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Marius R. Busemeyer

Social Democrats and Education Spending

A Refined Perspective on Supply-Side Strategies

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Marius R. Busemeyer is researcher at the Max Planck Institute for the Study of Societies.

busemeyer@mpifg.de

Abstract

This paper builds on the arguments developed by Carles Boix (1997, 1998) about partisan differences in supply-side oriented strategies. The original Boix model argues that social democrats in government prefer to increase public investment in human capital formation, while conservatives are opposed to this. The model is presented and subjected to a comprehensive empirical test. It is argued that it is necessary to determine the dynamics of spending in each educational sector separately. In addition, economic internationalization is not treated as a background variable as with Boix (1997, 1998), but fully included in the analysis. Finally, instead of relying on a simple dichotomy of leftist and rightist parties, the impact of government participation on the part of social democrats, Christian democrats and conservatives is analysed. The empirical test supports the Boix model only on a very general level. Social democrats are found for the most part to increase spending on higher education, which is at odds with the predictions of the Boix model and partisan theory in general. The paper concludes with a discussion of the consequence of the findings for the development of partisan theory.

Zusammenfassung

Der Ausgangspunkt des Papiers ist das von Carles Boix (1997, 1998) vorgelegte Modell zur Erklärung von parteipolitischen Unterschieden bei angebotsorientierten Wirtschaftspolitiken. Im ursprünglichen Boix-Modell wird postuliert, dass sozialdemokratische Regierungsparteien die öffentlichen Ausgaben für Bildung erhöhen, während konservative Regierungsparteien das Gegenteil tun. Dieses Modell wird im vorliegenden Papier einer umfassenderen empirischen Untersuchung unterzogen. Insbesondere wird gezeigt, dass es notwendig ist, die Ausgabendynamik in den einzelnen Bildungssektoren separat zu untersuchen. Des Weiteren wird ökonomische Internationalisierung nicht, wie bei Boix, als diffuse Hintergrundvariable behandelt, sondern in die Untersuchung einbezogen. Schließlich wird nicht nur der Einfluss von Sozialdemokraten und Konservativen, sondern auch der der Christdemokraten auf Bildungsausgaben untersucht. Die zentralen Befunde sind, dass das Boix-Modell auf einem allgemeinen Niveau durchaus Unterstützung erfährt. Es zeigt sich aber auch, dass Sozialdemokraten, zumindest in den 1990er Jahren, vor allem die öffentlichen Ausgaben für den Hochschulsektor erhöht haben. Dieser Befund passt nicht zu den Vorhersagen des Boix-Modells. Daher schließt das Papier mit einer Diskussion dieses Befundes für die Weiterentwicklung des Boix-Modells und der Parteiendifferenzthese im Allgemeinen.

Contents

1   Introduction

Almost ten years ago, Carles Boix (1997, 1998)[1] made a significant contribution to the study of partisan politics in a globalized economy. His insight (building on Garrett/ Lange 1991 and others) was that, in an era of economic internationalization, partisan differences in the choice of economic strategies will manifest themselves primarily as supply-side strategies rather than on the demand side. Besides his analysis of public investment in fixed capital formation (such as infrastructure), the public business sector and tax policy, Boix looked at the dynamics of education spending, i.e. public investment in human capital. In general, the study of education policy, and education spending in particular, has received only scant attention by mainstream political science (cf. Reuter 2002). Notable exceptions are the works by Francis G. Castles (1989, 1998), Manfred G. Schmidt and his research group (Schmidt 2002, 2003a, 2004, 2006; Schmidt et al. 2006; Busemeyer 2006a, b; Nikolai 2006; Wolf 2006; Zohlnhöfer 2006) and a few others (Verner 1979; Hega/Hokenmaier 2002; Hokenmaier 2002). Most of these studies pursue a generic approach to identifying the determinants of education expenditure in advanced OECD democracies. What distinguishes Boix's analysis from these studies is his specific focus on the importance of partisan variables and the way he perceives education policy as one element of a more encompassing social democratic supply-side strategy.

This paper takes the Boix model as its point of departure. As will be argued in more detail below, one weakness in the work of Boix is the relatively limited empirical treatment of his hypotheses with regard to education spending – also a consequence of data limitations at that time. In addition, this paper will argue that the Boix model can and needs to be extended and refined at certain points. For example, Boix looked at the impact of partisan variables on *total* education spending. Yet this paper will argue that partisan strategies have a stronger impact on *post-secondary* or more specifically *higher education* spending. It will be shown that social democratic government participation is positively associated with increased public spending on higher education while conservative government participation has a slightly negative impact. Furthermore, it will be demonstrated that social democrats have indeed increased investment in primary and secondary education as predicted by the Boix model, but that this effect is mainly confined to open economies, while the new zeal for higher education spending is a more general social democratic strategy and more important in the recent period. Also, it is important to differentiate the impact of parties on education spending with regard to party family and educational sectors. Hence, the politics of education spending are more complex than the simple version of the Boix model suggests.

The paper proceeds as follows. The next section presents and discusses the Boix model. This model is then put to an empirical test in the subsequent section. The last section

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1   The model presented in Boix (1997) is virtually the same as the one presented in Boix (1998). To avoid confusion, the discussion focuses on Boix (1998).

concludes with a brief summary and a more comprehensive discussion of the implications of the findings for the development of partisan theory.

2   The Boix model

The major contribution of Boix was to look at differences in partisan strategies with regard to supply-side oriented economic policies. In this, he followed Garrett/Lange (1991), who had raised the issue before, although with less empirical rigor than Boix. Before we discuss the two supply-side strategies identified by Boix, it is important to realize that the whole model rests on one background condition and one assumption.

The background condition is the transformation of the economic environment. Processes of economic liberalization and internationalization are exogenous factors that impact on the availability of strategies of macroeconomic policy (Boix 1998: 2–3). Keynesian demand-management loses its effectiveness because fiscal policy stimuli in one economy will dissolve across borders. Loose monetary policies are hindered by independent central banks and/or the Economic and Monetary Union of the EU. Consequently, overall economic performance depends more strongly on supply-side factors (human and fixed capital) (Boix 1998: 3). Boix's argument is that economic internationalization may have limited the options for partisan economic policy on the demand side, but it has left untouched the possibility of adopting different strategies on the supply side (Boix 1998: 39).[2]

Economic internationalization has a second consequence: it widens the distribution of skills and income between the low and the high-skilled.[3] Enhanced economic competition between industrialized and newly industrialized countries increases the demand for highly skilled labor and depresses demand for low-skilled labor in advanced economies (see also Crouch/Finegold/Sako 1999). According to Boix, there are only two effective remedies to the problem: Either the general skill level of the population is raised sufficiently so that productivity increases can compensate for higher wage costs or the social wage is reduced significantly so that low-skilled people are forced into employment (Boix 1998: 30, 32). The contours of different partisan strategies should become obvious at this point.

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2   From a different perspective, it could be argued that internationalization has had more serious consequences for social democrats, because before the advent of internationalization they preferred to rely more on demand-side economic policies. So, in a way, social democrats might not willingly, but reluctantly, switch to supply-side oriented policies.

3   In fact, this entails another assumption, namely that income distribution is determined by the distribution of skills (Boix 1998: 18).

Besides the background condition of economic internationalization, the Boix model crucially depends on another assumption that is provided in a less explicit way. This assumption is concerned with partisan preferences which, for Boix, have to be seen as a "blend of interests (i.e., the redistributive consequences of economic policies) and ideas (here mostly in the sense of instrumental economic models)" (Boix 1998: 4). Parties (social democrats and conservatives) differ on strategies because they have different perceptions about inequality: Social democrats prefer public intervention "to modify market outcomes and redistribute wealth to favor the least advantaged sectors and advance equality in general," while conservatives believe in the power of markets and want to maximize individual liberties (Boix 1998: 4).[4] But, and this is the aforementioned assumption, when in government both parties prefer policies that maximize economic growth (Boix 1998: 4). Garrett and Lange (1991: 544) make the same assumption, citing a string of literature dealing with the negative impact of inferior economic outcomes on the prospects of re-election. This assumption is necessary for Boix to be able to argue why social democrats in government prefer supply-side strategies to policies of direct redistribution: "Public transfers can only be sustained, however, if they do not threaten growth, or they reduce growth rates only marginally" (Boix 1998: 6). Without the assumption mentioned above, it would be hard to argue why social democrats would be willing to invest in infrastructure and education (which might pay off in the long term) when their constituencies clamor for more social spending. For further back-up, Boix claims that social democrats only adopted Keynesian demand-management policies when they were convinced that these policies would solve the dilemma between economic growth and redistribution (Boix 1998: 7).[5]

Given these initial remarks about assumptions and background conditions, Boix's argument about partisan supply-side strategies should be discussed in full. As pointed out above, for Boix, partisan differences are a consequence of differences in interests and ideas. But in his model the decisive factor is interests – how economic and redistributive policies affect the core constituencies of parties.[6] Although Boix is aware of the fact that party politics, and social democratic electoral strategies in particular, are more complex than a simple left–right dichotomy suggests (cf. Kitschelt 1993), he builds his model on a "naïve" conception of class-oriented politics, with lower classes voting for

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4   In this, conservatives are not opposed to inequality *per se*. They just think that it should not be achieved through the authority of the state, but through the divine power of markets (Boix 1998: 33–34).

5   The assumption that social democrats in government have equally strong preferences to maximize growth as conservatives is a strong one. However, it is possible to loosen the assumption without "throwing the baby out with the bathwater": In an era where (social democratic) welfare states have "grown to limits" (Flora 1986), social democrats are faced with a different electoral environment demanding tax cuts, employment and growth: "For many political parties the encouragement of education seems to provide a means of ridding themselves of certain welfare commitments while at the same time offering government some opportunities for constructive and positive action." (Crouch/Finegold/Sako 1999: 5)

6   The idea of a connection between partisan differences as a result of differences in electoral constituencies goes back to Hibbs (1977, 1987).

social democrats and upper classes voting for conservatives (Boix 1998: 40). Given the assumptions outlined above, Boix identifies two possible strategies:

First, the social democratic strategy is focussed on raising the general skill level (Boix 1998: 30). An enhanced skill level increases the productivity of workers and decreases the risk of unemployment and rising inequality. Because workers at the lower end of the distribution of skills and income are more threatened by the consequences of economic liberalization, the upskilling of those with less of an initial skill endowment is more important (ibid.: 30). The preference for investments in the low-skilled will thus also contribute to an overall decrease in inequality. To be able to compete in the electoral arena, social democrats need to build "a broad electoral coalition that will include blue-collar workers (their most natural constituency) and parts of the middle class" (ibid.: 42). This cross-class coalition puts an effective limit on the tax rate that can be raised: it must not be too high to prevent the alienation of the middle class. Furthermore, social democratic governments face short-term oriented calls for social spending from the working class, which they need to defy for the sake of long-term oriented investment in human capital formation (ibid.: 45).[7]

Second, the conservative strategy is based on the belief in the superior performance of markets. Conservatives in government prefer to lower the social wage in order to entice people to work (Boix 1998: 32). The immediate consequence of this is an increase in inequality, but a decrease in unemployment (ibid.: 32). Following a classical Beckerian approach, individual workers will invest in the skills they deem necessary, which will eventually lead to a superior economic performance (ibid.: 33–34). Similar to the position of social democrats in the electoral arena, conservatives have to win over the middle class. This places them in the dilemma of choosing between tax cuts and demands for social spending: cut-backs in taxation and spending are needed to set free the forces of the markets, but the middle class dislikes retrenchment that goes too far (ibid.: 46).

In sum, the Boix model expects the government participation of social democrats to be associated with higher public spending on education, while conservatives in government are expected to lower spending. The following section will put this hypothesis to an empirical test.

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7   At this point, the strength of the assumption that social democrats care about growth becomes obvious. If they did not care about growth and if they did not believe in social spending's depressing impact on growth, they would be neither willing nor able to withstand the short-term demands of the working class.

3 Empirical analysis

Set-up of the test

Again, because of data constraints, the empirical testing of the model in Boix was limited to cross-national analysis of the volume of spending in 1970, 1979–80 and 1988–89 as well as cross-sectional studies of the change in spending. Since then, data availability has improved thanks to the OECD's *Education at a Glance* series,[8] so that it is now possible to test the Boix model more comprehensively in a pooled time-series framework. Besides extending the frame of analysis from a purely cross-sectional to a pooled time-series framework, the analysis will extend the test of the Boix model in relation to the following aspects:

Total education spending vs. sectoral education spending

Boix uses total public education spending as a percentage of GDP as a dependent variable. However, it could be argued that the different sectors of the education system are not all equally important in the pursuit of left supply-side strategies. Boix (1998: 37) himself makes the point that "generic assets" imparted in the general school system are more important than firm-based training or other types of post-secondary education. Internationally comparable data on spending on firm-based training is hard to come by, but the *Education at a Glance* database contains data on public spending on tertiary education as well as on primary and secondary education, albeit only since the early 1990s. Following Boix, it would be expected that the impact on education spending of left parties in government is stronger in the case of primary, secondary and post-secondary non-tertiary spending than in the case of higher education.

Partisan families

The Boix model is about differences in partisan strategies, but in the empirical analysis Boix only uses government participation of the left as independent variable. This suggests that government participation of leftist and rightist parties can be seen as perfectly correlated, because there are only these two types of parties. In contrast, a significant body of scholarship has argued that the picture is more complex than this. Without dwelling on the issue, it is well-known that conservatives and Christian democrats, both party families of the right according to Boix, have very different attitudes towards the welfare state (Van Kersbergen 1995) and that it is therefore necessary to develop a multiparty family approach instead of a dichotomous one (Schmidt 1996, 2003b). Therefore, Boix's argument should be mainly understood as a contribution towards better under-

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8   Problems of comparability of spending data still persist (Schmidt et al. 2006: 17), but the OECD's data collection is currently the best available.

standing the impact of the government participation of social democrats on education spending, whereas it is less clear whether the government participation of secular conservatives (in the British sense), Christian democrats, or the "Free Right" (in the Austrian sense) makes a difference. This will be tested by controlling for the government participation of various types of parties.

Internationalization

As pointed out above, economic internationalization is seen as an important background condition by Boix, shaping partisan strategies. Again, the empirical analysis in Boix treats this issue only superficially. Firstly, it can be said that the impact of economic internationalization increased over the 1980s and 1990s, but Boix's analysis mainly covers the 1970s and 1980s. Secondly, the impact of economic internationalization can be tested for more directly. In the Boix model, the background effect of economic internationalization is assumed to affect every country similarly. In reality, however, there are large differences between countries regarding their degree of openness towards international competition. With regard to openness to capital markets, a process of convergence has taken place since the late 1980s (Quinn/Inclán 1997), so that there are strong arguments for treating capital mobility as a given background condition. In contrast, the degree of trade openness still varies largely between countries: from relatively closed economies like the USA or Japan to small, open economies in Scandinavia and Continental Europe. If the Boix model is correct, we can expect a stronger impact of partisan supply-side strategies in those countries that are more exposed to international competition, i.e. an interaction effect between the government participation of social democrats and trade openness.

Data and methods

The *dependent variables* are total public education spending and sectoral education spending (as a percentage of GDP), about which see the appendix for details on sources. For total education spending, data is available for the years from 1980 to 2001. Data on public spending on primary, secondary and higher education is less easily available, and therefore the period of analysis has to be limited to 1991 to 2001. The analysis covers 21 OECD nations.[9]

Trade openness (average of exports and imports as a percentage of GDP) and the cabinet share of social democrats (on a yearly basis; see Schmidt 2003b) are the most important *independent variables*.

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9   Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Greece, Ireland, Italy, Japan, Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, UK, USA.

The analysis also includes several *control variables*. Demographic demand for educational services is controlled for by an "age" variable in the analysis of total education spending. This age variable is defined as the ratio of the population share of those aged 65 and above to those aged 5 to 29. It is expected that a younger population will be associated with higher education spending, which is in line with the idea that education spending is to a large extent demand-driven. In the analysis of public higher education spending, demographic demand is captured by the variable "student enrolment in tertiary education," with the expectation of a positive association with spending.

Public social spending is included to control for the fact that, in a significant number of countries, a universal education system is seen as a complement to a universal welfare state (for example in Scandinavia). Of course, the inclusion of social spending as an independent variable should not be taken as a causal claim (i.e. "higher social spending causes higher education spending"). It is merely a statement of the fact that spending on education (as on most other public social services) will be higher, *ceteris paribus*, in an environment of socio-economic institutions which favor welfare-statist solutions to public problems over market solutions. In order to filter out the true impact of partisan variables, it is therefore necessary to control for the prevalent division of labor between the state and the market in a given country. For similar reasons, the model also includes a variable capturing the density of the constitutional veto structure. Here, the expectation is that a dense constitutional veto structure inhibits the expansion of the welfare state and public spending in general (Obinger/Wagschal 2000; Leibfried/Castles/Obinger 2005), stifling the growth of education spending as well. Finally, a dummy variable is included to indicate whether a country has a federal structure or not, given that competencies for educational policy and spending are often delegated to the lower levels of government.

The level of economic development is controlled for by including gross national income (GNI) per capita. Generally, it is expected that a higher level of economic development is associated with more spending on education. This is partly due to changes in the preferences of citizens, who increasingly demand more social services, following the logic of Wagner's law. However, this positive association is also an outcome of increased demand on the part of business for a highly skilled workforce.[10]

With regard to the *statistical methods*, all of the analyses use panel-corrected standard errors (Beck/Katz 1995, 1996) and country-fixed effects (in the form of country dummies) to correct for panel heteroskedasticity and contemporaneous correlation across countries.[11] Lagged dependent variables (LDV) are included to control for autocorrelation.

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10 Of course, the causal arrow points both ways: a highly skilled workforce contributes to economic growth and development.

11 Recently there has been some discussion about the usefulness of country-fixed effects (Plümper/Tröger 2004; Plümper/Tröger/Manow 2005). Problems arise mainly when fixed effects dominate the effects of other, largely time-invariant independent variables (e.g. institutional variables) in which the researcher is interested. In the present case, the impact of the veto index

The models are presented in two specifications: the "classical" pooled time-series specification, in which the dependent variable is defined in levels, and the Error-Correction Model (ECM) specification (see, for example, Iversen/Cusack 2000; Kaufman/Segura-Ubiergo 2001).[12] In this second specification, the dependent variable is given in first differences (changes), while the independent variables are given in lagged levels and first differences (changes). The ECM specification allows for a separation of long-term effects (the coefficient estimates of the lagged levels of independent variables) from short-term or transitory effects (the coefficient estimates of the first differences of independent variables) (Kaufman/Segura-Ubiergo 2001: 586–587). Thus, it is more dynamic and less static than the "classical" specification. It has the additional advantage that problems of non-stationarity of the dependent variable are solved (Kittel/Winner 2005: 278–283). The downside is that the theoretical model to be tested must fit with a specification of changes. In the present case, it could be argued that a fair treatment of the Boix argument actually makes such a specification necessary: a change in the partisan composition of the government is expected to be associated with a change in spending.

Findings

To keep the discussion of the findings focused on the variables of interest, the presentation of the findings will draw from results of the analysis of total education spending (Table 1), spending on primary, secondary and non-tertiary post-secondary (PSNTPS) education (Table 2) and spending on tertiary education (Table 3).

Government participation of social democrats

The impact of the main independent variable of interest, the government participation of social democrats, varies considerably from one type of spending to another. From Table 1 it can be seen that the simple version of the Boix model is not supported. Government participation of social democrats has no statistically significant impact on total public education spending when the period of observation is confined to 1980–2001 or 1991–2001 respectively. Other studies (Busemeyer 2006a, b; Schmidt et al. 2006) have shown that partisan effects have had some impact in the 1980s, but that this effect disappears for the larger observation period and the 1990s. However, when sectoral education spending is chosen as the dependent variable instead of total education spending, it becomes obvious that the relationship between partisanship and education spending is more complex than assumed by the simple version of the Boix model.

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and the federalism dummy are depressed by the inclusion of country-fixed effects (see below). However, these are merely control variables, and to enhance the confidence in the results obtained it is sensible to apply country-fixed effects in the bulk of the analyses.

12   Kaufman/Segura-Ubiergo (2001: 586–587) present a nice summary overview of the logic and functioning of the ECM.

Table 1 Determinants of total public education spending, 21 OECD countries

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent variable	Total public education spending (% GDP)			Change in total public education spending (% GDP)		
Time period	1980-2001	1980-2001	1991-2001	1980-2001	1980-2001	1991-2001
Lagged public education spending	0.7538 (16.54)***	0.7538 (16.54)***	0.3173 (2.36)**	−0.2339 (6.05)***	−0.2330 (6.07)***	−0.6077 (4.91)***
Age ratio	−0.8498 (2.39)**	−0.8470 (2.38)**	−0.3448 (0.96)			
Public social spending (% of GDP)	0.0349 (2.90)***	0.0348 (2.91)***	0.0716 (4.38)***			
GNI per capita	−0.0102 (1.99)**	−0.0101 (1.97)**	−0.0220 (1.83)*			
Veto index	0.1087 (1.09)	0.1092 (1.08)	0.0406 (0.28)			
Federalist country	0.1969 (2.51)**	0.2024 (2.27)**	−0.0220 (0.14)	0.1668 (2.00)**	0.1424 (1.65)*	0.1388 (0.80)
Trade openness	−0.0023 (0.40)	−0.0023 (0.40)	0.0077 (1.19)			
Cabinet share of SD	−0.0002 (0.44)	−0.0001 (0.06)	0.0005 (0.84)			
Interaction: openness and SD		−0.0561 (0.13)				
Age ratio, lagged level				−0.8403 (2.12)**	−0.8514 (2.10)**	−0.5111 (0.97)
Age ratio, change				1.0574 (0.69)	1.0912 (0.71)	1.1097 (0.18)
Public social spending, lagged level				0.0251 (2.72)***	0.0255 (2.75)***	0.0722 (4.23)***
Public social spending, change				0.0927 (5.14)***	0.0932 (5.06)***	0.1673 (7.20)***
GNI per capita, lagged level				−0.0052 (1.11)	−0.0054 (1.16)	−0.0122 (1.12)
GNI per capita, change				−0.0519 (1.65)*	−0.0539 (1.70)*	−0.0479 (1.60)
Veto index				0.1397 (3.32)***	0.1471 (3.45)***	0.2588 (3.18)***
Trade openness, lagged level				0.0015 (0.37)	0.0011 (0.27)	0.0089 (1.47)
Trade openness, change				−0.0020 (0.25)	−0.0012 (0.16)	0.0200 (2.40)**
Cabinet share of SD, lagged level				0.0003 (0.64)	−0.0004 (0.38)	0.0007 (1.18)
Cabinet share of SD, change				−0.0015 (1.91)*	−0.0005 (0.28)	−0.0002 (0.14)
Interaction, lagged level					0.2506 (0.75)	
Interaction, change					−0.3064 (0.49)	
Constant	0.2622 (0.44)	0.2477 (0.39)	2.0394 (2.64)***			
Observations	423	423	204	404	404	204
R²	0.93	0.93	0.94	0.27	0.27	0.46
Number of countries	21	21	21	21	21	21

z statistics in parentheses; *significant at 10%; **significant at 5%; ***significant at 1%; SD = social democrats. Note: Linear interpolation was applied in some cases to fill in missing values (for breaks in the time series of one or two years only).

When we look at the impact of leftist parties on primary, secondary and post-secondary education spending (Table 2, Models 1 and 3), we find the expected positive association, although it is not statistically significant. In addition, the positive association is mainly a long-term effect (Model 3, Table 2). The analysis of the determinants of public spending on higher education reveals a more surprising finding, however. Here, we find a clearly positive association between the government participation of social democrats and spending (Models 1 and 3, Table 3). Furthermore, the positive association is not dependent on the model specification (levels or changes) and holds in the long term as well as in the short term (Model 3). In terms of the Boix model, this finding is unexpected. First of all, a positive association between social democratic government participation and total spending was expected and, secondly, if there were differences with regard to sectoral education spending, partisan effects should have been stronger for spending on primary, secondary and non-tertiary post-secondary education than for spending on higher education. The analysis does not confirm this.

Trade openness and its interaction with social democratic government participation

It is important to note that trade openness is more than a diffuse background condition that can be held constant. The findings in Tables 1, 2 and 3 suggest that differences in trade exposure have important consequences for public investment in human capital formation, depending on the type of spending.

Firstly, trade openness is not associated with total education spending (Table 1) when the analysis is confined to the longer observation period from 1980 to 2001. For the 1990s, however, it is possible to detect a positive effect, especially in the short term. This first impression is confirmed when we look at spending on PSNTPS education. Open economies have increased public spending on PSNTPS primarily in the short term. These short-term effects can eventually build up into lasting, permanent effects. The strongest impact of trade openness on education spending, however, can be seen in the case of tertiary education. Here, we find a positive impact, both in the long term and in the short term (Table 3). In sum, there is evidence that economies open to international economic competition have increased public investment in education, primarily higher education.

What about the interaction between trade openness and the government participation of social democrats? Again, we find considerable differences depending on the type of education spending. For total education spending, the simple Boix model again receives little support. There is no discernible impact of either the cabinet share of social democrats, trade openness or the interaction effect – both in the long term and in the short term (Table 1). A look at the dynamics of sectoral education spending helps to clear the mist: according to Table 2 (Models 2 and 4), social democratic government participation and trade openness have a positive joint effect on public spending on PSNTPS education. In fact, the positive interaction coefficient turns the estimate of the simple

Table 2   Determinants of public spending on primary, secondary and non-tertiary post-secondary education, 21 OECD countries, 1991–2001

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent variable	Public spending (% GDP)		Change in public spending (% GDP)			
Lagged public education spending (LDV)	0.3117 (2.41)**	0.2779 (2.15)**	–0.6814 (5.91)***	–0.7084 (6.27)***	–0.6979 (6.05)***	–0.6866 (5.78)***
Age ratio	–1.0252 (2.09)**	–1.5141 (2.09)**				
Public social spending (% of GDP)	0.0417 (3.26)***	0.0409 (3.25)***				
GNI per capita	0.0035 (0.32)	0.0003 (0.02)				
Veto index	0.0584 (0.63)	–0.0116 (0.14)				
Federalist country	0.3353 (1.52)	0.3457 (1.49)	0.3497 (1.62)	0.4419 (1.96)*	0.3401 (1.67)*	0.3466 (1.60)
Trade openness	0.0058 (1.06)	0.0071 (1.23)				
Cabinet share of SDs	0.0006 (1.15)	–0.0056 (3.52)***				
Interaction: openness and SDs		2.0599 (3.29)***				
Age ratio, lagged level			–1.4611 (3.14)***	–2.0327 (3.02)***	–1.7972 (3.33)***	–1.4248 (2.73)***
Age ratio, change			1.4324 (0.41)	1.4266 (0.39)	–0.0639 (0.02)	2.6472 (0.76)
Public social spending, lagged level			0.0479 (3.34)***	0.0547 (4.03)***	0.0544 (3.64)***	0.0455 (3.04)***
Public social spending, change			0.0936 (3.88)***	0.1159 (4.67)***	0.0945 (3.65)***	0.0951 (3.78)***
GNI per capita, lagged level			0.0163 (1.64)	0.0144 (1.48)	0.0195 (1.91)*	0.0149 (1.45)
GNI per capita, change			–0.0784 (3.38)***	–0.0736 (3.14)***	–0.0709 (2.86)***	–0.0800 (3.33)***
Veto index			0.2094 (3.81)***	0.2325 (3.89)***	0.2252 (4.27)***	0.2268 (4.19)***
Trade openness, lagged level			0.0031 (0.52)	0.0050 (0.86)	0.0003 (0.04)	0.0030 (0.51)
Trade openness, change			0.0247 (2.22)**	0.0270 (2.27)**	0.0212 (1.72)*	0.0251 (2.27)**
Cabinet share of SDs, lagged level			0.0007 (1.57)	–0.0050 (2.74)***		
Cabinet share of SDs, change			–0.0005 (0.56)	–0.0046 (1.66)*		
Interaction, lagged level				1.8897 (2.93)***		
Interaction, change				1.3923 (1.45)		
Cabinet share of CDs, lagged level					–0.0033 (2.42)**	
Cabinet share of CDs, change					0.0002 (0.11)	
Cabinet share of Cs, lagged level						0.0002 (0.36)
Cabinet share of Cs, change						0.0002 (0.18)
Constant	1.0934 (1.50)	1.9294 (2.87)***				
Observations	196	196	196	196	196	196
R²	0.87	0.88	0.47	0.50	0.48	0.46
Number of countries	21	21	21	21	21	21

z statistics in parentheses; *significant at 10%; **significant at 5%; ***significant at 1%. SDs = social democrats; CDs = Christian democrats; Cs = Conservatives. Note: Linear interpolation was applied in some cases to fill in missing values (for breaks in the time series of one or two years only)

impact of social democrats on spending negative. This finding holds true for the "classical" levels specification (Model 2) as well as for the ECM specification (Model 4). In the case of public spending on tertiary education, we find a different dynamic (Models 2 and 4, Table 3). Here, the coefficient estimate of the interaction effect fails to meet common standards of statistical significance, although it is equally positive. The impact of the simple variable measuring the government participation of social democrats is much stronger in the case of higher education spending (Models 1 and 3, Table 3). In addition, Table 3 shows that trade openness has a positive impact on public investment in higher education spending independently of social democratic government participation. This positive effect is much stronger than in the cases of other types of education spending.

How can these findings be interpreted? Firstly, partisan effects are hard to detect in the case of total education spending because of the different dynamics operating in the various educational sectors. Secondly, the association between social democrats and PSNTPS education is much stronger in open economies, suggesting that the logic of the Boix model with its focus on "generic assets" holds true for this type of spending. Thirdly, with regard to public spending on higher education, the model fits less well with the empirical findings. In contrast, I find evidence that increasing spending on tertiary education has become a popular strategy for social democrats in government, regardless of the exposure to international economic competition: The interaction effect has no statistically significant impact on spending, positive effects for social democratic government participation are stronger in statistical terms and hold both for the long term and the short term.

Partisan families

One aim of the present study is to determine the association between different party families and education spending. The findings presented in Tables 2 and 3 show that, in contrast to the simple dichotomy between leftist and rightist parties preferred by Boix, the relationship between partisan preferences and education spending is more complex. Tables 2 and 3 (Models 5 and 6 respectively) contain estimates of the impact of government participation by Christian democrats and conservatives. The most important findings are that, firstly, Christian democratic government participation is associated with lower public spending on PSNTPS education in the long run. This finding is in line with the intuition that Christian democrats are interested in maintaining the principle of subsidiarity (Van Kersbergen 1995), for instance by supporting religious schools in primary and secondary education. Secondly, the cabinet share of secular conservatives in government is not associated with spending on PSNTPS education. Hence, conservative parties are not as ardent supporters of public educational services as social democrats, but they do not cut spending *per se*. Thirdly, with regard to public spending on higher education, we find a negative long-term association between conservative government participation and spending, but this is not very strong in terms

Table 3   Determinants of public spending on higher education,
21 OECD countries, 1991–2001

Dependent variable	(1)	(2)	(3)	(4)	(5)	(6)
	Public spending on tertiary education (% GDP)		Change in public spending on tertiary education (% GDP)			
Lagged public spending on tertiary education (LDV)	0.1637 (0.91)	0.1751 (0.99)	–0.8254 (4.65)***	–0.8215 (4.70)***	–0.8251 (4.62)***	–0.8209 (4.67)***
GNI per capita	0.0043 (0.47)	0.0041 (0.46)				
Tertiary enrolment	0.0013 (0.64)	0.0005 (0.19)				
Veto index	0.0833 (1.00)	0.0673 (0.81)	0.0926 (1.09)	0.0789 (0.93)	0.1160 (1.38)	0.1081 (1.33)
Federal country	0.2767 (2.82)***	0.3223 (2.96)***	–0.1341 (0.24)	0.0356 (0.07)	–0.2967 (0.55)	–0.1969 (0.39)
Trade openness	0.0127 (3.41)***	0.0126 (3.34)***				
Cabinet share of SDs	0.0010 (2.34)**	–0.0013 (0.89)				
Interaction: openness and SDs		0.7323 (1.31)				
GNI per capita, lagged level			0.0080 (0.77)	0.0076 (0.75)	0.0061 (0.58)	0.0072 (0.68)
GNI per capita, change			–0.0067 (0.24)	–0.0069 (0.24)	–0.0119 (0.42)	–0.0132 (0.47)
Tertiary enrolment, lagged level			0.0010 (0.50)	0.0001 (0.03)	0.0020 (1.05)	0.0019 (0.92)
Tertiary enrolment, change			0.0020 (0.42)	0.0020 (0.42)	0.0040 (0.82)	0.0036 (0.79)
Trade openness, lagged level			0.0106 (2.85)***	0.0108 (2.79)***	0.0120 (2.85)***	0.0106 (2.85)***
Trade openness, change			0.0216 (2.30)**	0.0207 (2.40)**	0.0230 (2.27)**	0.0223 (2.29)**
Cabinet share of SDs, lagged level			0.0009 (2.42)**	–0.0012 (0.88)		
Cabinet share of SDs, change			0.0009 (1.09)	–0.0009 (0.38)		
Interaction: openness and SDs, lagged level				0.7034 (1.37)		
Interaction: openness and SDs, change				0.5762 (0.64)		
Cabinet share of CDs, lagged level					0.0010 (1.54)	
Cabinet share of CDs, change					–0.0000 (0.00)	
Cabinet share of Cs, lagged level						–0.0007 (1.25)
Cabinet share of Cs, change						–0.0006 (0.72)
Constant	–0.3347 (0.67)	–0.2025 (0.41)				
Observations	223	223	223	223	223	223
Number of countries	21	21	21	21	21	21

z statistics in parentheses; *significant at 10%; **significant at 5%; ***significant at 1%. SDs = social democrats; CDs = Christian democrats. Cs = Conservatives. Note: Linear interpolation was applied in some cases to fill in missing values (for breaks in the time series of one or two years only).

of statistical significance. Interestingly, here, the cabinet share of Christian democrats is associated positively with spending, albeit not in a statistically significant way.

In sum, the analysis of partisan effects on education spending shows that Christian democrats and conservatives should not be grouped under a common heading of "rightist" parties, because they in effect pursue rather different strategies, with conservatives less keen on supporting public spending on higher education and Christian democrats more opposed to public spending on PSNTPS education.

Control variables

Without going into too much detail, I want to comment briefly on the performance of the control variables. *Demographic demand* (measured by the age ratio variable and tertiary enrolment respectively) is positively associated with spending,[13] although the relationship is stronger for total education spending and for spending on PSNTPS education. The positive sign of the coefficient estimate of the short-term effect on total education spending (Model 6, Table 1) in the 1990s could potentially indicate a tightening of resources available for education.

The positive and robust association between *public social spending* and total education spending and spending on PSNTPS education in particular indicates that the public provision of educational services can be considered as an integral part of a universalist welfare state. For higher education spending, the association is less strong, indicating again that the political dynamics of educational sectors are rather different.

A finding that is surprising at first glance and requires some explanation is the negative association between *GNI per capita* and total education spending (Table 1). Public provision of educational services is very much driven by demographic demand (see above), especially in the lower educational sectors. Once the initial investment in the infrastructure is completed, increases in spending are very much determined by increases in wage costs (for teachers etc.), which are again roughly in line with increases in GNI per capita. In other words: regular growth in economic well-being will be enough to meet rising costs in the provision of educational services. Because in the current analyses spending is measured as a percentage of GDP, an increase in absolute spending on education (e.g. spending per pupil/student) can be associated with constant spending shares. When growth is strong enough, it can actually be associated with falling spending shares. In Sweden, for example, education spending as a percentage of GDP has declined from a peak of more than 8 percent to roughly 6.5 percent today, although absolute spending per pupil (in real terms) has increased slightly. Table 2 (Models 3–6) shows that economic well-being (GNI per capita) is associated positively with spending on PSNTPS education in the long term, but has negative transitory effects. This captures another dimension of the impact of economic factors: spending on basic educational services is

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13   Note that the negative sign of the coefficient estimate in Tables 1 and 2 indicates a positive association between demographic demand and spending, because the age variable is defined as the ratio of those aged 65 and above to those aged between 5 and 29.

relatively constant over time and thus impervious to short-term influences of the business cycle.

Another counter-intuitive finding is that the *veto index and the federalism dummy* are positively associated with education spending. This is partly in contrast to findings from earlier studies (Busemeyer 2006a, b; Schmidt et al. 2006). The decisive difference between these studies and the current analysis is that, in the present case, country-fixed effects are included in all the models. The inclusion of country-fixed effects changes the dynamics of the model specification considerably. The focus shifts from explaining differences between countries to explaining differences within countries (over time). Thus, the positive coefficient estimates show that spending tends to be "stickier" in countries with a high veto density and federalist institutions. The initial level of the veto density of a given country is captured by the respective country dummy, and the coefficient estimates of the veto index and the federalism dummy capture the continuous impact of these variables on spending, ignoring cross-country differences. Additionally, an interaction term between federalism and the government participation of social democrats was included in the analysis. It produced the expected effect that the impact of the partisan composition of the (national) government is stronger in unitarian countries, but the coefficient estimates were not significant all the time (especially not in the case of higher education spending). Most importantly, the positive impact of social democratic government participation remained positive and robust.

4   Discussion: Consequences for the Boix model and partisan theory

The basic logic of the Boix model has been confirmed by the empirical analysis: firstly, partisan effects are important determinants of public investment in human capital formation and, secondly, economic internationalization is an equally important element of the story.

However, beyond these two rather fundamental and thus diffuse theses, the empirical analysis has shown that the "simple" Boix model as tested in Boix (1997, 1998) receives little support. Instead, a more comprehensive empirical test is necessary. It has been shown that partisan effects play out very differently in different educational sectors. Hence, it is necessary to analyse sectoral education spending in addition to total education spending. Secondly, economic internationalization is more than a diffuse background condition. The results in Tables 1, 2 and 3 suggest that trade openness and social democratic government participation have a joint impact on spending in the case of PSNTPS education, but not in the case of higher education. Furthermore, trade openness has an additional, separate impact on education spending, predominantly in the case of tertiary education. Thirdly, differences between party families matter. Instead of relying on a simple dichotomy of leftist and rightist parties, it is useful to analyse the

impact of social democrats, Christian democrats and conservatives separately. Again, we see important differences in the dynamics, depending on the educational sector analysed.

With regard to the association between public investment in higher education and trade openness, further research is needed. The analysis in this paper has shown that trade openness as a feature of economic internationalisation is more than a diffuse background condition, but it is not yet clear by which causal mechanisms trade openness leads to increased levels of public education spending.

The most important difference between the "simple" Boix model and empirical reality is the finding that public investment in higher education seems to be more important for social democrats than investment in primary, secondary and non-tertiary post-secondary education, particularly in the more recent period. Table 2 shows that public investment in PSNTPS education has been primarily pursued by social democratic governments in open economies (i.e. Scandinavia), but beyond these countries the impact of social democratic government participation is less pronounced. The case of higher education spending suggests a different story: here, we find a more general inclination of social democrats in government to expand public spending (Table 3). In terms of the Boix model, its "naïve" (Boix 1998: 40) conception of class politics and partisan theory in general, this finding is puzzling. If social democrats primarily pursue the interests of their main constituencies, i.e. the lower classes, why should they increase public investment in higher education when this is primarily a domain of the upper classes? Why should they divert scarce public resources from other policy areas (like unemployment, pension or health insurance) that have a greater direct relevance for their constituents?

First of all, social democrats might be trying to open up access to higher education at the same time as they are increasing public investment. Certainly, some "social democratic" countries (Finland, less so Norway and Sweden) have higher enrolment rates in tertiary education than Continental European countries like Germany, the Netherlands or Switzerland. But the results of the statistical analysis in Table 3 show that the association between tertiary enrolment and spending on higher education is not very strong, which indicates that increasing public investment in higher education entails more than merely adjusting the infrastructure to rising demand.

Instead, it is necessary to think about the theoretical foundations of the Boix model and partisan theory more generally. The logic of partisan theory going back to Hibbs (1977) is that parties in government primarily pursue the interests of their main constituencies and that partisan differences emerge because leftist and rightist parties vary with regard to their typical electorate: lower income classes vote left, and upper classes vote right. The radical counterpart to the partisan model is Downs' median voter model (Downs 1957): here, parties compete for the median voter, the result being that programmatic differences eventually disappear. The empirical findings of this paper suggest that both

models carry a kernel of truth and that it might be useful to think more about a constructive combination of the two.

Firstly, partisan differences continue to matter. In this respect, the paper provides a confirmation of partisan theory despite recent scepticism of its continued relevance (Kittel/Obinger 2003). But, secondly, the most straightforward explanation for the social democrats" zeal for public investment in higher education is that this reflects a strategy that is supposed to attract and bind voters of the middle classes. Coming back to the "naïve" model of class politics, the following hypotheses of class interests in relation to higher education can be established (see also Ansell 2006): lower income classes (the core constituency of social democrats) do not care much about higher education and prefer direct redistributive policies instead. Higher income classes want to minimize their tax contributions and limit access to higher education, for example by relying more on private institutions. The middle classes would like to expand access to higher education and are more in favor of the public provision of higher education, because their tax contributions are not as high as in the case of the upper classes and access to public institutions tends to be more open as these institutions can be held accountable. Therefore, if we imagine the ideal strategy for a social democratic party that would like to cater to their old constituency, but pander to new voters in the middle class at the same time, it would be to increase public investment in higher education and improve access. This is exactly what has been observed in the empirical section of this paper.

The consequence of these findings for the development of partisan theory is that more efforts should be undertaken to link the fundamental logic of partisan theory (i.e. constituency interests determine party strategies) with the logic of party competition (i.e. party strategies determine constituencies).

Appendix: Data sources and definitions

Public education spending
> Real public educational expenditure (percentage of real GDP).
> Sources: OECD, Public Educational Expenditure, Costs and Financing: An Analysis of Trends 1970–1988. (1992: 84); OECD, Education at a Glance (various years).

Public spending on higher education
> Public expenditure on education (percentage of GDP) for tertiary education.
> Source: OECD, Education at a Glance (various years).

Tertiary enrolment
> Gross enrolment ratios, tertiary level.
> Source: UNESCO Statistical Yearbook (various years), and World Development Indicators data base.

Public social spending
> Social expenditure: total public social expenditure (percentage of GDP).
> Source: OECD Health Data (2004).

GNI per capita
> Gross national income per capita in US dollars, current prices, PPP.
> Source: OECD Factbook 2006, <www.sourceoecd.com>.

Population share of those aged between 5 and 29
> Share of those aged 5 to 29 relative to total population.
> Source: OECD, Education at a Glance (various years). After 1996 own calculations, based on UNESCO Statistical Yearbook (various years).

Population share of those aged 65 and above
> Share of those aged 65 and above relative to total population.
> Source: OECD Health Data (2004).

Trade openness
> Average of imports and exports (percentage of GDP).
> Source: OECD Factbook 2006, <www.sourceoecd.com>.

Cabinet share of social democrats
> Cabinet share of social democratic parties.
> Source: Schmidt 2003b.

Cabinet share of Christian democrats
> Cabinet share of Christian democratic parties.
> Source: Schmidt 2003b.

Cabinet share of conservatives
> Cabinet share of conservative parties.
> Source: Schmidt 2003b.

Veto index
> Schmidt's index of veto players.
> Source: Schmidt 2000: 352.

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und Wirtschaftsorganisationen in historisch-institu-
tionelle, politische und kulturelle Zusammenhänge
eingebettet sind, wie sie entstehen und wie sich ihre
gesellschaftlichen Kontexte verändern. Das Institut
schlägt eine Brücke zwischen Theorie und Politik und
leistet einen Beitrag zur politischen Diskussion über
zentrale Fragen moderner Gesellschaften.

The Max Planck Institute for the Study of Societies
conducts advanced basic research on the governance
of modern societies. It aims to develop an empirically
based theory of the social and political foundations
of modern economies by investigating the interrelation
between economic, social and political action. Using
primarily an institutional approach, it examines how
markets and business organizations are embedded
in historical-institutional, political and cultural
frameworks, how they develop, and how their social
contexts change over time. The institute seeks to build
a bridge between theory and policy and to contribute
to political debate on major challenges facing modern
societies.

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