Globalization as 'Galton's Problem': The Missing Link in the Analysis of Diffusion Patterns in Welfare State Development

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Abstract Most macro cross-national studies in political science that analyze the impact of globalization on domestic policies do not sufficiently consider the methodological consequences of diffusion processes, or "Galton's problem," as it is often referred to. I argue that globalization is a form of diffusion. Therefore it requires a shift from an exclusively functional analysis, which dominates in almost all established comparative studies in the field, to a diffusional analysis. I assume that globalization leads to a shift in focus on the part of political actors from domestic to international issues. I test this hypothesis by examining social expenditure rates of sixteen highly developed welfare states. The results indicate that globalization has become a highly influential factor since the late 1980s in contrast to the years before. In addition to the actual results presented here, the methodological approach of analyzing globalization as diffusion is relevant to other areas of comparative and international politics and may be a tool in future research.

Much of the macro cross-national literature in the field of political science focuses on different (and often competing) explanations and predictions of welfare state development.[1] However, there is one overwhelming concern within the current discussion on the future of the welfare state: the importance and degree of the

The results of this article are based on a research project, "Environmental Problems as a Global Phenomenon," which is supported by the German Research Society (DFG; JA 638/7). I wish to thank my research assistants Katrin Daedlow and Bertram Welker for supporting me in data collection and analysis. For constructive comments on different versions of the manuscript, I thank Reinhard Wolf, Kerstin Martens, Susanne Pickel, Kati Kuitto, and above all Elizabeth Zelljadt, two anonymous referees, and the editor of this journal. Most of the revision of this article was written while I visited the Department of Political Science at UCLA. I thank George Tsebelis and James Honaker for comments and advice and Michael Lofchie for his hospitality. I also received invaluable support from Heino von Meyer and Herbert Pfeiffer from the OECD Berlin Centre. Finally I would also like to thank Michael Zürn, who motivated me with his statement that comparative country studies might become obsolete in times of globalization. Without this provocation, this article would not have been written.

1. For an overview of the most current results of this research tradition, see Castles 1998; Garrett 1998; Hicks 1999; Huber and Stephens 2001; and Swank 2002.

International Organization 60, Spring 2006, pp. 401–431
 DOI: 10.1017/S0020818306060127

impact of international factors, often phrased in terms of globalization, on national policies. Within this discussion, there is a controversial debate on whether globalization changes the capacity of nation states to determine the political processes within their borders. Some observers claim that globalization leads to a convergence of policies among countries, resulting in a "race to the bottom" of social standards that individual governments can do little about. Extreme interpretations even see the end of the nation-state as a political entity.[2] In contrast, others argue that globalization does not undermine the capacity of individual states and that national policies differ now as much as they used to.[3] The way states respond to globalization may differ: some may even attempt to compensate for negative effects of internationalization, thereby increasing domestic state activity.[4]

In this article I argue that one source of confusion about the impact of globalization on domestic policy is the inappropriate analytical and methodological treatment of international interaction: "The one area in which the development of methods has lagged drastically behind the practical needs is in the analysis of effects of interdependence. Indeed, inadequate methodological attention to interdependence is the most damaging weakness of cross-national studies."[5] International interdependence and the impact resulting from it have been discussed as "Galton's problem" in social sciences. It poses substantial methodological problems for comparative analysis, so that Goldthorpe recently concluded that "the Galton problem could be regarded as potentially more damaging at the present time than ever before."[6] Therefore it is surprising that recent comparative research on welfare states does not even discuss diffusion as a methodological problem.

The major focus of this article is twofold. First, I contribute to the debate on the effects of globalization on nation-states by using updated statistics on social expenditure. New data are important because the effects of globalization are in flux. The direction of the trends is unclear, however, and cannot be fully comprehended at the moment. Conclusions about the rejection of a convergence of social expenditure, which many cross-national studies have identified, need to be reevaluated in light of new information. The second, more important, focus of this article is to contribute to the analytical and methodological treatment of globalization. All established studies in the field treat globalization as a functional variable without highlighting its specific character. In this article, I consider globalization as a

2. See Cerny 1994 and 1995; Strange 1996; and Ohmae 1995.
3. See Milner and Keohane 1996; and Evans 1997.
4. Garrett 1998.
5. Przeworski 1987, 42. In the now classic study, Collier and Messick (1975, 1314) claim that "it is clearly time that comparative political analysis devoted more attention to the role of diffusion in political change." This statement has been repeated since then, particularly in reference to diffusion and the impact of globalization in macro-comparative studies. Teorell and Hadenius (2004, 9) state, "To systematically assess such external diffusion or demonstration effects with large-n data is a fairly novel enterprise in the field." For reference to the lack of methodologically informed works on globalization, see Moses 2001, 1. However, there are recent studies addressing this problem to which I will refer to later in this article.
6. Goldthorpe 1997, 9.

process of international diffusion, which requires a particular analytical treatment and data analysis. Goldthorpe identifies globalization as diffusion and claims that the variable-oriented approach has the potential to deal with it by including appropriate historical and cultural variables.[7] However, in this article I go further and claim that the analysis of diffusion needs an alternative logic of analysis. This alternative logic rests on solutions to Galton's problem as applied to the impact of globalization on domestic policies. This analysis illustrates that a diffusional perspective is highly significant and potentially provides a more comprehensive understanding of the operation of modern states. While the functional impact of globalization is still ambiguous, this analysis demonstrates that the whole logic of politics may have shifted from a domestic to an international orientation in the past decade.

The disagreement over the impact of globalization on the capacity of nation states to handle domestic policy depends on the type of policy in question. While some claim that globalization "has undercut the policy capacity of all but a few areas,"[8] Mosley's review of current empirical studies of advanced capitalist democracies is more subtle: "Substantial cross-national diversity remains in areas such as government consumption spending, government transfer payments, public employment, and public taxation, but growing cross-national similarity exists in aggregate monetary and fiscal policies."[9] Goldthorpe[10] reconfirms Mosley's findings in general but stresses that globalization may have a substantial impact on public policy, particularly on economic and social policy.[11] This disagreement shows that social policy is at the center of the dispute about globalization's domestic impacts, making it a suitable basis for an analysis of the impacts of globalization.

The article is divided into four parts. First, by referring to the established hypotheses of "compensation" and "race to the bottom" of welfare state activity, I identify two distinct periods of welfare state development with a turning point in 1990. These periods give an indication that there is a break point in the development of welfare states, which requires special attention and analysis. Second, I show how cross-national data analysis, normally poorly equipped to conceptualize diffusion, can actually do so when globalization is analytically defined as a reorientation of policymakers and market actors. Third, I elaborate on this issue methodologically, by referring to the literature on the solution of Galton's problem. Fourth, after having thus laid out the tools for analyzing globalization as diffusion, I conduct an empirical analysis using the "globalization as diffusion" approach and interpret-

7. Ibid., 9–12.
8. Cerny 1995, 609.
9. Mosley 2003, 12.
10. Goldthorpe 1997, 11.
11. One could postulate that even within social policy there are substantial and important differences among various sectors of social programs (see Burgoon 2001; and Castles 2002). This aspect is important, however, it would extend the analysis of this article.

ing the results in this light. The findings indicate that there has been a sustained shift in politics and policy in highly industrialized countries.

Convergence or Divergence of State Activity?

The relationship between globalization and state activity is hotly debated in political science.[12] As with many others, I use social expenditure over time as the dependent variable, as it is a centerpiece of state activity and a "most commonly used measure of welfare state effort in past quantitative analyses."[13] Interventionary states tend to spend more than liberal states. Even if social expenditure is also dependent on other factors, it is an appropriate indicator for state activity.

There are three lines of argument in the debate on the impact of globalization on welfare state activity. These can be summarized by the terms efficiency, compensation, and convergence. Efficiency and compensation both address the disagreement on whether globalization leads to a decrease or increase of state expenditure. According to the efficiency argument, increasing international interaction leads to pressure on national economies, so national governments lower costs and cut social expenditure to stay competitive on the world market. As a consequence, there is a "race to the bottom" in social expenditure that may affect large welfare states more strongly than smaller ones.[14] The compensation hypothesis, however, comes to the opposite conclusion: increasing pressure from world markets forces national governments to provide ample social compensation to those affected by greater internationalization.[15] These state responses result in equal or even increased social expenditure.

The third hypothesis, which is related to the efficiency hypothesis but not incompatible with the compensation hypothesis,[16] postulates that different countries' domestic policies become more similar. International interaction leads to market integration, which in turn forces national political actors to assimilate their policies to those of national actors from other countries. Economists refer to the law of one price: "If identical goods and services in different economies have the same or nearly equal prices, the economists consider these economies to be closely inte-

12. This debate is reflected and summarized, for instance, in Garrett 1998; Garrett and Mitchell 2001; Huber and Stephens 2001; Burgoon 2001; and Swank 2002.

13. Huber and Stephens 2001, 66; see also Burgoon 2001. Although this is a rough measure and needs to be controlled by pressure variables (unemployment, pensioners, economic performance, etc.), alternative and more substantial indicators for welfare state activity are only available for one or a few time points, or are in the process of being developed and are not available to this study. See, for instance, Esping-Andersen 1990; Castles 2002; Hicks and Kenworthy 2003; Korpi and Palme 2003; and Allan and Scruggs 2004.

14. See Swank 2002, 32. Burgoon 2001 distinguishes different impacts of globalization according to the type of the regime of welfare states.

15. See Garrett 1998; and Rodrik 1996 and 1997.

16. Hays 2003, 82, also stresses the point that convergence is independent from the race-to-the-bottom hypothesis and may stand alone as an indicator for the impact of globalization.

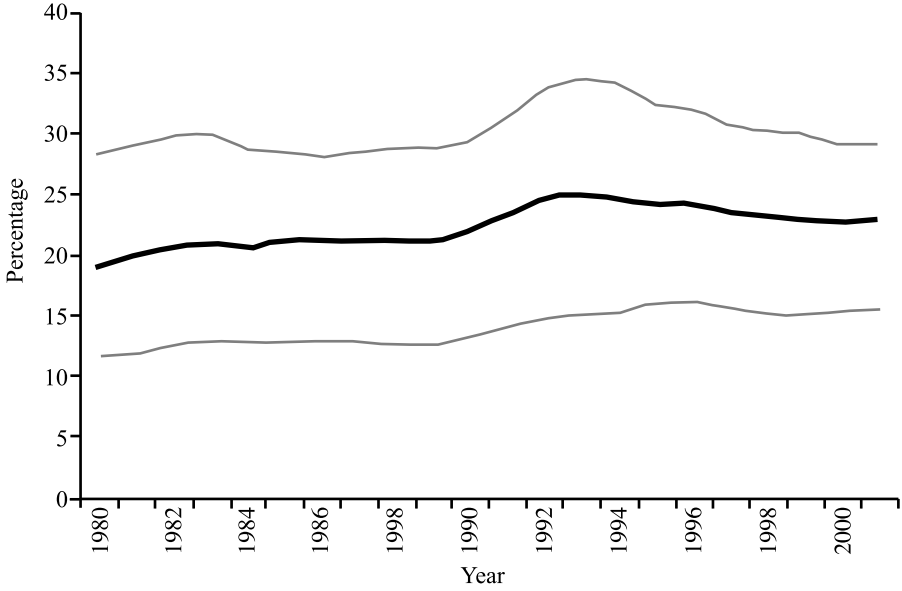
grated with each other."[17] Regarding welfare policy, this conclusion would lead one to expect that the level of social expenditure of countries within the Organization for Economic Cooperation and Development (OECD) is converging under globalization.

Most established empirical investigations do not observe a substantial decline in government spending. Along with Swank they conclude that "it is clearly the case that by most measures of social welfare spending, programmatic characteristics (e.g., social insurance replacement rates) and public-private mixes, the welfare states of advanced democracies have not been dismantled or dramatically retrenched."[18] Swank goes so far as to postulate that "the conventionally hypothesized globalization dynamics are absent. Internationalization has no systematic impact on welfare policy change."[19] Huber and Stephens also confirm this general pattern but see some indicators in specific areas of retrenchment in the second half of the 1990s.[20] However, do these statements hold true when one continues the analysis beyond the early 1990s?

The following figure shows the average social expenditure of sixteen OECD countries, and the three countries with the lowest and the highest social expenditure levels from 1980 until 2001.[21] The latter measure is an indicator for "large" or "small" welfare states and therefore indicates whether there is a convergence of expenditure levels among welfare states.[22]

As Figure 1 shows, social expenditure was relatively stable with a slight increase in the 1980s. This increase was mainly caused by the moderate increase of the countries with the lowest social expenditures. However, the picture changed fundamentally during the early 1990s. From 1990 until 1993, social expenditure increased substantially in OECD countries. In particular, the countries with the highest expenditures increased their share dramatically. During the late 1990s, social expenditure changed once again: between 1993 and 2000 the countries with the highest expenditure reduced it substantially, which led to a decrease in the OECD-wide average during this period after the substantial increase between 1990 and 1993. However, in contrast to the high-spending countries that increased their expenditure in the early 1990s but then decreased it to the level of 1990 again, the low-spending countries increased the share of social expenditure so that in 2000 the

17. Gilpin 2001, 365.
18. Swank 2002, 72; see also Garrett 1998, 76–78; and Garrett and Mitchell 2001.
19. Swank 2002, 119–20.
20. Huber and Stephens 2001, 203–21, 350–51.
21. In the latest data set, the OECD changed its calculation methods so that researchers can only trace the process back to 1980. As a consequence, I cannot reanalyze the data back to the 1960s as most other studies did. Instead, I am able to continue the analysis from the mid-1990s until 2001, the latest year with available data. However, the new OECD data set does not contain sufficient data for Austria and Norway, so the analysis treats only sixteen countries. For the country selection, see fn. 50.
22. The variation index (standard deviation/mean) shows a continuing trend toward convergence with strong periods in the early 1980s and mid-1990s. This conclusion will also be confirmed later on in the more elaborated analysis.



Note: The middle black line shows the arithmetic mean of all 16 countries. The top thin line shows the expenditure level of the three countries with the highest social expenditure level; the bottom thin line shows the expenditure level of the three countries with the lowest social expenditure level.

Source: OECD, available at <www.oecd.org/els/social/expenditure>, accessed 20 December 2005.

FIGURE 1. *Development of social expenditure as percentage of the gross domestic product between 1980 and 2001 in 16 OECD countries*

gap between the highest and lowest social spender had become smaller. In 2001 this downward trend came to an end.

How can one interpret these findings in light of the three hypotheses above? First, there are two clearly distinguishable periods: the stable 1980s, where social expenditure did not change much, and the turbulent 1990s with its volatility. The 1980s are characterized by a stable development without clear indicators for any hypotheses. Therefore, it is not surprising that all established studies whose data analyses end in the early mid-1990s conclude that there is no clear confirmation of the efficiency hypothesis, and that if globalization had any effect, it can be explained with the compensation hypothesis. The updated OECD data demonstrates, however, that such conclusions are likely the result of temporal selection bias: if data from the later 1990s is included, those conclusions may not follow.

If there has been a substantive shift in the policy and politics of industrialized countries from the 1980s to post-1990, and if globalization is a diffusion process

in which international interaction and orientation intensifies, researchers need concepts and measurements to grasp this change and interpret the empirical results in this light. If this hypothesis is correct, then one can expect a diffusion variable to have little or no effect in the 1980s, but a significant one in the 1990s. But how can one interpret globalization as diffusion in this light?

Theoretical Statement: Globalization as Reorientation

The literature concerning the impact of globalization on domestic policy is ambiguous. Functionally, it appears that economic openness led to an expansion of the welfare state in the past[23] and a retrenchment in current years.[24] Katzenstein argues that small states with open economies used to compensate for the harmful effects of international competition with social welfare benefits.[25] Why should these states not do the same today? The causal mechanism that directs economic openness must have changed, for there are certainly differences in aggregate social spending of OECD countries from one time period to another. These temporal effects that may influence the degree and impact of diffusion or may even be caused by it have not been highlighted sufficiently in the current debate on the impact of globalization on domestic policies.[26] It is not even clear whether globalization is a cause or at least associated with retrenchment.

There is currently no one theory of mechanisms of globalization: the best available are "lines of argument," as Huber and Stephens phrase it.[27] However, there are several explanations concerning mechanisms of diffusion, including coercion, economic competition, learning, and emulation.[28] Drawing on these, I attempt to combine an economic competition model with the elements of learning theory and emulation that are most suitable in the institutionally thin and nonhierarchical environment of OECD countries. In such a model, governments would intervene extensively in their economies for social and political purposes if there were little or no international competition. Factors that influence government policy in this situation are domestic: strength of different interest groups and parties, or economic and structural conditions, for instance. However, under the pressure of international competition and continuing economic openness, governments take the strategies and decisions of other governments into account. A nation will consider particu-

23. Cameron 1978.

24. See Pfaller, Gough, and Therborn 1991; and Drache 1996.

25. Katzenstein 1985. In fact, the correlation between export and import rates, on one hand, and the size of a country (measured in population), on the other, is high and significant in the 1970s, 1980s, and 1990s.

26. Pierson 1994 identifies two logics for welfare state development in his case studies: one for welfare state expansion, and another for welfare state retrenchment. The analysis here aims to identify a similar shift in policy on the aggregated level of analysis.

27. Huber and Stephens 2001, 14–17.

28. For an overview of these approaches, see Simmons, Dobbin, and Garrett forthcoming.

larly the policies of other governments to which it is closely linked economically. This is so because there is close communication (learning through communication) and dependency (control through resource dependence) between those countries.[29] As Kurzer illustrates in her qualitative study:

> In the past, governments could spend lavishly on public programs to reconcile the conflicting demands of labor and business. However, such expansionary programs produce expectations among financial asset holders that future inflation rates will drift above the rates of the country's main trading partners. This perception triggers capital outflows and foreign currency speculation. . . . Governments must reverse their policies to arrest future outflows."[30]

This conclusion supports the argument that governments redirect their orientation in light of globalization. Whereas domestic actors and conditions were the main reference point in the past, and international aspects were subordinated to domestic ones, this whole dynamic reversed in the period of increasing globalization: international factors became a major driving force for policy orientation and domestic factors became subordinated to them. The universal decline of corporatist arrangements in the OECD countries may support this view.[31] One important reference point—as indicated by Kurzer—for this process is the increasing importance of a nation's main trading partners. The efficiency of national policy is increasingly judged in comparison to the efficiency of other states. Thus domestic policymakers prioritize the policies of a country's main trading partners.

In order to specify the causal links and importance of diffusion among the OECD countries, I pursue three models through which to identify when and through which mechanisms diffusion became salient in the welfare policies of highly industrialized countries. It is important to identify the periodicity of diffusion moments to better understand diffusion processes.[32] In the first model, diffusion is the cause of

29. See, for instance, Rogers 1995, for learning through communication; and Pfeffer and Salancik 1978, for organizational adjustment under conditions of resource dependence. These approaches go well together with emulation (following leaders, epistemic communities, psychological proximity). However, because I define globalization in primarily economic terms, I may not consider "governmental learning" as much as structural adjustments (see for this distinction and concepts Levy 1994, 296–98). It is difficult to disentangle these different influences in an aggregated analysis and case studies may shed more light on the specific processes.

30. Kurzer 1993, 12. This assumption refers to rational learning and policy convergence (Jacoby 2000, 9, 24) and may meet the demand of Moses (2001, 10) that "students of globalization need to employ a method that allows us to evaluate the motives and objectives (both explicit and implicit) of policy-maker and market actors." Though if Moses denies that large-scale cross-national statistical analysis has the potential to address globalization, the procedure presented in this article may be a remedy for some of his concerns.

31. See, for instance, Siaroff 1999; and Wallerstein and Western 2002.

32. This aspect has often been neglected in research of diffusion and globalization. As the research on international diffusion develops, researchers should more systematically consider the periodicity of diffusion. Are there historical conjunctions that give raise to diffusion processes? Are diffusion processes more likely after certain events such as regime changes and wars? Which factors hamper diffusion?

the politics of retrenchment of welfare. Expansion of social expenditure has been guided by domestic (class) policy, while retrenchment is forced on the countries by external forces. In this model, diffusion is a condition for retrenchment; therefore diffusion must have happened before retrenchment processes began. A second model puts emphasis on the financial openness of countries to the world market. As expressed by Quinn and Inclán, "structural dependence might be a *consequence* of financial openness."[33] National governments become more sensitive to the policies of their trading partners after they passed a threshold of economic openness. This in turn may result in a reorientation of politics. Under the third scenario, change in policy orientation is a consequence of uncertainty and fluctuation. A well-established hypothesis in organizational theory postulates that actors emulate other actors who are familiar or with whom they share a dependency relationship in turbulent times more than in stable periods.[34]

For all three models, one may predict a policy of the "focus country" by taking as an explanatory variable the same policy in that nation's trading partners.[35] The explanatory power of such a variable should be more profound after a break point defined by retrenchment, economic openness, or turbulent development. Taking such an analytical perspective implies a fundamental change in methodology from functional to diffusional analysis. In order to elaborate on this aspect, I wish to refer to the literature that offers a solution to the Galton's problem.

Methodological Statement: Globalization as "Galton's Problem"

In methodological terms, diffusion cannot be explained by characteristics of states acting independently, but rather by the interactions between and among states. How to analyze diffusion as a process has long been considered as a methodological problem in the social sciences. The classic example is a nineteenth-century study by Tylor that examined the relationship between marriage laws and descent patterns in tribal cultures using data from a cross-cultural sample.[36] In a critique of the paper, Sir Francis Galton noted that the correlation found by Tylor might have been a result of contacts between the cultures in the sample and not findings based on truly independent cases. Galton noted: "It might be that some of the tribes had

33. Quinn and Inclán 1997, 807 (emphasis in the original).

34. See, for instance, March and Olsen 1976; Pfeffer and Salancik 1978; and DiMaggio and Powell 1983. Aldrich 1999, 206–16, stresses the importance of periodicity in the context of organizational change. See also, for the impact of international factors under conditions of uncertainty, Downs and Rocke 1995. This activity may also lead to herd behavior that may reinforce diffusion. See Banerjee 1992.

35. A "focus country" is the country whose dependent variable is to be explained. Although focus on the main trading partners can be only a proxy for empirical analysis, it can serve as an indicator for a test of the hypothesis that policy orientation has changed.

36. Tylor 1889.

derived [the traits being studied] from a common source, so that they were duplicate copies of the same original."[37] This statement had profound effects in that it obstructed, with few exceptions, quantitative comparative studies in anthropology for the next fifty years. The methodological consequences of diffusion have thus been called Galton's problem.

Most often the solution of the Galton's problem is to avoid it altogether by selecting cases that have no or limited contact with each other. However, this sampling solution is not appropriate for the study of the OECD countries.[38] First, selecting specific cases for analysis (which implies dropping others) is inappropriate because all cases in a most similar systems design—which is the most pertinent to the study of OECD countries—potentially interact with each other. Second, dropping cases to facilitate a pure functional analysis manipulates the sample so that diffusion processes are eliminated. If the effects of diffusion are what one wishes to analyze, one cannot eliminate diffusion from the research design; one needs a way to cope with diffusion rather than avoid it.

This can be done with so-called additional variable solutions. One of these, still relying on pure functional logic, includes variables that measure globalization at the level of nation states. This solution has been favored by Goldthorpe and most others in the field. Established variables with respect to economic globalization are trade openness, foreign direct investments (FDI), interest rate differentials, portfolio investment inflows, or an index of financial openness. Including a sample of these variables is an established strategy in almost all studies of welfare policy that measure the nexus between globalization and politics. If globalization is to be treated as diffusion, however, measuring only the functional impact is insufficient.

Another additional variable strategy, originally advocated by Naroll,[39] suggests pairing or linking societies according to their geographic proximity. Ross and Homer take Naroll's idea of paired cases as a starting point, but they replace geographic proximity with substantial factors such as common language and trade as criteria for pairing cases.[40]

This idea of analyzing diffusion through linking countries to each other has been forgotten for the last quarter-century but has popped up again at the center of recent research in comparative political science dealing with diffusion.[41] The basic idea

37. Ibid., 272.

38. The sampling solution aims to create a sample of cases that is free of diffusion. Geographical proximity is highly correlated with interaction and diffusion. Therefore, units in the sample should be selected from separate geographical areas. The "most different systems design," as advocated by Przeworski and Teune 1970, can also be considered a solution to "Galton's problem," but it is more suitable for research dealing with human behavior than for research dealing with "middle range theories" that are most pertinent to the study of OECD countries.

39. Naroll 1973, 984–86.

40. Ross and Homer 1976, 11.

41. I would like to thank one reviewer of a former version of this article for pointing out to me research in progress that uses the same logic of analysis as the older anthropological studies. Although

of analyzing diffusion is to link countries that are in close contact to each other by using the value of their dependent variable as an independent variable for the focus country. The first step is to identify a variable that links cases. The selection of such a variable is an analytical question: one should choose variables theoretically useful for the issue in question. Putnam used the amount of military spending of neighbor countries as an independent variable to explain military spending in the focus country, for example.[42] A similar strategy has recently been applied by Mosley,[43] who uses the U.S. long-term interest rate to explain long-term government bond rates in highly developed nations. Together with the inflation rate and current account balance, this indicator has the most pronounced and statistically significant influence. Others use competitors, geographical distance, or cultural variables to connect countries.[44]

In the context of economic globalization, trade is an appropriate variable, as it is an indicator of interaction among countries, and interaction in turn may be considered a catalyst for diffusion. In contrast to other variables such as cultural or geographical distance, which are symmetric for each case (New Zealand is as far away from Australia as Australia is from New Zealand), trade can be used to measure the relative importance of another state by its proportion of the focus country's total trade. This weights large trading partners more heavily than smaller ones and is not mutually equal: the United States may be important for Panama, but Panama is a relatively trivial trading partner for the United States. This situation can be mapped by an $N \times N$ spatial weights matrix labeled **W**. Analytically this can be considered a "spatial lag," which is in principle analogous to the temporal lag of a conventional lagged dependent variable. However, instead of lagging the value of the dependent variable one unit in time, one lags it one unit in *space*. For country i the spatial lag is:

$$Wy_i = \sum_{j=1,\ldots,N} W_{ij} * y_j$$

where **W** is the spatial weights matrix and y_j is the dependent variable for country j. This results in a matrix of $\rho\mathbf{Wy}$, where ρ (rho) is the spatial autoregressive coefficient to be estimated, **W** is an $N \times N$ weighting matrix, and **y** is an $N \times 1$ vector of values of the dependent variable. The following equation includes the dependent variable of the linked country as an independent variable:

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these current approaches are statistically much more sophisticated than the anthropological studies cited in this article, they do not refer to the intellectual root of dealing with the Galton's problem in anthropology. See, for instance, Simmons and Elkins 2004; Basinger and Hallerberg 2004; Franzese and Hays 2004; and Beck, Gleditsch, and Beardsley 2005.

42. Putnam 1967.

43. Mosley 2003, chap. 3.

44. See Basinger and Hallerberg 2004; Simmons and Elkins 2004; and Beck, Gleditsch, and Beardsley 2005.

$$y_i = \mathbf{x_i}\beta + \rho\mathbf{W_i y} + \varepsilon_i$$

The term ε is the vector of errors for all units, and $\mathbf{x}$ is the vector of nondiffusion regressors with the coefficient β. This model can easily be transformed for time-series cross-section (TSCS) analysis. However, for TSCS analysis one can also include a time variant term, making $\mathbf{W}$ to N × N × T and $\mathbf{y}$ to N × T:

$$y_{i,t} = \mathbf{x_{i,t}}\beta + \rho\mathbf{W_i y_{i,t}} + \varepsilon_{i,t}$$

One can estimate such a model in several ways.[45] The simplest one is to estimate ρ and β by ordinary least square (OLS) regression of a model that includes $\mathbf{Wy}$ together with $\mathbf{x}$ on the right side. This solution is called spatial OLS or S-OLS. Including a variable of diffusion in this way, however, inherently implies a simultaneity bias. This is because the social expenditure of country A explains that of country B, and in turn country B's social expenditure explains that of country A, and so on. Thus spatial lags are correlated with the model's error terms. Such a situation is a textbook illustration of endogeneity, however. In the case that the diffusion process is positive and/or reinforcing (which is most often the case) ρ inflates. The remedy suggested by Franzese and Hays is to ensure that the model be specified, so that other exogenous variables are also important and that external common shock is also part of the model.[46] S-OLS is most effective when diffusion is significant but not dominant. Although it is an empirical judgment, one should become suspicious if the diffusion coefficient becomes very large. At the end, one must decide whether the model suffers from omitted variable bias, in which case one neglects the interaction between cases, or whether the model has a simultaneity bias, which suppresses the significance of other variables in the model.

There are other ways to deal with this model, however. First, one may use maximum likelihood (ML) to estimate ρ and β that specifies the endogeneity of $\mathbf{Wy}$. The S-ML model, however, underestimates the strength of interdependence, particularly in small-N studies. Furthermore S-ML models can be difficult to implement.[47] Another strategy, called spatial two-stage least squares, instrumental variables (S-2SLS-IV or just S-2SLS), is to instrument for $\mathbf{Wy}$ using $\mathbf{x}$ and $\mathbf{Wx}$. This strategy works only if the $\mathbf{x_j}$ are indeed exogenous but related to $\mathbf{y_i}$. While none of the solutions is perfect, S-OLS has advantages for my analysis over the other solutions. Franzese and Hays demonstrate in their Monte Carlo statistical simulation comparison among OLS without spatial lag, S-OLS, S-ML, and S-2SLS, that S-OLS

45. See Franzese and Hays 2004. I do not consider spatial error models here because they treat spatial dependence as a nuisance that biases the interpretation of the parameter of interest. When spatial dependence itself is the focus of research, as in this article, spatial terms must be included as regressors in the model.

46. Ibid. 43; pp. 19–23 lay out the problem and the conclusions for their recommendations.

47. Both articles that deal with the issue of spatial lags in political science support this conclusion: Franzese and Hays 2004, 15; and Beck, Gleditsch, and Beardsley 2005, 29.

dramatically improves estimates in comparison to OLS without spatial lags, because simple OLS suffers from omitted variable bias. S-ML produces good estimates, but it is computationally demanding and tends to underestimate the strength of interdependence, particularly in small-N samples and when the true diffusion strength is modest. S-2SLS yields good results under two conditions: when sample size is large and when instruments are fully exogenous. Small samples, modest diffusion strength, and imperfect exogeneity of instruments, which are common in most cases in comparative politics and international political economy, favor S-OLS in comparison to S-2SLS. Although none of the models is perfect, Franzese and Hays conclude: "Simple S-OLS type approaches can perform as or nearly as well as more-sophisticated estimators under fairly wide ranges of reasonable sample-sizes and parameter levels."[48] Beck, Gleditsch, and Beardsley favor S-OLS over the more complicated S-ML model and point out that the latter is almost impossible to calculate with a lagged dependent variable.[49] A solution for using a lagged dependent variable together with a spatial lag would be a time lag for **Wy**. This makes theoretical sense in most cases, because one cannot expect that diffusion takes place instantly. Thus I apply a simple S-OLS regression with a time lag for **Wy** to estimate the diffusion strength in welfare expenditure among the OECD countries.

An Application of the Analysis of Globalization as "Galton's Problem"

Estimating the effect of globalization on national policy requires a model that includes both international factors and factors that determine domestic policy. For that I use the annual SOCIAL EXPENDITURE rates of sixteen OECD countries as the dependent variable.[50] To interpret globalization as diffusion, I base the analysis on established approaches and their variables. Conventional explanations of welfare state development address aspects of social pressure, state properties, and globalization.[51] State property has been analyzed by using resource mobilization and institutional approaches.

Resource mobilization approaches have been applied to the development of the welfare state in various ways. Some authors see resource mobilization of the work-

48. Franzese and Hays 2004, 55.

49. Beck, Gleditsch, and Beardsley 2005, 29.

50. These are the EU member states (except Spain, Portugal, Greece, Luxembourg, and Austria) along with Switzerland, United States, Canada, New Zealand, Australia, and Japan. Austria and Norway were excluded because no sufficient expenditure data is available for the 1980s. Imputing the data for these two countries, as similar investigations do, is problematic in this case because predicted values would smooth the trends for the 1980s, which in turn would bias the results in favor of my argument. However, analyses conducted with these two countries came to similar results. I excluded Spain, Portugal, Greece, Iceland, and Luxembourg because they were missing numerous data, and because they were not considered in most of the other established studies in the field.

51. Related analyses of social spending have been conducted, for instance, by Castles 1998; Huber and Stephens 2001; Garrett and Mitchell 2001; and Swank 2002.

ing class as a determining factor in the development of the welfare state.[52] If the working class is able to mobilize its resources (as measured in terms of electoral success of left parties and union density), welfare states are more extensive and are of a universalistic and egalitarian style. A variation of the resource mobilization approach is the "parties matter" hypothesis.[53] This perspective extends resource mobilization and its consequences for the welfare state to other social actors. While leftist parties promote a universalistic and egalitarian welfare state, centrist parties favor a kind of welfare state that is also strong but less universalistic and egalitarian.[54] In contrast, secularized conservative parties support a "lean" welfare state. Once in power, these parties attempt to create their respective type of welfare state.[55] The "parties matter" hypothesis uses as indicators the strength of left, centrist, and right parties, measured most often in number of cabinet seats. I referred to the "parties matters" hypothesis by using the STRENGTH OF LEFT PARTIES and STRENGTH OF CENTRIST PARTIES variables, respectively. Left (Social Democratic, Socialist, and Communist) and centrist parties (Catholic, Christian Democratic) are known to support welfare state expansion.[56] However, there is a strong dispute on their position in periods of welfare state retrenchment and economic openness. Some argue that leftist parties hinder cuts in social expenditure,[57] while others see leftist parties as promoters of lower increases and even of cuts in the 1990s.[58]

Under institutional approaches, characteristics of the polity of the state are the focus of analysis. In this view, state structures and institutions matter. Different authors emphasize different aspects of this argument: however, some focus on government structures (presidentialism versus parliamentarism) and veto points,[59] while others emphasize inclusiveness of election systems.[60] In the field of welfare state research, interest intermediation is a crucial variable. Often measured on a continuum from pluralism to neocorporatism, it appears to have a significant impact: countries with a high degree of CORPORATISM support an extensive welfare state more strongly than pluralist states[61] and they are more reluctant to cut back the services rendered by the welfare state.

One of the most sophisticated institutional approaches is Lijphart's concept of patterns of democracy.[62] Lijphart includes many key variables such as the inclusiveness of the election system, presidentialism and parliamentarism, neocorporatism, and so on, in an index that ranges from majoritarian to consensus democracy.

52. Pioneering studies of this approach can be found in Stephens 1979; and Korpi 1983. Recent examples include O'Connor and Olsen 1998; Garrett 1998; and Korpi and Palme 2003.
53. Prominent studies in this area are Hibbs 1977; Castles 1982; Garrett 1998; Schmidt 1996 and 2002; Allan and Scruggs 2004.
54. See Wilensky 1975; and van Kersbergen 1995.
55. Esping-Andersen 1990.
56. See Wilensky 1975; Esping-Andersen 1990; and van Kersbergen 1995.
57. See Garrett 1998; Huber and Stephens 2001; Korpi and Palme 2003; and Allan and Scruggs 2004.
58. Armingeon, Beyeler, and Binnema 2001.
59. See Huber, Ragin, and Stephens 1993; Schmidt 2002; and Tsebelis 2002.
60. Swank 2002.
61. Among many, see Hicks 1999; and Wilensky 2002.
62. Lijphart 1999.

Even if Lijphart states that consensus democracies rather than majoritarian democracies lead to a "kinder and gentler society" (which would imply a larger welfare state and less social cuts in times of retrenchment), there is not much evidence for this conclusion within current welfare state research.[63] Another problem is the use of his approach for empirical analysis. Lijphart's complex variable is difficult to measure over time: one is left with substitutes such as the EFFECTIVE NUMBER OF PARTIES variable.

Institutional variables are often considered to be the basic indicator of the strength of domestic factors. Some think their increasing importance indicates the low influence of globalization on domestic policies: "If anything, cross-national variations in democratic political institutions become more (not less) important in structuring domestic policy choices as we move into the contemporary era of global markets."[64]

The effects of economic openness or globalization have been included in the models in different ways. First, I employed the established variables: TRADE = (import + export)/gross domestic product (GDP) and Quinn's index of the liberalization of financial flows (FINANCIAL OPENNESS).[65] Second, I included a European Union (EU) membership dummy. EU MEMBERSHIP may foster trade and policy convergence. Scholars in the field of macro-comparative studies have largely neglected the role of the EU when analyzing the effect of international factors on domestic welfare policy.[66] This is surprising because the EU is the major agent that aims to harmonize policy conditions in Europe and a major player in promoting globalization through deregulation.[67] If globalization reduces countries' social expenditure, all the variables in this section should have a negative correlation with social expenditure. More specifically, it is at the break points that globalization's impact should go from insignificant to significant or should at least increase in a relative sense.

In order to identify the strength of diffusion, I constructed a DIFFUSION variable by linking countries in the above-described manner, according to the major trading partners of the focus country. This was done by weighting the social expenditure of the sixteen countries according to their share of the total trade (imports and exports combined).[68]

63. Armingeon, Beyeler, and Binnema 2001, 10.

64. See Swank 2002, 89; see also Armingeon, Beyeler, and Binnema 2001, 12.

65. I also experimented with data for FOREIGN DIRECT INVESTMENT and CAPITAL FLOWS, but these did not alter the substantive results when used as variables, and they confirmed the trends for trade and openness. Because there were missing data for these variables, I excluded them from the final analysis.

66. This is true for instance for Garrett 1998; Huber and Stephens 2001; and Swank 2002. For simplification I use the term European Union (EU) for all time periods and do not refer to the "European Community" before 1993.

67. See Leibfried 1992; Falkner 1998; and Hays 2003.

68. The weighting is limited to the sixteen countries under investigation because I have uninterrupted time series data for social expenditure only for these countries. Even if some countries may have stronger trade exchanges with countries outside this group, trading is strong among OECD countries. Other studies also limit the number of investigated trading partners for practical reasons. Simmons and Elkins 2004, 179, use the weighted mean of the ten most important partners. The weighted mean of the sum of the sixteen countries (which resulted in fifteen trading partners for each country in the sample since the focus country itself is excluded as trading partner) has been divided by fifteen. I

One alternative reaction to international pressure that is not grounded in policy diffusion but needs to be controlled for is external shock. Diffusion connotes international interdependence in policymaking and is distinct from common policy responses to correlated external shocks. An example is a global recession, in which government deficits increase across the OECD. This common response (deficit spending) to a common external shock (global recession) is not diffusion.[69] In order to control for common shocks, I used two strategies: first, I included the average misery index (unemployment plus inflation) for all OECD countries as ECONOMIC SHOCK variable.[70] Second, I included a complete set of year dummies for all analyses.

Finally, I included some control variables into the model. As Hicks and Zorn indicate, social expenditure is dependent on pressure.[71] Pressure has been taken into account by including the unemployment rate (UNEMPLOYMENT) and the number of elderly people (PENSION). Even if both expenditures are a target of cuts (and are variables of welfare state retrenchment) they have significant effects on social expenditure. Furthermore, these two variables are indicators for the validity of either the compensation or efficiency hypotheses. I also include ECONOMIC GROWTH[72] as a control variable. Growth is normally negatively related to social expenditure per GDP, because high growth increases the denominator of social expenditure. In accordance with common practice in the field, I use a one-year lag for all independent variables (t−1). Table 1 summarizes the variables and their hypothetical impact on social spending.

Specifying the Model

The analysis was conducted in the standard tradition of TSCS data with panel-corrected standard errors (PCSE) and a for first-order autoregression correction. I also included a full set of country and year dummies, which is particularly important when analyzing welfare states.[73] Year dummies capture uncontrolled time-

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have not pursued other ways of measuring diffusion (culture, geographic distance, etc.) because the focus of this article lies in the linking technique. Including regional dummy variables, such as the families of nations, led to severe multicollinearity that cannot be controlled for without extending the article substantially.

69. I am indebted to one of the reviewers for this aspect and example.

70. I experimented with economic growth, inflation, and unemployment individually and in combination; once for all the OECD countries and once for the most important (Group of 7 countries). The aggregated misery index—though theoretically controversial—had the clearest statistical impact. Therefore I use this index for the variable ECONOMIC SHOCK.

71. Hicks and Zorn 2003.

72. I do not use the level of GDP because this variable may be a nonstationary "unit root" (Beck 2001, 280). See also below for further discussion of this problem in the context of research on social spending.

73. For the inclusion of country and year dummies in welfare state research, see Garrett and Mitchell 2001, 162–65. The downside of including fixed-effects and year dummies is that one can underestimate the effects of relatively invariant variables such as corporatism and use many degrees of freedom for these variables.

TABLE 1. *Summary statistics, hypothetical directions, and sources for variables included in the analysis*

		Hypothetical impact (breakpoint)						
Mechanism or concepts	*Explanatory variable*	*Before*	*After*	*Mean*	*Standard deviation*	*Minimum*	*Maximum*	*Data source*
Dependent variables	SOCIAL EXPENDITURE			22.03	5.00	10.19	36.77	(1)
	ΔSOCIAL EXPENDITURE			.16	.95	−2.39	5.14	(1)
Diffusion	DIFFUSION INDEX			97.71	21.62	39.34	142.56	(1, 2)
	ΔDIFFUSION INDEX			.59	3.25	−10.49	9.96	
Globalization	TRADE	o	C +; E −	64.94	33.78	16.30	175.60	(3)
	ΔTRADE	o	C +; E −	.89	4.47	−19.20	20.00	(3)
	FINANCIAL OPENNESS	o	C +; E −	12.38	1.61	7.00	14.00	(4)
	EU MEMBERSHIP	o	C +; E −	.53	.50	0.00	1.00	(5)
Common shocks	ECONOMIC SHOCKS	+	+	9.83	1.52	5.81	12.27	(6)
	ΔECONOMIC SHOCKS	+	+	.11	1.12	−1.74	2.13	(6)
Resource mobilization	STRENGTH OF LEFT PARTIES	+	+	29.13	29.77	0.00	100.00	(7)
	STRENGTH OF CENTRIST PARTIES	+	+	23.54	26.11	0.00	100.00	(7)
Institutionalism	CORPORATISM	+	+	3.20	.98	1.63	4.81	(8)
	EFFECTIVE NUMBER OF PARTIES	+	+	4.45	1.79	2.00	10.34	(9)
	VETO POINTS	o	+	2.56	2.15	0.00	7.00	(10)
Pressure	UNEMPLOYMENT	+	C +; E −	7.34	3.41	.20	16.80	(11)
	ΔUNEMPLOYMENT	+	C +; E −	0.05	1.09	−2.3	5.00	(11)
	PENSION	+	C +; E −	13.54	2.21	8.82	17.79	(12)
	ΔPENSION	+	C +; E −	.12	.18	−.71	.68	(12)
Economic development	ECONOMIC GROWTH	−	−	2.63	2.19	−6.3	11.30	(13)
Structural break points	RETRENCHMENT			.75	.43	.00	1.00	(14)
	OPENNESS THRESHOLD			.61	.49	.00	1.00	(15)
	TURBULENCE			.50	.50	.00	1.00	(16)

Note: The hypothetical correlation are (+) when significant positive correlation is assumed, (−) when negative correlations are expected, and (o) is used for nondetermined relationships. C = according to compensation hypothesis; E = according to efficiency (race to the bottom) hypothesis. The last three variables are supposed to divide the impact of diffusion index and the globalization variables from no significant impact to significant impact. Δ symbolizes changes (first difference).

Sources: (1) OECD, available at ⟨www.oecd.org/els/social/expenditure⟩, accessed January 2005. (2) UN, available at ⟨http://unstats.un.org/unsd/comtrade/⟩, accessed November 2004. (3) OECD, *Historical Statistics*, various years; OECD, *Quarterly National Accounts*, various issues. (4) Originally from Quinn, taken from Armingeon et al. 2004. (5) European Union, available at ⟨www.europa.eu.int⟩, accessed January 2005. (6) World Bank, *World Development Indicators*, various years. (7) See (4), the parties of the United States have been excluded. (8) Siaroff 1999. (9) See (4). (10) See (4), variable "STRUCTUR." (11) See (4), variable "UNEMPL." (12) See (4). (13) OECD, *Economic Outlook*, various years. (14) Hicks and Zorn 2005. (15) See (4). (16) Author's calculations from (1); see text.

specific effects such as common shocks. I deviate only in one respect from the common standard in that I do not use a lagged dependent variable. Although a lagged dependent variable may be necessary for the best-suited model specification,[74] under conditions of heavily trending variables, it may dominate the regression and attenuate the effect of other variables.[75] Achen explains why not to include a lagged dependent variable in the model when that variable has no causal effect (as in the case of state expenditure) by pointing out that last year's budget may strongly correlate with this year's budget but did not cause this year's budget. Thus I will not include a lagged dependent variable in my models for the level of SOCIAL EXPENDITURE but use a correction for first-order autocorrelation coupled with fixed effects.[76]

Another methodological aspect that has received insufficient attention in social expenditure research is the problem of nonstationary data (unit roots). Apart from the substantial interest to test if the results are robust as much for short-term as for long-term effects, this analysis is also guided by methodological considerations. In general, analysis of welfare state spending might be plagued by nonstationary data. Although this problem has widely been ignored in the field and is hardly researched in social sciences,[77] some authors express serious concern.[78] To account for this problem, I conduct analyses with models that use the first differences of the variables.

The last methodological concern is modeling of periodicity. Based on other studies in the field I use dummy variables to identify the impact of break points.[79] These break points are: RETRENCHMENT,[80] OPENNESS THRES-

74. Beck 2001.

75. See Maddala 1999; and Achen 2000. Kittel and Winner 2005 point out that a lagged dependent variable in the model with fixed effects renders meaningless results (see also Baltagi 2001, 129–30).

76. Beck, Gleditsch, and Beardsley 2005, 32, point out that spatial lags are not so important in models that include a lagged dependent variable because that variable already contains prior spatial effects. They assume that spatial lags have a strong impact in TSCS models that do not include the lagged dependent variable in the specification. Therefore, I ran all models with a lagged dependent variable for comparison. The results for DIFFUSION were identical in terms of statistical significance in all the models except in Model 1, where the DIFFUSION variable remained insignificant. However, other variables changed quite drastically: the coefficient for UNEMPLOYMENT was always negative, and the one for impact of parties (STRENGTH OF LEFT PARTIES and STRENGTH OF CENTRIC PARTIES) was stronger in the models with a lagged dependent variable. It was also positive before and negative after the breaking point (except for RETRENCHMENT).

77. Beck (2001, 280) points out: "We know little about nonstationary TSCS data."

78. Kittel and Winner 2005. In my models, UNEMPLOYMENT, PENSION, TRADE, and, above all, the dependent variable SOCIAL EXPENDITURE are nonstationary data. I applied the test developed by Levin and Lin, and by Im, Pesaran, and Shin to identify nonstationary data; see Banerjee 1999; Levin, Lin, and Chu 2002; and Maddala and Kim 1998.

79. For a similar analysis, see Allan and Scruggs 2004, 505.

80. I have taken the break point for RETRENCHMENT from Hicks and Zorn 2003, 35. Years before the break point, that means years before the process of retrenchment began, I have coded 0 and afterwards I have coded the variable 1. The break points is 1982 for Denmark, Germany, Ireland, Italy, and the United States; 1983 for Sweden; 1984 for Belgium, France, Japan, the Netherlands, and the United Kingdom; 1985 for Australia; 1987 for Canada; 1988 for Switzerland; 1991 for New Zealand; and 1992 for Finland. On average retrenchment began in 1985 for the sixteen OECD countries.

HOLD,[81] and increasing TURBULENCE.[82] In order to identify changes before and after the break points, I let each of the substantive variables interact with the respective break dummies.[83] My general model is the following, where Σ is a shorthand for several related variables measuring the same concept and SB is a dummy variable that denotes the structural breaks:

$$\begin{aligned}\text{Social Expenditure}_{it} = {} & \beta_0 + \Sigma\beta_1\ \text{PRESSURE}_{it\text{-}1} + \Sigma\beta_2\ \text{DOMESTIC}_{it-1} \\ & + \Sigma\beta_3\ \text{INTERNATIONAL}_{it-1} + \beta_4\ \text{COMMON SHOCK}_{it-1} \\ & + \beta_5\ \text{DIFFUSION}_{it-1} + \beta_6\ \text{STRUCTURAL BREAK (SB)}_{it} \\ & + \Sigma\beta_7\ (\text{SB}) * \text{PRESSURE}_{it-1} + \Sigma\beta_8\ (\text{SB}) * \text{DOMESTIC}_{it-1} \\ & + \Sigma\beta_9\ (\text{SB}) * \text{INTERNATIONAL}_{it-1} \\ & + \beta_{10}\ (\text{SB}) * \text{COMMON SHOCK}_{it-1} \\ & + \beta_{11}\ (\text{SB}) * \text{DIFFUSION}_{it-1} + \Sigma\beta_{12}\ \text{COUNTRY DUMMIES}_{it} \\ & + \Sigma\beta_{13}\ \text{YEAR DUMMIES}_{it} + \varepsilon_{it}\end{aligned}$$

Findings and Interpretations

I present the findings of seven different models, four concerning the level of social expenditure and three dealing with the changes. Starting with the basic model (without any structural break) I then consider impacts before and after the various break

81. The break point for the OPENNESS THRESHOLD has been defined, according to Quinn 1997 data, to be from 1960 to 1993. I used the year when the score reached a level above the total mean for each country. This means that the break point was 1981 for Germany; 1983 for the Netherlands; 1989 for Canada, Denmark, New Zealand, Sweden, and the United States; 1990 for Australia, Belgium, Finland, and Italy; 1991 for France; and 1992 for Ireland and Japan. The United Kingdom and Switzerland had no break point because they reached their respective value already in 1979 and 1980. Taking the average of the OECD countries, financial openness exceeded the mean in 1988.

82. The beginning of the period of TURBULENCE has been defined by the mean of the absolute change rate in social expenditure for all sixteen countries. The mean is 0.475 for the total period from 1980 until 2001; 0.359 for 1980 until 1989; and 0.552 for 1990 until 2001. 1990 was the first year where the mean exceeded the double value of the total average (0.994). Therefore, 1990 has been taken as a break point for all the countries. Using individual break points for the countries according to the mentioned principle for RETRENCHMENT and FINANCIAL OPENNESS has less clear though comparable results. However, theoretically the collective break point is more reasonable because it captures the idea of herd behavior.

83. Modeling structural breaks and using weighted spatial lags may conflate the impact of these two concepts on SOCIAL EXPENDITURE. However, fixing one of these estimated coefficients (either by not using structural breaks or not weighting the spatial lags) would lead to similar results: estimates without structural breaks are shown in Models 1 and 5. Those with fixed spatial weights (not shown here) also do not alter the results substantially. Structural breaks and changes in the patterns of trade may be correlated. This, however, would be an interesting issue for further research.

points. Model 1 shows the significant positive impact of UNEMPLOYMENT and ECONOMIC SHOCKS. It identifies significant negative relationships for TRADE, EU MEMBERSHIP, and GROWTH. Countries with a high NUMBER OF EFFECTIVE PARTIES (an indicator for consensus democracies) have lower social expenditure rates. Parties (STRENGTH OF LEFTIST PARTIES and STRENGTH OF CENTRIC PARTIES), CORPORATISM, FINANCIAL OPENNESS, and the share of elderly (PENSION) have no significant effect. In general, the results support the findings of other studies in the field, with the exception of the low impact of the elderly. Even the significance of DIFFUSION does not depart from the findings in the few other studies that include this variable in their model specification.[84] However, if one includes a lagged dependent variable into the model (not shown here), the DIFFUSION variable is insignificant. The reason for this may be that the lagged dependent variable already contains prior spatial effects and therefore the spatial lag provides less independent information in such a model.[85] This is the only deviation in the results between our models and models with a lagged dependent variable concerning the DIFFUSION index. However, can one get a sharper picture if one takes periodicity of globalization into account?

There are some common features among all three models; for instance, the models show that consensus democracies (EFFECTIVE NUMBER OF PARTIES) changed their impact on social spending most dramatically. In all three models, the relationship was negative before and positive after the break point, meaning that consensus democracies pursue a stronger welfare state policy than majoritarian societies after the break points. This again indicates that they oppose cuts in social expenditure more vehemently than majoritarian democracies. This may be because of the fact that consensus democracies have more veto points and are therefore slower in adjusting their policies. However, it could also be that they simply pursue a more expansionist welfare policy. This interpretation of the data refers to the prebreak level (where the coefficient is significantly negative) and the postbreak effect (where it is significantly positive). However, the net effect from the EFFECTIVE NUMBER OF PARTIES is still negative.[86] Since I am mainly interested in the direction and significance of this coefficient after the breaks, I emphasize on the changes in the total effects less.

A striking finding is the impact of EU MEMBERSHIP after the break points. All three models depict a clear negative effect, meaning that EU MEMBERSHIP is associated with cuts in social spending after the break point. The impact of EU MEMBERSHIP was not specific beforehand, as postulated in the general hypothesis for the impact of international factors. All models also confirm the results of other studies about the weak impact of parties on levels of social expenditure.

84. See Basinger and Hallerberg 2004; Simmons and Elkins 2004; and Beck, Gleditsch, and Beardsley 2005.

85. For details see explanation in fn. 76.

86. For the coefficient of the EFFECTIVE NUMBER OF PARTIES, for instance, the calculation is: $-0.804 + 0.560 = -0.244$.

TABLE 2. *The impacts on social expenditure among sixteen OECD countries (1980–2001)*

	Model 1 *Without break*	*Model 2* *Retrenchment*		*Model 3* *Openness*		*Model 4* *Turbulence*	
		Before	*After*	*Before*	*After*	*Before*	*After*
GROWTH$_{t-1}$	−.102*	−.208**	.155+	−.087+	−.015	−.062	.019
	(.042)	(.072)	(.084)	(.050)	(.072)	(.046)	(.072)
UNEMPLOYMENT$_{t-1}$	.335***	.318***	.010	.117	.303**	.183**	.157+
	(.061)	(.084)	(.088)	(.082)	(.102)	(.070)	(.084)
PENSION$_{t-1}$	.178	−.192	.396**	−.090	.068	.105	−.010
	(.112)	(.169)	(.139)	(.185)	(.153)	(.173)	(.118)
STRENGTH OF LEFTIST PARTIES$_{t-1}$	−.003	−.011+	.006	−.001	−.004	.005	−.010**
	(.003)	(.006)	(.006)	(.004)	(.004)	(.004)	(.004)
STRENGTH OF CENTRIC PARTIES$_{t-1}$	.002	−.013	.023*	.006	.002	.001	.007
	(.005)	(.012)	(.011)	(.009)	(.010)	(.007)	(.006)
CORPORATISM$_{t-1}$	−.613	.29.	−.869**	−.214	−.004	−.451	−.138
	(.487)	(.630)	(.312)	(.670)	(.341)	(.545)	(.200)
EFFECTIVE NUMBER OF PARTIES$_{t-1}$	−.272+	−.804***	.560**	−.766***	.624***	−.607***	.521**
	(.156)	(.221)	(.192)	(.185)	(.168)	(.182)	(.174)
TRADE$_{t-1}$	−.057***	−.043*	−.021	−.019	−.043***	−.023	−.057***
	(.015)	(.020)	(.015)	(.016)	(.010)	(.016)	(.012)
OPENNESS$_{t-1}$	−.122	.193	−.405***	.002	−.270	−.160	.548
	(.102)	(.126)	(.103)	(.153)	(.180)	(.117)	(.483)
EU-MEMBERSHIP$_{t-1}$	−1.945*	−.467	−1.919**	−.258	−2.613***	.279	−2.853***
	(.835)	(1.040)	(.669)	(.905)	(.568)	(.787)	(.459)
ECONOMIC SHOCKS$_{t-1}$	2.541***	2.807***	−.040	3.073***	−.299+	1.548***	−.513**
	(.373)	(.376)	(.185)	(.417)	(.162)	(.239)	(.165)
DIFFUSION$_{t-1}$	.058*	.035	.014	.013	.045*	−.029	.090***
	(.028)	(.030)	(.020)	(.030)	(.021)	(.029)	(.022)
BREAK DUMMY		.039		.275		(dropped)	
		(.299)		(.332)			
R^2	0.922	0.937		0.938		0.940	
N	336	336		336		336	

Note: Regressions are ordinary least squares (OLS) with panel-corrected standard errors (PCSE) for time-series cross-section (TSCS) analysis. Equations are first-order autoregressive (Beck and Katz 1995). First line is the nonstandardized coefficient; corrected standard errors are in parentheses. Intercept has been calculated but is suppressed in the table. All models include country and year dummies (not shown). Level of significance: + = .1 and lower; * = .05 and lower; ** = .01 and lower; *** = .001 and lower.

Concerning DIFFUSION, the retrenchment model deviates from the other two: the DIFFUSION variable is insignificant both before and after the beginning of the retrenchment process. The retrenchment model also differs from the other two models in that domestic factors remain and become more important than international factors after the break point. This indicates that the first wave of retrenchment in welfare states is not caused by globalization. There are clear indicators that retrenchment was mainly initiated by domestic issues (UNEMPLOYMENT, PENSION, GROWTH (negative)) as suggested by Hicks and Zorn.[87]

The other two models are quite similar in their results. Both show clearly that DIFFUSION was insignificant before the break point and significant afterward. TRADE became negatively significant after the break point in both models. This together with the significant negative impact of EU MEMBERSHIP shows the increasing importance of international embeddedness for cuts in welfare spending. Considering the relative impact of each variable on the level of social expenditure by comparing the standardized coefficients reveals that the DIFFUSION variable has the highest (turbulence model) and second highest impact (openness model) and TRADE has the third and second highest.[88] ECONOMIC SHOCK has the highest impact in Model 3 but its relative strength is smaller in Model 4. The reverse is true for EU MEMBERSHIP, which has the lowest impact of all significant indicators in Model 3 but comes forth in Model 4. UNEMPLOYMENT takes the fourth (Model 3) and third (Model 4) highest place and shows that pressure is still substantially responsible for the level of social expenditure in the OECD countries. The institutional variable EFFECTIVE NUMBER OF PARTIES changed direction of signs but is around ten times less influential than TRADE and the DIFFUSION variable.

Both models also indicate a change in the impact of EXTERNAL SHOCKS. Before the break point, increasing unemployment and inflation in the OECD countries resulted in increased spending; afterward the impact of ECONOMIC SHOCKS decreased significantly. However, even if it lost about 10 percent of its effect in Model 3 and around one third in Model 4, the overall impact of ECONOMIC SHOCKS is still positive. Even though national UNEMPLOYMENT rates and social spending are positively correlated, which documents the prevailing pressure of UNEMPLOYMENT on social spending levels, the significantly reduced impact of the international variables (TRADE, ECONOMIC SHOCK, EU MEMBERSHIP) supports the efficiency hypothesis.

In contrast to Model 2, Models 3 and 4 are dominated by the increasing negative effect of the international variables on social expenditures. DIFFUSION becomes

87. Hicks and Zorn's (2003) indicator for the second retrenchment phase, however, reaches different results. The findings of that model come close to my two models in that international variables, including DIFFUSION (but also FINANCIAL OPENNESS) become significant after the second wave of retrenchment.

88. The strength of the DIFFUSION variable indicates that one does not have to worry that this variable is inflated. In addition, the included exogenous variables have substantial explanatory power in the model. This is particularly true for the COMMON SHOCK variable.

a significant variable after the break points. Pressure on the welfare state (UNEMPLOYMENT) still leads to higher social spending levels. Partisan politics (STRENGTH OF LEFTIST PARTIES and STRENGTH OF CENTRIC PARTIES) has only limited long-term effects, and the impact of institutional variables (EFFECTIVE NUMBERS OF PARTIES) on SOCIAL EXPENDITURE changes drastically. But what are the short-term effects of these variables on social expenditure?

In order to analyze this question, I consider the changes in social expenditure before and after the breaking points in the two models where the DIFFUSION variable increased in significance. The models for change are identical to the level models except for the fact that I included a lagged dependent variable (ΔSOCIAL EXPENDITURE$_{t-1}$) into the model[89] and that the EFFECTIVE NUMBER OF PARTIES variable was replaced by the number of VETO POINTS. I also use first differences for all variables that change significantly from one year to the other.[90]

The results of the basic Model 5 for the differences vary from the level model in that only two variables are significant: the lagged changes of social expenditure (ΔSOCIAL EXPENDITURE$_{t-1}$) and COMMON SHOCKS. In contrast to the basic level model, the DIFFUSION variable is insignificant. However, when one splits the data according to the two break points for diffusion, the picture changes completely. Again international factors appear to have become much more important after economic openness reached a threshold point and social spending became turbulent. This development confirms the impact of one key variable: DIFFUSION was insignificant before the break points but became highly significant thereafter. Therefore, results concerning the increasing impact of diffusion are statistically robust.

A comparison of the standardized coefficients shows clearly the significant impact of the DIFFUSION variable: in Models 6 and 7 DIFFUSION is the variable with the highest impact. Another international variable, TRADE, is third in both models. In contrast to the level models, the first difference models show that pressure has a significant but negative correlation with changes of social expenditure after the respective break points. This time the impact of the amount of elderly (PENSION) is particularly high (second in both models). The relative strength of impact of domestic variables (CORPORATISM, VETO POINTS, and, above all, party effects) is considerably lower. In Model 6 one might be concerned that the DIFFUSION variable is inflated. The standardized coefficient is almost twice as high as the second largest

89. The use of a lagged dependent variable in a first difference model is appropriate because it does not dominate the model and is an indicator for path dependency and convergence.

90. Considering changes in social expenditure makes it feasible to include the concept of veto points. The theoretically superior data set of veto players by Tsebelis 2002 does not cover all the years for some countries of interest here. In addition, it does not contain information about the United States at all. However, an analysis with the data from Tsebelis reaches similar conclusions. The model of first difference also differs from the models of level in that I did not include a set of country dummies. While the F-test for year dummies indicates the significance of year effects, this was not true for the set of country dummies.

TABLE 3. *The impacts on changes in social expenditure among sixteen OECD countries (1980–2001)*

Variables	*Model 5 Without break*	*Model 6 Openness*		*Model 7 Turbulence*	
		Before	*After*	*Before*	*After*
ΔSOCIAL EXPENDITURE$_{t-1}$	.232**	.206*	−.037**	.162+	−.040**
	(.095)	(.085)	(.014)	(.090)	(.015)
GROWTH$_{t-1}$	−.062	−.019	−.091	.004	−.121+
	(.038)	(.054)	(.059)	(.057)	(.070)
ΔUNEMPLOYMENT$_{t-1}$	−.045	.123	−.245**	.051	−.109
	(.078)	(.080)	(.076)	(.076)	(.067)
ΔPENSION$_{t-1}$	.065	.145	−.303**	.087	−.361**
	(.215)	(.233)	(.098)	(.245)	(.138)
STRENGTH OF LEFT PARTIES$_{t-1}$	.001	.004*	−.005**	.004**	−.006**
	(.001)	(.002)	(.002)	(.002)	(.002)
STRENGTH OF CENTRIC PARTIES$_{t-1}$	.002	.005	−.007	.005*	−.007*
	(.002)	(.003)	(.004)	(.002)	(.003)
CORPORATISM$_{t-1}$	−.029	−.094	.217*	−.091	.213*
	(.057)	(.095)	(.095)	(.075)	(.099)
VETO POINTS$_{t-1}$	.033	−.021	.080+	.003	.065+
	(.024)	(.036)	(.046)	(.031)	(.038)
ΔTRADE$_{t-1}$	−.023*	−.001	−.028**	−.006	−.032***
	(.013)	(.013)	(.008)	(.012)	(.008)
FINANCIAL OPENNESS$_{t-1}$	−.069	−.003	−.006	−.038	.544
	(.043)	(.055)	(.047)	(.042)	(.433)
EU-MEMBERSHIP$_{t-1}$	−.123	−.227	.299	−.223	.395*
	(.124)	(.209)	(.285)	(.144)	(.191)
ΔECONOMIC SHOCKS$_{t-1}$	−.152***	−.081	−.048	−.214	.076
	(.010)	(.080)	(.086)	(.186)	(.181)
ΔDIFFUSION$_{t-1}$	.013	−.036	.080***	−.029	.076***
	(.021)	(.024)	(.020)	(.025)	(.022)
BREAK DUMMY	—	.047	—	−.604	—
		(.240)		(.869)	
R^2	0.458	0.537		0.522	
N	320	320		320	

Note: Δ = First difference. All models include year dummies (not shown) but no country dummies.

coefficient.[91] However, numerous exogenous variables are also significant and also have strong explanatory power in this model, so the results are probably trustworthy. One is left with reservations about the validity of the findings in Model 6 as regards simultaneity bias, however, because there are no clear tests for simultaneity.

Other results are also worth commenting on: short-term effects of previous social expenditure change signs before and after the breaks. That means there was a con-

91. In Model 7, the standardized diffusion coefficient is one-third higher than the second highest standardized coefficient. That means the diffusion variable is higher in the first difference models than in the level models. This is probably due to the fact that first difference models generally have a lower R^2 than level models, and that the common shocks are less perfectly modeled than in the models of levels.

TABLE 4. *Summary of main empirical results*

	Retrenchment		*Economic openness*				*Turbulence*			
	Level		*Level*		*Change*		*Level*		*Change*	
International factors										
TRADE	−	÷	++	E	++	E	++	E	++	E
FINANCIAL OPENNESS	++	E	o	E	o	÷	o	÷	o	÷
EU MEMBERSHIP	+	E	+	E	o	÷	+	E	+	C
COMMON SHOCKS	−		−	E	o	÷	o	E	o	÷
DIFFUSION	o		++		++		++		++	
Domestic factors										
CORPORATISM	++		o		+		o		+	
INSTITUTIONALISMS[1]	o		o		+		o		+	
PARTIES	o		o			o		+		o
Pressure[2]	o	C	+	C	++	E	o	(C)	++	E

Note: + = increasing significance; ++ = significance and dominant impact (among three strongest predictors); − = diminishing significance; o = no difference in significance. E = direction of change supports the efficiency (race to the bottom) hypothesis; C = direction of change supports compensation hypothesis; ÷ no clear impact. E and C apply to trade, openness, EU-membership, and common shock.
[1]Effective number of parties or veto points.
[2]Unemployment and elderly.

tinuing expansion of the welfare state before the break points and a continuing reversal trend in social expenditure thereafter. The net impact, however, was still positive. In this respect, the two break points are real watersheds in the development of the welfare state. This result can also be interpreted to show a trend of path dependency before the break point and one of convergence afterward.[92] The pressure variables also changed signs and are significantly negative after the break points. All these findings strongly support the efficiency hypothesis: pressure no longer leads to an increase of social expenditure after the structural breaks but instead is associated with a decrease, which means that social contributions must have been severely cut. This conclusion is even more dramatic because those decreases led to a reversal of direction of the total impacts (change of signs).

The analysis of short-term effects reveals another interesting finding. Strikingly, the impact of parties that once supported welfare state spending is reversed; after the turning points these parties are negatively associated with social spending. This result is clearly significant for leftist parties and is only slightly below the level of significance for centrist parties in Model 6. Though the party effects

92. For a similar interpretation of a lagged dependent variable in a first difference model, see also Allan and Scruggs 2004, 507. The differences in significant positive and negative results before and after the break points prevail when we remove all variables from the analysis except the lagged dependent variable, which means that there is an unconditional path dependency before the break point and unconditional convergence after the break point.

are small in comparison to all other effects, this finding sheds some doubts on the results of recent studies that conclude that left parties do not cut welfare spending.[93]

Not surprisingly, CORPORATISM and VETO POINTS appear to hinder cuts in social expenditure. Many VETO POINTS associated with consensus democracies obstruct speedy welfare retrenchments. However, their relative impact, though more important than party effects, is clearly less than that of international factors. That said, it is surprising that common ECOMIMIC SHOCKS have no significant impacts in the Models 6 and 7, though they were a dominant factor in Model 5.[94] In stark contrast to the level models, the EU variable has no short-term effects on models of changes to social spending. Table 4 gives an overview of the most important findings of the empirical analysis in terms of the changes in different variables' impacts and reveals to what degree they support the efficiency and compensation hypotheses, respectively.

Conclusions

The results of this study show that international factors have become an increasingly important influence on domestic policy over time in the industrialized world. This is true no matter how one measures globalization, whether in terms of trade intensity or institutional factors such as EU membership. Using diffusion as a proxy for globalization processes, the empirical analysis confirms globalization's influence on politics and policies. This finding in turn carries with it serious methodological implications.

An appropriate analysis of the impact of globalization must take into account causal relationships. Functional analysis is the dominant strategy of most macro cross-national studies in comparative politics, but it is not the only game in town. This has been known at least since Galton's objections to Tylor's study, but unfortunately comparativists ignored the role of diffusion too often. The impact of diffusion ought to be an important factor, particularly for any analysis performed in the tradition of the most similar systems design.

Previous analyses of globalization have concentrated on its functional consequences and have produced ambiguous findings. Treating globalization as a form of diffusion shows that it has increased significantly during the past two decades. This in turn illustrates a new logic of politics of industrialized nations: international, not domestic, imperatives increasingly determine social policy. When one evaluates the impacts of three potential break points, it becomes clear that retrenchment, which took place before the mid-1980s for most of the OECD countries, is not correlated with diffusion and globalization. The other two break points come to rather similar conclusions: they indicate that diffusion (and therefore globaliza-

93. Allan and Scruggs 2004, 505–7. However, their conclusions refer to more specific aspects of welfare policy and might not be comparable to general social spending changes.

94. This could be explained by the fact that the DIFFUSION variable takes its explanatory power from the COMMON SHOCK variable, as described by Franzese and Hays 2004, 43.

tion) became relevant after the respective break points. However, one cannot be sure whether increasing economic openness or turbulences in social spending are responsible for policy changes. It could also be that domestic retrenchment policies had a long-term effect and interacted with increasing openness that in turn led to turbulent social spending. As mentioned above, statistical analysis cannot answer these questions but gives hints for further analysis. Even though my results cannot offer an unequivocal answer regarding the character of the break, the analysis shows that something happened in the late 1980s that altered policies in highly industrialized countries. This change is most likely related to a reorientation of policy priorities from domestic toward international concerns.[95] Even if the modeling of the break points is not perfect, there is clear evidence that major changes in the second half of the 1980s have had a continuing effect into the new millennium. Altogether, the conclusions of this article challenge claims that globalization is unimportant for domestic politics: it shows, rather, that globalization has a systematic impact on domestic policy.[96]

The findings of this article also challenge the claim that domestic politics have no impact on policies anymore. The situation is far from postulating the end of the nation-state or the idea that policy is only created at a level beyond or above the nation-state. An entirely functional analysis is blind to the impact of diffusion, but an analysis that postulates the primacy of diffusion is unable to identify and specify functional impacts. Only a combined analysis of function and diffusion is able to identify the relationship and relevance of both factors.[97]

What kind of change do increasing importance of international factors and diffusion indicate? The findings of this article clearly confirm a trend in social expenditure that favors the "race to the bottom" hypothesis. The concept of diffusion, however, merely implies that individual governments became similar to each other in their social spending. It does not imply a universal decline of the welfare state. In principle, diffusion can also work in the other direction.[98] However, the increas-

95. An analysis of party manifesto data—in Budge et al. 2001—shows that political parties increased their international orientation and that a neoliberal discourse gained importance during the 1980s and 1990s. These indicators support the assumption that a reorientation has taken place in the OECD countries. However, the causal relationships are complicated, and future research is needed to shed more light on this process.

96. This conclusion stands in contrast to Swank's claim (see fn. 19) that there is no systematic impact of globalization on welfare policy change. However, the systematic impact is diffusional rather than functional.

97. From a methodological point of view it must be emphasized that many aspects need further attention, particularly the way of estimating tolerable amounts of simultaneity bias and the modeling of common shocks in first difference models. While TSCS analysis of level data is saturated, implying lower risk of simultaneity bias, this is not so for first difference models. The latter, however, are appropriate to many research questions in social sciences with trending variables to avoid the problems of nonstationarity.

98. Factors that may influence the direction of welfare state development are beyond the scope of this article. Public discourse and the strength of political ideologies, for instance, are influential in addition to structural changes. In the time after the break points, a neoliberal discourse replaced a stronger Keynesian discourse of the postwar period that even affected left parties. See, for example, Hall 1993; and Jahn and Henn 2000.

ing importance of diffusion for domestic politics and policies implies that highly industrialized countries become more alike in their policies and outcomes. That means that globalization is an amplifier for dominant strategies and processes in the OECD countries.

Since internationalization is expected to increase in the future, comparative studies should include a measure of the degree of diffusion as a standard; otherwise, those studies suffer under a severe omitted variable bias. This article is a contribution to such future analyses and hopes to stimulate further debate. Considering globalization as "Galton's problem" and using the available solutions for it may be a way of improving research skills concerning the analysis of diffusion and may help researchers to better understand development processes in modern societies.

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