with private provision of the policy is increasing in the profits of sector 1 firms (π_1), or more specifically in the share of profits going to this sector ($\frac{\pi_1 N_1}{\pi_1 N_1 + \pi_2 N_2}$). In the other direction, the parameter set under which there exists an equilibrium with no provision of the public policy is decreasing in sector 2 unionization (m_2), and in the level of public support that exist when the workers in sector 1 receive the policy privately ($R(1, 0)$).

¹⁷Note that there is some redundancy among the condition is Proposition 3. Specifically, condition (8) implies that one of conditions (7), the one for $i = 1$, is automatically satisfied. The proposition is left in this form for ease of interpretation.

Under some more restrictive assumptions we can also say something about the effect of the allocation of the labor force. If we assume that the cost per worker (k) of providing the policy is the same as the value of the policy (v), and we hold fixed the total size of the labor force ($L_1 + L_2$), then the necessary condition tells us that existence of a private-provision equilibrium is facilitated by a greater share of the labor force allocated to sector 2. That is, the equilibrium existence set is increasing in the ratio L_1/L_2 . This result, however, holds only as long as the difference between the cost (k) and value (v) is not too great.

3.4.2 Private Provision in Both Sectors

In addition to private provision in one sector, there could, theoretically, exist outcomes in which the firms in *both* sectors provide the policy privately. Note that if that was the case, neither of the unions would be willing to offer any contributions to the policy-maker. Hence, Lemma 2 implies that in any such equilibrium, the following must hold:

$$\begin{aligned} C(1) &= 0 \\ C(0) &= R(1, 1). \end{aligned} \tag{9}$$

With these two equations, the incentives of the politicians and the labor unions are satisfied. The contributions of the business groups would have to equal $R(1, 1)s_i$, for $i = 1, 2$. 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 $-R(1, 1)s_i - kL_i$. If profitable deviations exist the most profitable among them would imply public provision and deliver a payoff of $-V_i^u$. Hence, in order for there to exist an equilibrium with private provision in both sectors, the following two conditions must hold:

$$R(1, 1)s_i + kL_i \leq V_i^u, \quad i = 1, 2. \tag{10}$$

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. Note, however, that this is automatically satisfied under conditions (10). Hence, we can summarize the results with respect to this second type of private-provision equilibria in the following way:

Proposition 4 *Inequalities (10) are necessary and sufficient conditions for the existence of an equilibrium where the firms in both sectors provide the policy privately to their workers.*

To analyze this type of equilibrium, plug the fundamental parameters back into expressions (10). This gives us the following necessary and sufficient 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 again 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 for the moment that the industry and bargaining structure is complete symmetric, in particular such that: $L_1 = L_2$, $N_1 = N_2$, and $\pi_1 = \pi_2$. Then focus on two parameters that have the same meaning in the two sectors (e.g. the profits in sector one and sector two). Denote these parameters x_i and x_j , and order them such that $x_i \geq x_j$. Then define a *mean-preserving shift towards asymmetry* with respect to x_i and x_j as any change that increases the ratio x_i/x_j while preserving the sum of these two parameters. The following result then follows directly from inspection of the two conditions above:

Remark 3 *Starting from a completely symmetric setup, a mean-preserving shift towards asymmetry with respect to any of the pairs L_1 and L_2 , N_1 and N_2 , π_1 and π_2 decreases the parameter set for which there exists an equilibrium with private provision in both sectors.*

Note that this remark is more general than it has to be: it would hold also under a framework where the firms get some direct benefit from providing its workers privately (e.g. if there are wage or productivity effects resulting from private provision). Under the baseline setting here we could take the analysis one step further and show that *any* deviation from the completely symmetric setting would imply that an equilibrium of this type could not exist. To see this, assume that $R(1, 1) = 0$ and note that $kL_1 < k(L_1 + L_2)\frac{\pi_1 N_1}{\pi_1 N_1 + \pi_2 N_2} \Rightarrow \frac{L_1}{L_1 + L_2} < \frac{\pi_1 N_1}{\pi_1 N_1 + \pi_2 N_2} \Rightarrow \frac{L_2}{L_1 + L_2} > \frac{\pi_2 N_2}{\pi_1 N_1 + \pi_2 N_2} \Rightarrow kL_2 \not\leq k(L_1 + L_2)\frac{\pi_2 N_2}{\pi_1 N_1 + \pi_2 N_2}$. In any case, the implication from the theory is that we should expect to see privately provided benefits in all sectors of the economy only in societies with symmetric industry structures. A rough intuition is the following: 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 limited interest in providing privately, as it finds public provision not so bad. Rather than first providing privately and then contributing to the politician, the firms in the second sector can do better by simply accepting whatever happens if they provide and contribute nothing.

Remember now that the purpose of this paper is to use the formal 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. Furthermore, note that there does not appear to exist any industrialized countries that can reasonably be thought of as well-described by this type of equilibrium (with extensive provision of social benefits in all sectors of the economy). Hence, in moving towards the application part of the paper, 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, as a counterfactual to outcomes that we actually observe.

3.5 Summary of Baseline Results

The theoretical results summarized here capture the idea that different types of equilibria are possible, but that each type only exists for certain parameter values. For each type of equilibrium, it is possible to identify specific parameters that have unambiguous effects on the existence of this equilibrium. By summarizing the relevant parameters for each type of equilibrium, this subsection provides a link between the theoretical part of the paper and the application that follows.

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 upon the parameters in more subtle ways. Synthesizing the analyses on equilibria with public and private provision (in sector 1), we have the following results:

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

$[m_1/m_2] \uparrow \Rightarrow$ Private provision favored

$[\pi_1/\pi_2] \uparrow \Rightarrow$ Private provision favored

Focus, for instance, on the effect of the function that captures the impact of public opinion, $R(y)$. Furthermore, assume that we are initially in a world with no provision of the benefit, neither public nor private. Clearly, if $R(0,0)$ grows larger, this moves us away

from the no-provision outcome. However, whether this makes public or private provision more likely depends on $R(1, 0)$, the support for political reform that would exist if (only) the workers in sector 1 had received the policy through their employers. If this variable increases along with $R(0, 0)$, the conditions become more favorable to public provision. However, if there is a divergence in the support for political change that would exist with and without private provision, i.e. if $R(0, 0)$ grows larger also relative to $R(1, 0)$, the conditions instead become more favorable to a private-provision outcome.

Similarly, whether we should expect to see an outcome with public or private provision as unions grow stronger depends on *which* of the unions that grow stronger. With an even development across the sectors, the conditions become more favorable to a political reform leading to public provision. If, however, the unions grow stronger only in sector 1, and a gap opens up between the unionization in the two sectors, the conditions instead start to resemble those underlying the private-provision equilibrium. Furthermore, the theoretical analysis suggests is that the unionization in sector 2 might be of greater interest than the unionization in sector 1. This is particularly interesting in light of previous work on unions and welfare state development. Typically, when scholars analyze the role of unions in the development of public policy during the 20th Century, the focus is almost exclusively on the unions representing workers in large and “modern” corporations, such as the auto manufacturers. The theory developed here indicates that this previous work provides us with an incomplete understanding of public policy development, as it fails to consider the critical but perhaps less visible role of unions in the more traditional sectors of the economy.

Besides public support and union strength, greater profits in sector 1 makes the conditions under which there exists a private-provision equilibrium easier to satisfy, while it has the opposite effect on the existence of a public-provision equilibrium. Hence, if the conditions become less favorable to a no-provision outcome, but the profits in sector 1 are very large, we should not necessarily expect to see publicly provided benefits. Instead, a private-provision equilibrium might be what replaces the no-provision outcome.

As for the allocation of the labor force, the analysis delivers ambiguous results. Assuming that the cost and value of the provision are not too different, the theory suggests that a greater share of the labor force employed in sector 1 makes it easier to satisfy the conditions associated with public-provision equilibria. Stated differently, if production in sector 2 is very labor-intensive relative to the other sector, the model indicates that we will not necessarily see an outcome with public provision of social benefits, even in the case where unions are strong and the public supports legislative action. However, if the cost and value of the policy differ significantly, this reasoning is no longer necessarily true. Hence, caution should be used when interpreting the effects of labor force allocations and capital and labor intensities.

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 will use a very simple model to study one particular type of interaction between institutions and interest groups. Specifically, I will 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,

¹⁸The 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 (i.e. for no parameter values) 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. That is, the effect of additional veto points depends on the

underlying parameters. In the real world, since some of the underlying parameters (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 certainly 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

The previous sections illustrate different types of welfare state arrangements that a country might have, as well as conditions that are likely to lead to each type of outcome. A central insight is that, as the conditions grow more favorable to *some* form of provision of welfare state services, it is not necessarily the case that a larger *public* welfare state will be the result. Rather, privately provided services in some sectors might emerge instead.

In this section I argue that these theoretical insights are relevant for understanding the distinct path of welfare state development taken by the United States during the 20th century. Specifically, I argue that in the US, as opposed to other countries with welfare states that also expanded substantially (by historical standards) during the 20th century, the government and the major interest groups found themselves in an equilibrium where a significant share of social benefits were provided privately through large employers.

The two subsections that follow are devoted to a discussion of the real-world features corresponding to the exogenous and endogenous parts of the model. The first subsection contains an argument that the outcome was in fact similar to what the model predicts, and 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. The model presented above gives the mechanism linking these two subsections.

5.1 The US as a Private-Provision Equilibrium

In this section, I focus on the endogenous parts of the model. Specifically, I argue that the real-world outcomes and strategies, in terms of public and private benefits did (and largely still do) in fact resemble the theoretical equilibrium with partial, private provision. For such an argument to be credible, there are at least three endogenous 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 inclined to work for 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 unique 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 24 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, a ratio that is 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. The figure is meant to be indicative, and does not represent a perfect measure of any part of the theoretical model. What it is meant to show is that the US, at least in a sense that resembles elements of interest in the model, stands out as an outlier, with a much higher share of total social expenditures delivered privately.¹⁹

¹⁹The values shown in the figure are the 2003 ratios of the unedited “totals” available directly from the

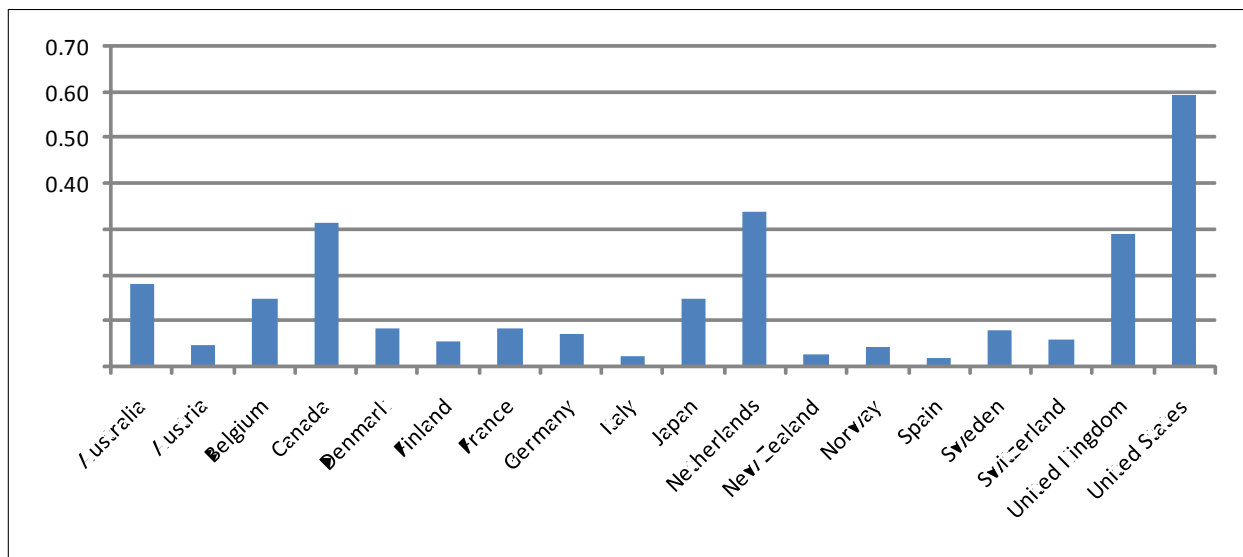


Figure 1: Ratio of Private to Public Social Expenditures. *Source:* OECD

Of course, the share of private spending is far from 100 percent in the US, nor is it zero in any other country. This, however, is not inconsistent with the theory. The fact that the model only predicts pure outcomes - either no provision at all, only public or only private provision - does not imply that total expenditures will be of only one kind. Several of the fundamental parameters of the model (say, v or k) will clearly 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 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 firms did (and still do) receive significantly more non-wage benefits than

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).

²⁰The 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 the relevant task is to explain the outlier status of one data point.

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 some extent, these differences have persisted until today. For instance, in 1993, in firms with more than 100 employees, 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 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. That is, 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; the most 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 see 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 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, further tighten the connection between theory and actual outcomes by explicitly 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, this literature is nevertheless valuable in that it indicates how real-world behavior may correspond to the equilibrium choices of the players in the model. Of particular interest is the central point that firm-based benefits were part of explicit strategies of employers to decrease 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

As a brief background, note that by most accounts the New Deal represented the birth

²¹Tone (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.

of the modern US (public) welfare state.²² However, it did more than just create a public welfare state - it also initiated a period of stronger emphasis on social security. After the New Deal, and at least until the 1970s, security had a central place in the political debate and in labor relations. This shift in public debate and political ideology coincided with a significant increase in union strength. Hence, one could reasonably have expected the unions to successfully push for the development of an extensive public welfare state. Yet what actually happened in the US was that the concept of security was redefined from something delivered by the state into an alternative, less universal concept of security provided by (some) employers. This is a central part of the argument made by Klein, who also concludes that this redefinition followed explicit strategic reasoning of large employers. 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 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

²²Of course some federal and state level programs did exist before the New Deal. The 1930s was, however, an era of unprecedented growth in total government spending, as well as in the scope of activities performed by the federal government. In the mid 1920's, just before the Great Depression and the New Deal, total federal (non-military) spending was approximately equal to 3 percent of GNP, while in the mid 1930's this figure had increased to about 10 percent. The support for state and local government expenditures from the federal level also increased dramatically. Earlier in the 20th Century, less than one percent of state and local revenues came from the federal government, while in the late 1930's about 15 percent of state and local revenues were due to federal aid (Wallis, 1985, 1998). In addition, it created many of the government programs and structures, such as Social Security and various agricultural programs, that form the basis of the public sector in the US to this day.

relations politics and in fact use it to sustain an increasingly insular, private, firm-centered definition of security. (Klein, 2003, p. 205-206)

Similar conclusions are drawn 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:

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, partial and firm based - occurred in the US and not in other industrialized countries. 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 a sense of how the features underlying the different equilibria of the model compare to real-world structures.

First of all, it is clear is that the United States, in comparison with most other countries, has a political system characterized by fragmented institutions and a legislative process with a large number of institutional veto points.²³ In the extension to the baseline theoretical model, we saw that this fragmentation should imply a tendency for social policies not to be implemented through the public sector in the US. While perhaps not the most novel finding of the paper, this will provide a useful background as we move to assess the more innovative points that emerged from the theoretical analysis. 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 simple less provision of benefits overall.

Moving beyond political institutions 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 of relevance here. As a starting point, note that the US was the leading industrial nation of the world during the 20th century. The 1890s are often referred to as the beginning of American industrial dominance, and sometimes also as the beginning of the modern

²³This point is well-established. See for instance Tsebelis (2002) for a comparison of veto points between different countries. Note that the concept in Tsebelis that most closely resembles a veto point in the theoretical model here is an *institutional* veto player. See also Huber, Ragin and Stevens (1993) for an alternative measure based exactly on institutional veto points.

industrial era in the Western world. A merger wave in 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.²⁴

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 these firms were particularly capital-intensive and significantly larger than their counterparts in most other countries.

This remarkable 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.” (Nelson and Wright, p. 1939) In *Scale and Scope*, business historian Alfred Chandler gives a similar description 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)

²⁴For descriptions of the rise of big business in the US, and analyses of the great merger movement at the break of the Century, see Atack (1985), O’Brien (1988) and Lamoreaux (1985).

While these accounts are closely related to key features of the theoretical setup, the model does not generate unambiguous predictions directly based on the size of the firms and their capital and labor intensity. The model does, however, make predictions based on profits. Hence, 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. 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.

First of all, 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 about) 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 straightforward. 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), suggest that the expected profits of US firms were large. First of all, the US had more modern industrial enterprises early on than any of the other countries and as early as World War I, new and large institutions 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.²⁵

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. From around World War II until roughly the 1960s or 1970s - the time at which most of the growth in public spending occurred in the industrialized countries - it appears that the major US corporations were also quite dominant in their country, relative to other countries. That is, they appear to have been large even controlling for country size. 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. Connecting this to the theoretical model, where greater profits for the firms in sector 1 favor private-provision equilibria, it thus 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 (but not both) of the sectors.

Turning to the union structure, cross-country comparisons for the relevant time periods are again very 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. First of all, the unionization rates of large firms in the US are, and have been for a long time,

²⁵Note 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 occurring 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.

significantly greater than for small firms. Furthermore, the gap between unionization rates in the manufacturing sector and other parts of the economy appear to be greater in the US than in other industrialized countries.²⁶ This again suggests that the structures favoring an equilibrium with private provision - here 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 and compare. Furthermore, political scientists as well 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.²⁷

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 partial 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

²⁶See Pearce (1990) for comparisons between large and small firms in the US, and Blanchflower and Freeman (1992) for cross-country comparisons of unionization rates in the manufacturing sector versus other parts of the economy.

²⁷See, for instance, the introductory discussion in Steinmo and Watts (1995). For a discussion by economists, see Alesina and Glaeser (2004).

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.²⁸ With this in mind, the real world characteristics with respect to public opinion in the US appear at least not to be 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 endogenous 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; that is, during the time when most welfare states developed into their current structures.

6 Concluding Discussion

In this paper, 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. In the model, these interest groups can use campaign contributions to influence a political decision-maker who has to decide whether to implement a universal social benefit. 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.

²⁸To 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).

Given this setup, it may be the case that no one is offered the benefit, that all workers are offered it through the government, and that some but not all are offered the benefit by their employers. At the heart of the paper 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 to these predictions from the baseline model, I show that an outcome with public provision is less likely in a country with a more fragmented political system that generates a greater number of institutional veto points. Furthermore, I show that with additional veto points, conditions that otherwise would have led 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 American political and economic development 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 closely to the features of the equilibrium with (partial) private and firm-based 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 is the only formalized alternative framework. Moriguchi develops a theory based on the idea that gener-

ous benefits could induce high effort and loyalty among workers.²⁹ In principle, Moriguchi's theory competes with the one presented in this paper. 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.³⁰ 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 rather than compete. That is, while the model developed here can explain the development of the private welfare 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. As previously mentioned, in terms of the outcome (private vs public spending on social benefits) the US is a unique outlier, and cross-country econometric work is not a reasonable approach. Hence the empirical part has to remain primarily qualitative. It might, however, be possible to add empirical evidence to the input side, in 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 as transparently as possible, the model is kept as clean from confounding elements as possible. This, however, means that there exist a number of possible extension to the model that, although of limited interest

²⁹Formally, 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 text by Piore and Sabel (1984), also contains elements of these arguments.

³⁰According to Moriguchi, events during the Great Depression punctuated the high-effort equilibrium in the repeated interaction model that forms the basis of her theory.

for the purpose here, 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 paper 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 paper, but the framework used in this paper might be a useful basis for insights beyond the topic of welfare state development.

A final possible extension, more directly relevant for this paper, 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, for instance 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.

References

- [1] Akerlof, George (1982), "Labor Contracts as Partial Gift Exchange," *Quarterly Journal of Economics*, Vol. 97 (4), pp. 543-569.
- [2] Alesina, Alberto and Edward Glaeser (2004), *Fighting Poverty in the US and Europe: A World of Difference*, Oxford University Press.
- [3] Alston, Lee J. and Joseph Ferrie (1993), "Paternalism in Agricultural Labor Contracts in the U.S. South: Implications for the Growth of the Welfare State," *American Economic Review*, Vol. 83, pp. 852-876.
- [4] Alston, Lee J. and Joseph Ferrie (1999), *Southern Paternalism and the Rise of the Welfare State: Economics, Politics, and Institutions in the U.S. South, 1865-1965*, Cambridge University Press.
- [5] Atack, Jeremy (1985), "Industrial Structure and the Emergence of the Modern Industrial Corporation," *Explorations in Economic History*, Vol. 22 (1), pp. 29-52.
- [6] Austen-Smith, David and Michael Wallerstein (2003), "Redistribution and Affirmative Action," *Journal of Public Economics*, Vol. 90 (10-11), pp. 1789-1823.
- [7] Becker, Gary (1985), "A Theory of Competition Among Pressure Groups for Political Influence," *Quarterly Journal of Economics* Vol. 98, pp. 371-400.
- [8] Benabou, Roland and Efe Ok, (2001) "Social Mobility and the Demand for Redistribution: the POUM Hypothesis," *Quarterly Journal of Economics*, Vol. 116, pp. 447-487.
- [9] Bennedsen, Morten and Sven E. Feldmann (2002), "Lobbying Legislatures," *Journal of Political Economy*, Vol. 110, pp. 911-946.
- [10] Blanchflower, David G. and Richard B. Freeman (1992), "Unionism in the United States and Other Advanced OECD Countries," *Industrial Relations*, Vol. 31 (1), pp. 56-80.

- [11] Brandes, Stuart D. (1976), *American Welfare Capitalism, 1880-1940*, University of Chicago Press.
- [12] Cameron, Charles M. (2000), *Veto Bargaining: Presidents and the Politics of Negative Power*, Cambridge University Press.
- [13] Cameron, Charles M. and Nolan McCarty (2004), "Models of Vetoes and Veto Bargaining," *Annual Review of Political Science*, Vol. 7, pp. 409-435.
- [14] Chandler, Alfred (1969), "The Structure of the American Industry in the Twentieth century: A Historical Overview," *Business History Review*, Vol. XLIII, No 3.
- [15] Chandler, Alfred (1990), *Scale and Scope: The Dynamics of Industrial Capitalism*, Belknap Press.
- [16] Denzau, Arthur T. and Michael C. Munger (1986), "Legislators and Interest Groups: How Unorganized Interests get Represented," *American Political Science Review*, Vol. 80 (1), pp. 89-106.
- [17] Esping-Andersen, Gosta (1990), *The Three Worlds of Welfare Capitalism*, Polity Press.
- [18] Ferrie, Joseph (2005), "The End of American Exceptionalism? Mobility in the U.S. Since 1850," *Journal of Economic Perspectives* Vol. 19, pp. 199-215.
- [19] Ferrie, Joseph and Jason Long (2007), "The Path to Convergence: Intergenerational Occupational Mobility In Britain and the U.S. in Three Eras," *The Economic Journal*, Vol. 117, pp. 61-71.
- [20] Gottschalk, Marie (2000), *The Shadow Welfare State: Labor, Business, and the Politics of Health Care in the United States*, Cornell University Press.
- [21] Groseclose, Tim and James M. Snyder (1996), "Buying Supermajorities," *American Political Science Review*, Vol. 90, pp. 303-315.

- [22] Groseclose Tim and Nolan McCarty (2000), “The politics of blame: bargaining before an audience,” *American Journal of Political Science*, Vol. 45 (1), pp. 100–19.
- [23] Grossman, Gene M. and Elhanan Helpman (1994), “Protection For Sale,” *American Economic Review*, Vol. 84(4), pp. 833-850.
- [24] Grossman, Gene M. and Elhanan Helpman (2001), *Special Interest Politics*, MIT Press.
- [25] Grossman, Gene M. and Elhanan Helpman (2002), *Interest Groups and Trade Policy*, Princeton University Press.
- [26] Hacker, Jacob (2002), *The Divided Welfare State: The Battle over Public and Private Social Benefits in the United States*, Cambridge University Press.
- [27] Helpman, Elhanan and Torsten Persson (2001), “Lobbying and Legislative Bargaining,” *Advances in Economic Analysis and Policy*, Vol. 1, Article 3.
- [28] Hicks, A. and J. Misra (1993), “Political Resources and the Growth of Welfare in Affluent Capitalist Democracies, 1960-1982,” *American Journal of Sociology*, Vol. 99 (3).
- [29] Huber, Evelyn, Charles Ragin and John D. Stephens (1993), “Social Democracy, Christian Democracy, Constitutional Structure, and the Welfare State,” *American Journal of Sociology*, Vol. 99 (3), pp. 711-749.
- [30] Jacoby, Sanford M. (1997), *Modern Manors*, Princeton University Press.
- [31] Klein, Jennifer (2001), “Managing Security: The Business of American Social Policy, 1910–1960,” *Enterprise & Society: The International Journal of Business History*, Vol. 2 (4), pp. 660-665.
- [32] Klein, Jennifer (2003), *For All These Rights: Business, Labor, and the Shaping of America’s Public-Private Welfare State*, Princeton University Press.

- [33] Korpi, Walter (1978), *The Working Class in Welfare Capitalism*, Rutledge & Kegan Paul, Boston.
- [34] Korpi, Walter (1983), *The Democratic Class Struggle*, Rutledge & Kegan Paul, Boston.
- [35] Korpi, Walter and Joakim Palme (1996), "The Paradox of Redistribution and Strategies of Equality: Welfare State Institutions, Inequality, and Poverty in the Western Countries," *American Sociological Review*, Vol. 635, pp. 661-687.
- [36] Lamoreaux, Naomi (1985), *The Great Merger Movement in American Business, 1895-1904*, Cambridge University Press.
- [37] Lee, Woojin and John Roemer, "Race and Redistribution: A Solution to the Problem of American Exceptionalism," *Journal of Public Economics*, Vol. 90 (6-7), pp.1027-1052.
- [38] Lindert, Peter H. (2004), *Growing Public: Social Spending and Economic Growth since the Eighteenth Century*, Cambridge University Press.
- [39] Mares, Isabela (2003), *The Politics of Social Risk: Business and Welfare State Development*, Cambridge University Press.
- [40] McCarty Nolan (1997), "Presidential Reputation and the Veto," *Economics and Politics*, Vol. 9 (1), pp. 1-26.
- [41] Meltzer, A.H. and S.F. Richard (1981) "A Rational Theory of the Size of Government," *Journal of Political Economy*, Vol. 89, pp. 914-927.
- [42] Mitchell, William C. and Michael C. Munger (1991), "Economic Models of Interest Groups: An Introductory Survey," *American Journal of Political Science*, Vol. 35 (2), pp. 512-546.
- [43] Moriguchi, Chiaki (2003), "Implicit Contracts, the Great Depression, and Institutional Change: A Comparative Analysis of U.S. and Japanese Employment Relations, 1920-1940," *Journal of Economic History*, Vol. 63 (3), pp. 625-664.

- [44] O'Brien, Anthony P. (1988), "Factory Size, Economies of Scale, and the Great Merger Wave of 1898-1902," *Journal of Economic History*, Vol. 48 (3), pp. 639-649.
- [45] O'Conner, Julia S. and Gregg M. Olsen, eds. (1998), *Power Resources Theory and the Welfare State: A Critical Approach*, University of Toronto Press, Toronto.
- [46] Pearce, James E (1990), "Tenure, Unions, and the Relationship between Employer Size and Wages," *Journal of Labor Economics*, Vol. 8 (2), pp. 251-269.
- [47] Peltzman, Sam (1976), "Toward a General Theory of Regulation," *Journal of Law and Economics* Vol. 19 (2), pp. 95-118.
- [48] Persson, Torsten and Guido Tabellini (2003), *The Economic Effects of Constitutions*, MIT Press.
- [49] Piketty, Thomas (1994), "Social Mobility and Redistributive Politics," *Quarterly Journal of Economics*, Vol. 110 (3), pp. 551-584.
- [50] Piore, Michael and Charles Sabel (1984), *The Second Industrial Divide: Possibilities for Prosperity*, Basic Books.
- [51] Rothstein, Bo (2001), "The Universal Welfare State as a Social Dilemma," *Rationality and Society*, Vol. 13 (2), pp. 213-233.
- [52] Scheve, Kenneth and David Stasavage (2006a), "The Political Economy of Religion and Social Insurance in the United States, 1910-1939," *Studies in American Political Development*, Vol. 20 (Fall), pp. 132-159.
- [53] Scheve, Kenneth and David Stasavage (2006b), "Religion and Preferences for Social Insurance," *Quarterly Journal of Political Science*, Vol. 1(3), pp. 255-86.
- [54] Schmitz, C. (2002), *The Growth of Big Business in the United States and Western Europe, 1850-1939*, Cambridge University Press.

- [55] Shapiro, Carl and Joseph E. Stiglitz (1984), "Equilibrium Unemployment as a Worker Discipline Device," *American Economic Review*, Vol. 74 (3), pp. 433-444.
- [56] Snyder, James M. (1991), "On Buying Legislatures," *Economics and Politics*, Vol. 3, pp. 93-109.
- [57] Steinmo, Sven and Jon Watts (1995), "It's the Institutions, Stupid! Why Comprehensive National Health Insurance Always Fails in America," *Journal of Health Politics, Policy and Law*, Vol. 20 (2), pp. 329-372.
- [58] Stigler, George (1971), "The Theory of Economic Regulation," *Bell Journal of Economics*, Vol 2 (3).
- [59] Swenson, Peter (2002), *Capitalists against Markets: The Making of Labor Markets and Welfare States in the United States and Sweden*, Oxford University Press.
- [60] Swenson, Peter (2004), "Varieties of Capitalist Interests: Power, Institutions, and the Regulatory Welfare State in the United States and Sweden," *Studies in American Political Development*, Vol. 18, pp. 1-29.
- [61] Thelen, Kathleen (2004), *How Institutions Evolve: The Political Economy of Skills in Germany, Britain, the United States, and Japan*, Cambridge University Press.
- [62] Tone, Andrea (1997), *The Business Of Benevolence: Industrial Paternalism in Progressive America*, Cornell University Press.
- [63] Tsebelis, George (2002), *Veto Players: How Political Institutions Work*, Princeton University Press.
- [64] Wallis, John J. (1985) "Why 1933? The Origins and Timing of National Government Growth 1933-1940," *Research in Economic History*, Vol. 8: 139-159.
- [65] Wallis, John J. (1998), "The political economy of New Deal spending revisited, again: with and without Nevada," *Explorations in Economic History*, Vol. 35, pp. 140-170.

Appendix A: Proofs

Proof of Lemma 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 $\tilde{C}_i^b(0)$ such that $\tilde{C}_i^b(0) < C_i^b(0)$ and $\tilde{C}_i^b(0) + C_{-i}^b(0) > C(1) + R(y)$. 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 \hat{C}_i^b , with $\hat{C}_i^b(1) = 0$ and $\hat{C}_i^b(0) \in (C_i^b(0) - C_i^b(1), C_i^b(0))$ such that $\hat{C}(0) > \hat{C}(1) + R(y)$. 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 2: Focus first on a SPE in which the policy is not implemented. By Remark 2 it follows that in any such equilibrium, $C(0) \geq R(y) + C(1)$, which combined with Lemma 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 $\tilde{C}_i^b(0) \in (R(y) + C(1) - C_{-i}^b(0), C_i^b(0))$ 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 $\tilde{C}_i^u(1) \in (C_i^u(1), V_i^u)$, 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 2: For there to exist 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 $V_i^u - [V^b - R(0, 0)] s_j$, 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:

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

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 $-[R(1, 0) + V_2^u] s_j - N_1 b_1$. 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 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 behind condition (2) from the no-provision case, adjusted for the setting with private provision, this implies the following conditions:

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

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, hence a private-provision equilibrium could exist. As the incentives for all the players have now been examined, this concludes the proof.

Proof of Proposition 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 replaced by public-provision ones. This concludes the proof.

Proof of Proposition 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 $R(1,0)s_1 + N_1b_1 < V_1^b < [R(1,0) + V_2^b]s_1 + N_1b_1$. 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 these conditions are simultaneously satisfied. This concludes the proof.

Proof of Proposition 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 two inequalities implies that there can only exist a public provision equilibrium of the baseline model, whereas the second one implies that the only equilibrium of the extended model is one with no provision. Note finally that there exists parameters such that these three conditions are simultaneously satisfied. This concludes the proof.

Appendix B: Equilibrium Existence

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

Proof. Note first that 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, with associated payoffs. Rolling back these equilibrium payoffs from the subgames starting in period two, we can think of period one as a discrete

game, with two possible actions available to each of the two business groups. Basic game theory results (Nash's original existence proof) implies that at least one equilibrium exists for such a setting. Hence, there exists at least one equilibrium of the full game. ■

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 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 such subgame. Then if only one of the business groups is able to provide the policy privately, this group faces, in the first stage of the game, a simple choice between implementing or not implementing, with known continuation payoffs following each choice. Rolling back the continuation payoffs, we can think of the first stage as a game with one player and two possible pure strategies. Clearly, there exists a pure strategy equilibrium of this reduced first-stage game, hence 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. ■