The Politics of Opting Out:

Explaining educational financing and popular support for public spending

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Abstract:

In this paper, we address two empirical puzzles: Why are cross-country differences in the division of labor between public and private education funding so large and why are they politically sustainable in the long term? We argue that electoral institutions play a crucial role in shaping politico-economic distributive coalitions that affect the division of labor in education financing. In PR systems, the lower and middle classes form a coalition supporting the establishment of a system with a large share of public funding. In majoritarian systems, in contrast, the middle class voters align with the upper income class and support private education spending instead. Once established, institutional arrangements create feedback effects on the micro-level of attitudes, supporting their continued political sustainability. These hypotheses are tested empirically both on the micro level of preferences as well as on the macro level with aggregate data and survey data from the ISSP for 20 OECD countries.

Key words: education, political economy, redistribution, preferences, equality

JEL Classification: I24, H52

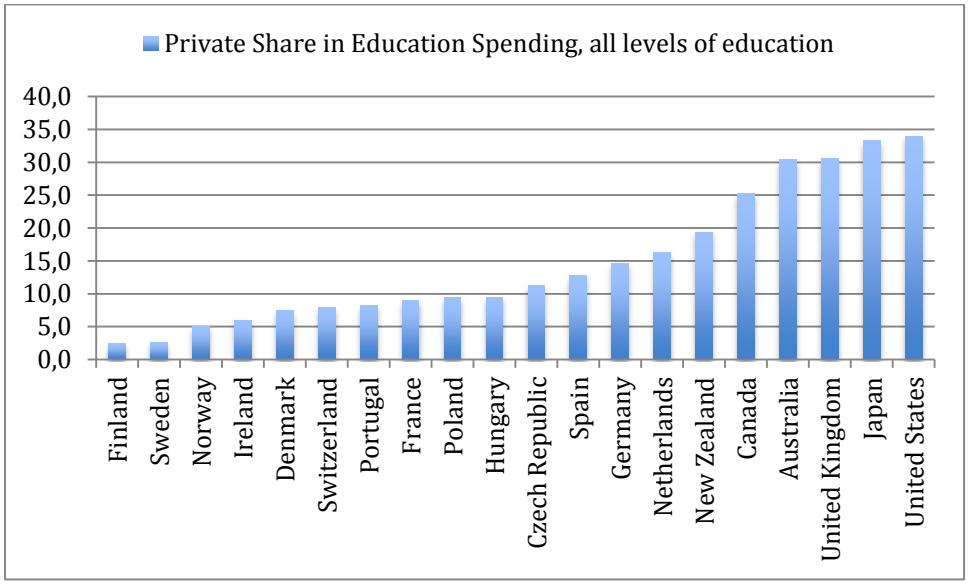
1. Introduction: The puzzles

Preferences for public polies are commonly modeled as a function of individual income, risk, or sometimes ideological frames. Almost never is the choice modeled as one between public and private alternatives. We will argue in this paper that the availability of private alternatives, of opting out, makes a big difference to the politics of public policies. In a range of policy areas -- such as pensions, old age care, healthcare, daycare, and, our focus, education -- public and private alternatives compete with each other. Borrowing a terminology from Hirschman, what matters then is not only a matter of "voice" (voting) but also "exit" (choosing private alternatives), and the latter, we argue, shapes the former.

The fact that welfare states vary greatly in terms of whether social services are provided by the government or privately. This is a puzzle because democratic politics is supposed to lead to increased demand for public spending and a gradual phasing out of private social service provision. As public spending rises, voters have to shoulder a rising tax burden and the ability and willingness of voters to pay for private services in addition to public services should correspondingly decrease. Instead, voters should become more interested in improving the quality of public services. Empirically, however, we observe a large variation in the share of private financing in social services such as education (see figure 1). In some countries, education is provided and financed with public monies, whereas in others, voters seem happy to shoulder a large share of educational investments themselves. Moreover, these institutional settings are relatively stable over time, i.e. they most likely reflect underlying political equilibria. How can this be explained?

The question of education financing matters because the structure of funding has notable effects on the distribution of spending, which in turn affects wage, income and wealth inequality. Private alternatives to public spending do not play any role in much of the comparative political economy literature, but in the case of education they are critical to explaining a range of distributive outcomes. In this paper we argue that electoral institutions influence the formation of distributional coalitions, which in turn affect the division of labor between public and private sources of funding through a network logic. Once the composition of spending is "tilted" in one direction or another complementarities in private decisions to invest in education reinforce a particular structure of funding, which in turn affects preferences over public policies.

Figure 1: Share of education funding from private sources in OECD countries, 2007.



Source: OECD, 2010: Education at a Glance, 231.

Note: Data for Ireland, Norway and Switzerland are from earlier years (2006 in the case of Ireland, 2000 in the other cases).

A stark implication of our model is that the relationship between income and support for public spending on education should vary depending on the electoral system and the composition of spending. In PR countries with large public systems, network effects transmitted through the fiscal system push high-income groups, who are concerned with high-quality education for their children, to push for more public spending than low-income groups, who are more concerned with current consumption. This is particularly true when the secondary and higher education system are stratified because this concentrates benefits on the rich (Ansell 2008, 2010; Busemeyer 2012). Conversely, in majoritarian countries with high levels of private financing, high income groups who can shoulder high private costs for education will oppose public spending because it undermines the returns on private investments, whereas low-income groups who cannot afford private education will favor more public spending that is de facto more targeted to these groups. This is particularly true when income inequality is high. To our knowledge there is no existing model has this implication, and it does not apply to other spending areas. Wilensky was right when he suggested that "education is different" (1975, p. 3). Our model explains why, and we test it on both macro-level spending data and micro-level public opinion in 17 Western OECD countries.

2. Existing literature

After education had long been neglected in comparative political science and political economy, it has enjoyed growing scholarly interest in recent years (Busemeyer/Trampusch 2011). The debate on Varieties of Capitalism (VoC) played a crucial role in raising the interest of main-stream political science in topics such as the political economy of skills and training (Culpepper 2003; Finegold/Soskice 1988; Iversen/Soskice 2001; Streeck 1989; Thelen 2004). A few contributions recognize the importance of the connection between skill formation regimes and the welfare state (Busemeyer/Nikolai 2010; Estévez-Abe et al. 2001; Iversen/Stephens 2008), but the exact nature of the causal mechanisms linking these two areas is still unexplored. Following Ansell (2008, 2010), we argue that the politics of educational investments can and should be treated as a contentious issue in the redistributive conflict between socio-economic classes similar to other social policies. In line with this argument, Ansell's work as well as the work of others (Boix 1997, 1998; Busemeyer 2007, 2009; Castles 1989, 1998; Schmidt 2007) shows that the level and distribution of public investments in education are strongly shaped by partisan politics and changes in the balance of power between politico-economic interests. Private education spending has not been studied as extensively as public spending. Exceptions are Wolf (2009) and Wolf and Zohlnhöfer (2009) who identify union density, partisan power and religious heritage as important determinants of differences in private spending on education. Yet these authors do not model the simultaneous individual choices of voting for and against public spending and choosing a level of private spending. We will show that the interdependencies of these choices, and the educational choices of others, affect individual preferences and the analysis of the role of partisanship.

More recently, scholars have begun to move from the macro to the micro level of individual attitudes and preferences. There is a large literature in educational sociology and comparative education research on the individual and institutional determinants of educational *choices* as individuals move through the stages of their educational careers (for a recent overview and example, see Breen et al. 2009), but this kind of scholarship does not look at micro-level policy preferences of (working-age) individuals with regard to the politically preferred design of education systems. New scholarship in comparative political economy and welfare state research has started to identify the most important individual and institutional determinants of education policy preferences (Ansell 2010: Chapter 4; Busemeyer 2012; Busemeyer et al. 2009; Busemeyer/Jensen 2012), and we build on this work

Our contribution is two-fold. First we add to our knowledge of the political and institutional determinants of cross-country differences in the division of labor in the financing of education. Specifically, we focus on the role of electoral institutions shaping politico-economic distributive coalitions that are associated with particular cross-national patterns of educational investment. Second, we provide a game-theoretic analysis of individual educational choices when there is an option to opt of the public system, and we show that this has implications for how we understand voter preferences for public policies. The existing research on preferences focuses on the cross-level interaction between attitudes and educational institutions (Ansell 2010; Busemeyer 2012; Busemeyer/Jensen 2012), and we show that this interaction is a consequence of network effects in educational choices.

3. The argument

We propose in this section how the funding puzzle can be solved using an institutional network model of educational investment. In this paper we consider only democracies and the key institution is the electoral system. Yet the effects of electoral system go through the strategically interdependent behavior of voters, and before we can understand the macro-level effects we therefore need to consider the micro-level logic . We differentiate preferences over funding system by income class but focus on the preferences of middle class voters under the assumptions that middle class parties are needed for a legislative majority and that this majority chooses the educational system (we modify this assumption below). We then proceed to explain how the electoral system "tips" middle class preferences toward favoring either more private or more public spending, which determines the relationship between income and preferences.

Our analysis refers to secondary and post-secondary education since primary education is mandatory in all countries we consider and overwhelmingly publicly financed.One reason that primary education is almost universally public is that there are strong positive externalities of primary education spending – it is a virtual requirement for all workers in a modern economy to have basic skills -- the middle class it likely to always support public schooling for the lower classes. Since our compositional spending data include all educational spending, the private component never exceeds one third of total spending, but it increases sharply as we look at secondary and especially tertiary education.

Throughout our analysis applies to democracies and assumes that individual preferences over policies are driven by material self-interest. We recognize that this is a simplifying assumption used in part for theoretical tractability, but we also believe it captures an important aspect of the politics of educational funding. In particular, we think it would be very difficult to understand the cross-country differences in class divisions over public education without attention to how institutional incentives shape self-interest. At the same time we will acknowledge other potential influences on preferences in the empirical analysis.

3.1. The individual choice over educational spending

We assume that the typical middle class family has one or two children, where the adults have already acquired an education, but where their children have not. Parents are assumed to be altruistic and pay a significant portion of their children's educational bill. The middle class voter now has two decisions to make: a private economic one and a political one. The economic one is how much to invest privately in their children's education; the political one is whether to support public or private financing of education. We will show that the two decisions are interconnected, and that individual preferences over educational policy depend on the choices people to make private investments in education.

We follow Ansell (2010) and assume that low-income classes have a preference for public financing of education since public subsidization reduces the marginal cost of education and enables children to acquire an education that many could otherwise not afford. The gains for the lower classes come via three channels. First, if access to public education is universal, public financing has a redistributive component since the benefit makes up a greater share of income for those at the lower end of the

distribution. Second, because the costs of private financing is inversely related to the ability of parents to put up collateral (wealth and earnings) for educational loans, the savings of lower income individuals from public subsidies are greater.[1] Finally, because low-income individuals tend to be low-skilled, they benefit from increasing the relative abundance of better-educated workers via a standard relative factor endowment logic.

The logic for upper income classes is exactly the reverse.[2] They pay more into a public system via taxes than low-income groups and their costs of financing their own children's education privately are lower. Furthermore, being highly-educated themselves, they have an incentive to limit the supply of skills to maintain a high wage premium on education. While they want their own children to be educated to enjoy this premium, they have no interest in others being able to do the same. A privately funded system of education provides effective barriers to less affluent children, and private funding therefore raises the returns to education for the well-off.

The middle class is located between these two groups, both economically and in terms of policy preferences. On the one hand, a private system of financing reduces the tax burden to fund the education of the lower classes, and it creates a high wage premium for children of the middle class if private funding is sufficiently affordable. Middle class voters also tend to have intermediate skills that are the most wage-sensitive to an increase in the supply of skilled workers from the lower classes. On the other hand, access to credit is constrained for at least some in the middle class, and the cost of educational loans can be prohibitively high for many. Finally, some in in the middle class benefit from the redistributive aspects of public spending. This could sway the middle class towards supporting public funding.

Given the pivotal position of the middle class, the preferred structure of funding depends critically on which side the middle class comes down on. So a key question is how individuals decide whether or not to support public spending on education. We propose that this choice depends on whether individuals themselves have an incentive to opt out of the public system by paying a substantial share of the costs of education themselves. If so, they have little reason to support a tax-financed spending that mainly benefits those who stay in the public system. If they do not have a private incentive to opt out they come to depend on the public system and will favor taxation to fund their children's education. What decides, then, whether individuals opt out?

We assume here that choosing to pay for your children's education yields advantages in terms of school choice and quality. This is clearly the case for privately funded schools, but it also holds if there are economic barriers to entering the best public schools. The US is a prime example because a substantial share of public funding for primary and secondary schools is through local property taxes that are rising

[1] For those with very little income the credit constraint may indeed be fully binding in the sense that it is prohibitively costly to invest in their children's education at all.

[2] Again, this assumes democracy. Ansell (2010) proposes a different logic before mass democracy. Since the franchise was initially restricted to the wealthy they favored more public spending as industrialization proceeded. But as the franchise was gradually extended to the middle classes and then the poor, they increasingly favored private alternatives, which is the starting point for our analysis.

in the quality of schools and associated with more expensive housing. At the college level, tuition and fees at public schools tend to be much higher for out of state students so that access to the best schools depends on ability to pay. There are consequently benefits of opting out, or at least supplementing public spending with your own money. If quality education is a normal good, demand is rising in income, whereas the costs of financing education privately will be falling in income.

The incentives to opt out are thus increasing in income. Yet the affordability of doing so for any individual depends on how many others opt out. Since affordability is declining in taxes paid into the public system, for any individual to opt out of the public school system and pay for themselves, a sufficient number of other parents must have done the same.

We can formalize this logic using a simple network or strategic complementarities game (Schelling 1978). The idea is that for any individual to opt out of the public system and pay for themselves, a critical mass of other parents must have done the same. When all or most people send their children to public schools and pay through taxes, only a small number of very wealthy people will opt out. But if a substantial number of parents pay for private alternatives, the tax burden of the public system declines and more people can afford to opt out, and so on. The point at which it is more attractive for an individual to opt out than to stay put is what Shelling calls a critical mass point. The critical mass point will be low for the wealthy but will rise as income declines. For some low income people this point will never be reached and they will hence never support a private system.

If the critical mass points are a function of income in this manner, then it is sensible to conjecture that the distribution of these points will be inversely related to the income distribution. Since the income distribution is right-skewed the distribution of critical mass points will therefore likely be left-skewed, i.e. there is an in-built asymmetry that favors public over private provision. This is illustrated in Figure 2 (although our conclusions do not depend on the skew). In the left tail there are just a few wealthy people who will opt out (when others don't), but then the numbers increase more steeply until you reach income groups where fewer and fewer can opt out even when most others do. Again, some will likely never opt out regardless of how many others do, so a fully private system will never be feasible. This means that the share opting out never reaches 100 percent, and it may be much less than that.

Figure 2. The distribution of critical mass points in choosing private education (the share of people opting out of the public system needed for a particular individual opting out)

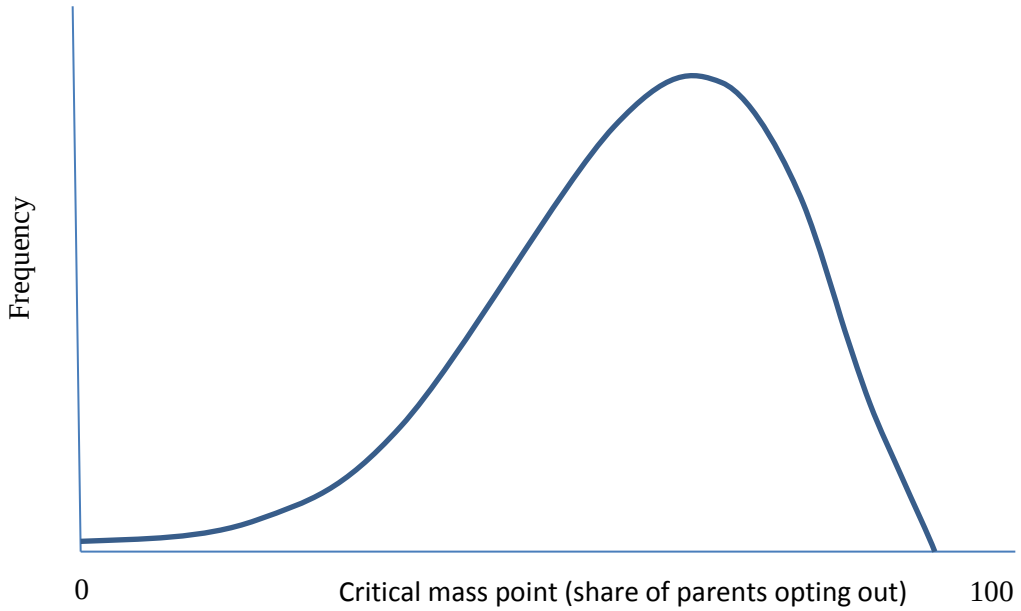
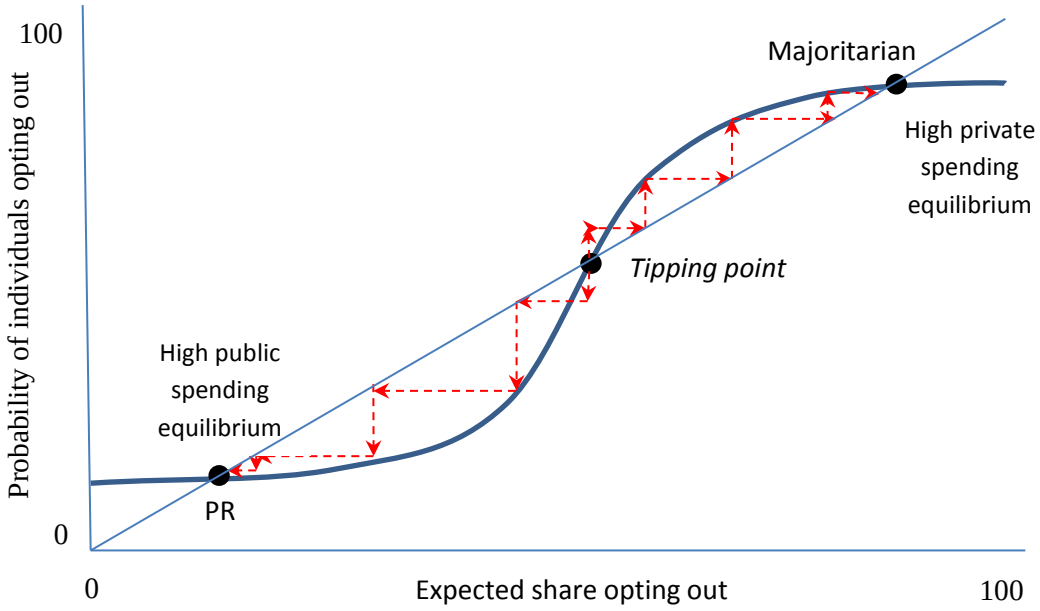


Figure 3 is the distribution in Figure 2 transformed into a cumulative probability function, where the x-axis measures the expected share of individuals who opt out of the public system, while the probability of an individual opting out is recorded on the y-axis. Since the probability of choosing private alternatives must be equal to the actual share of people who do, equilibria are only feasible on the 45-degree line. Based on the distribution in Figure 2 there are three such equilibria. One of these, the one in the middle, is unstable. This is the "tipping point" in the game because any small deviation from this point will set off a cascade of changes until one of the stable equilibria is reached (as suggested by arrows in the figure).[3]

[3] We have emphasized taxes as the main mechanism creating strategic complementarities between educational choices (as people opt out of the public system, taxes to finance the public system fall, and so do the costs of opting out, etc.), but there are two reinforcing complementarities. The first is through wages. As private schooling rises and public educational spending declines, the wage premium of education likely rises. This makes banks and other lending institutions more willing to finance educational investments, and on better terms, at least for those who are above some income threshold. As borrowing costs go down, private spending rises. The second is a social network effect. As more people opt out, the social acceptance of private schooling rises, and children left behind in the public system will tend to have a higher incidence of social and behavioral problems than private alternatives ("creaming"), which in turn undermines middle class support for the public system, etc. Of course, all these complementarities work to *increase* public spending if we are to the left of the "tipping point" in Figure 4.

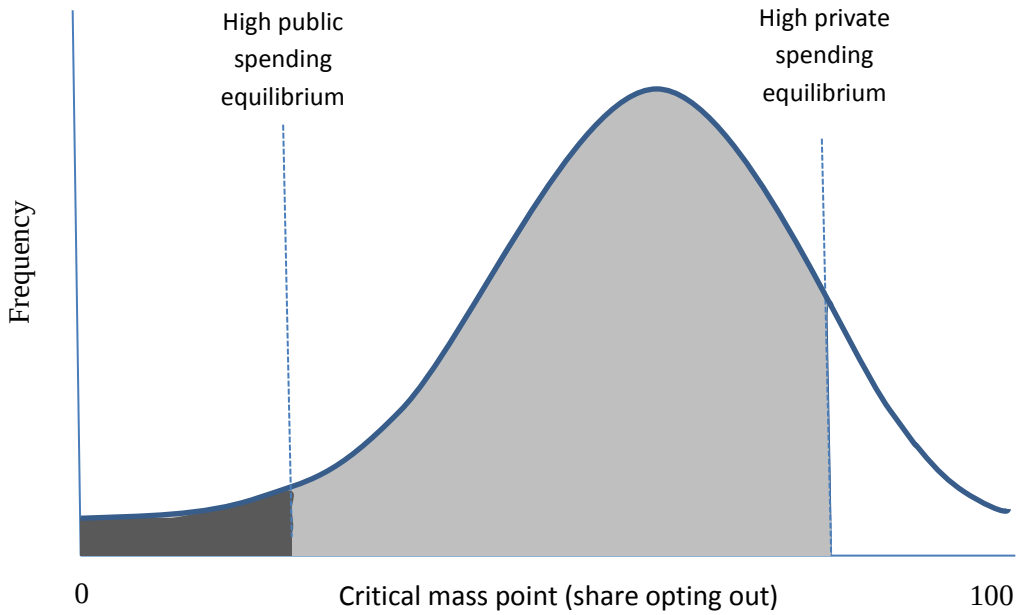
Figure 3. Network game of educational choice with two stable equilibria



3.2 Preferences for educational spending

Given that the composition of spending is so different across countries we would expect the number of people above their critical mass points, where they oppose public spending, to vary systematically. As illustrated in Figure 4 the number will be greater in a system where most choose private schooling (the total gray area in Figure 5) than in a system where most choose public schooling (the dark gray area in Figure 4). Empirically, we can capture the shares opting out by the division of private and public spending, so that average support for public spending should be rising in the share of total spending that is public.

Figure 4. The share who is below the critical mass point for opting out in two spending equilibria (total gray area for private spending systems; dark gray area for public spending systems).



But there is another key implication of our argument, which is that the relationship between income and preferences for public spending varies with the composition of spending. While it is usually the case that those with high incomes who have reached or are above their critical mass point, and therefore opt out of the public system, will prefer less public spending,[4] those who are clearly below this point will prefer to maintain public financing. In the short and medium term, the share of individuals opting out is given exogenously from the perspective of individuals. If education is a normal good (demand rising in income), when the share of private financing is high, an increase in income is therefore expected to be associated with a *decrease* in the support for public education spending, because richer people will prefer to spend additional income on private education.

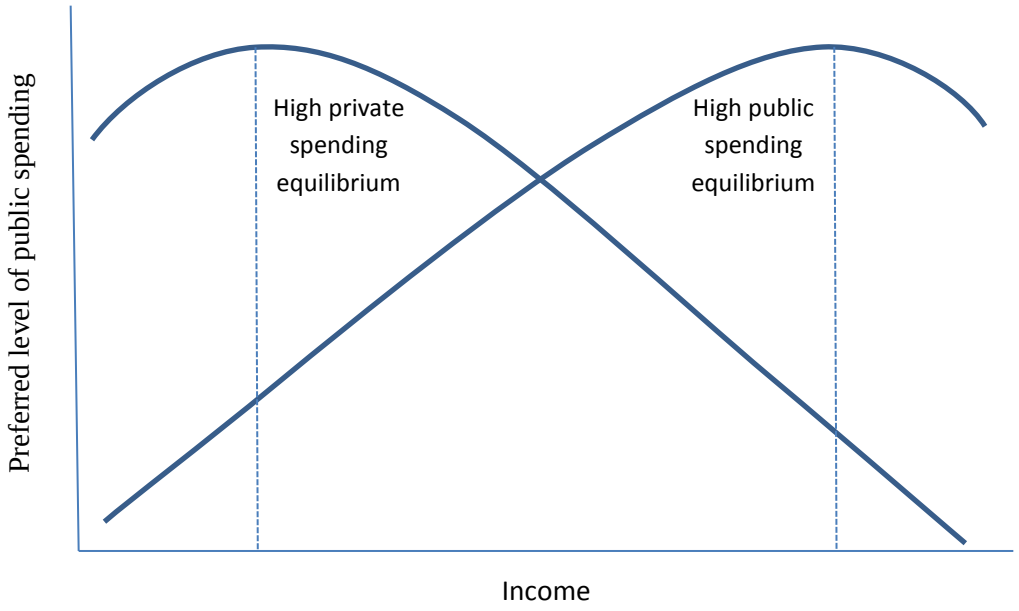
In contrast, when the public share is at a high level, an increase in income is hypothesized to *increase* the support for more public spending since even high-income people will fall short of their critical mass point and therefore be effectively deprived of the opportunity to opt out. Since they demand more and better education their only option is to vote for an improvement in the quality of public education. As we show below, this hypothesis can be tested using a cross-level interaction between individual income and the prevailing national division of labor in education financing.

The contingent relationship between income and preferences for spending is illustrated in Figure 5. Even though there are no inherent differences in the utility functions of people in different systems -- say,

[4] A potential exception is when public spending on education is seen by the wealthy as insurance for their children in case they can no longer afford their education. We think this insurance motive is likely to be very weak, in part simply because movement from the private system back to the public is rare.

because of political culture or beliefs about the right to education -- at high levels of private spending the support for public spending is declining in income for most of the income scale, whereas at high levels of public spending the support for public spending is increasing in income for most of the income scale. No other theory of educational spending that we are aware of has this implication.

Figure 5. The relationship between income and preferences for public spending on education depending on the composition of spending.



Another intriguing implication of our argument is that partisan differences within countries over how a system is funded may be relatively small. While we argue in the next section that institutionally-induced partisan coalitions are critical for the type of funding system countries end up with, once such a system is in place, network effects ensure that it will enjoy broad support across classes except the very rich. We *do* expect differences over the preferred level of spending, but the pattern will not necessarily conform with standard partisan expectations.

This logical is likely to be particularly true for public systems where a vast majority are inside the system, while in "private" system are de facto always mixed private-public systems because of the barriers for many to opt out of the public system regardless of how poorly funded it is. There is another key implication, which is that in publicly financed systems the right may be more favorably disposed towards public spending, contrary to the finding for virtually every other public spending area, notably ones that are clearly redistributive.

3.3. The choice of funding system

As we argued above, once a funding system is in place it is likely to enjoy broad partisan support because of positive feedback effects, especially in public systems where most private education is

squeezed out. But these preferences are *induced* by entrenched educational institutions; they do not reflect "pre-strategic" preferences over the educational system itself. So setting up the system is likely to bring out the distributive conflicts we identified, following Ansell, in section 3.1. Since the middle class can go either way, a critical question is whether there are institutional incentives for the middle class to lean in one direction or the other. This would in effect solve the tipping point game.

Most of the rise in secondary and tertiary education occurred after the transition to democracy was completed the early 20th century (in most of our cases). While it has been argued that prior religious control of education shaped public subsidization of private primary education (Ansell and Lindvall 2013), a critical variable for our purposes is simply whether political coalitions were in place that favored rapid growth in public spending; whether or not some of this spending was funneled through religious schools. Before the Second World War as well as in the postwar period national systems of public education were hotly contested partisan affairs. A key democratic institution that shaped the outcome was the electoral system. Proportional representation (PR) countries in continual Europe and Scandinavia quickly adopted almost entirely publicly funded systems, although this was true to somewhat lesser extent where Christian democracy and the church remained strong. By contrast, majoritarian England and its settler colonies reserved a much larger role for private schools and private spending on education.

One way to understand this contrast is suggested by Iversen and Soskice's (2006; 2011) model of coalition formation, which implies that electoral institutions influence the likelihood of center-left or center-right coalitions. The argument is that in electoral systems based on proportional representation, the middle class, represented by a centrist party, is more likely to enter a coalition with the political representatives of the low income classes. This prediction rests on the notion that the rich can be forced to pay the lion share of public spending, usually outweighing any negative effects of such funding on the wages of the educated middle classes. As we have argued, once this this pro-spending coalition raises taxation and forces up the cost of opting out for the rich, the network logic kicks in and a stable equilibrium emerges where private schooling is merely a niche for the very wealthy. Public funding takes over.

In majoritarian systems the dynamic is different. Here the middle class typically has to choose between two parties, both appealing to the "median voter" but each incorporating distinct constituencies of either lower or higher income voters. In this setting the middle class has to be concerned what happens if parties deviate from their median voter platform, and here the calculus is different from the PR case. The center-left party, if it deviates, cannot be prevented from adopting a public system that imposes high taxes on the middle class (in addition to the upper classes), whereas if the center-right party deviates it will cut taxes and thus partially offset the loss of public spending. This enables more in the middle classes to pay for their own children's education. Alternatively, center-right parties will allow some mixture of private and public financing that will give the middle classes a measure of choice while keeping down costs (since those with higher income do not use the public system). As long as taxes are kept relatively low, a significant number of upper income parents will choose private alternatives This encourages middle and upper-middle class groups to do the same, setting in motion the network logic.

Our macro-level argument thus builds on the notion that public funding is initially a matter of traditional partisan politics. This continues to be true in majoritarian systems where the left is more likely than the right to support an increase in public spending. But there is twist to the story in PR systems because of the network effect. If the spending equilibrium is firmly shifted towards a public system, the middle and upper-middle classes concerned about high-quality education have no choice but to support better public schools. This in turn pushes right parties to favor more spending, despite their "first-best" choice being low spending. So PR tips the system to the left in Figure 4 above, even as it does not preclude subsequent center-right compromises over public spending intended to improve the quality of higher education (as opposed to more redistributive spending targeted to the lower and middle classes). This logic does not extend to redistributive policies, and we think this highlights why education is such a unique policy domain.

Summarizing, our model implies the following testable hypotheses :

Hypotheses 1a (Macro level): We expect electoral institutions to influence patterns of spending on the macro level. The public share of education spending is hypothesized to be higher (lower) in PR (majoritarian) countries, controlling for other determinants.

Hypotheses 1b (Macro level): Government partisanship is expected to matter, but only in the long term as it is by itself conditioned by the funding system.

Hypothesis 2a (Micro level): The composition of funding has feedback effects on preferences for public education spending. In public-dominant educational systems we expect an increase in income to be associated with higher levels of demand for public education provision, whereas the opposite is expected in private-dominant educational systems (cross-level interaction effect).

Hypothesis 2b (Micro level): The composition of funding also has feedback effects on average levels of support for increasing public education spending. In public system, average levels of support should be higher, whereas the opposite holds in private systems.

The next section seeks to test these implications.

4. Empirical analysis

Following the theoretical discussion we test our argument in two steps. First, we analyze the macro-level determinants of the share of private spending on education to determine whether electoral institutions are associated with different levels of private financing. Second, we study how electoral institutions feed back into public preferences and attitudes at the micro level. The second step is essential to our argument since it tests the causal mechanism of the network model that we introduced above.

4.1 Data

In order to evaluate the empirical validity of our argument, we engage in two different kinds of analyses: a micro-level analysis of survey data to assess the impact of electoral institutions on preferences and a macro-level analysis of aggregate spending data.

For the macro analysis, we largely rely on the Comparative Political Dataset compiled by Armingeon et al. (2011). Additional data on the public share in education funding is taken from the OECD Education Statistics Database (accessed via OECD.stat). Our dependent variable is the public share of education spending (not spending as percentage of GDP as is common in existing scholarship (Ansell 2008, 2010; Busemeyer 2007, 2009; Castles 1989, 1998; Schmidt 2007)). The most important independent variable is an indicator of the type of electoral system given in Armingeon et al. (2011), based on previous work by Huber et al. (2004). A value of "0" indicates a PR system, a value of "1" a modified PR/mixed system, and a "2" a single-member, simple plurality system.

We control for two variables that help capture the power resources of the political left. Wolf (2009) identifies union density as an important positive determinant of the public share in education funding. Unions have an interest in promoting public instead of private education in order to ensure open access to education for their membership. We also include a measure of corporatism taken from Visser's (2011) Database on Institutional Characteristics of Trade Unions, Wage Setting, State Intervention and Social Pacts (ICTWSS). Corporatism captures the degree of wage bargaining centralization (the level at which wage bargaining takes place from the national/central to local/firm level). The expectation is that higher union density and levels of corporatism (wage bargaining centralization) affect left bargaining power and therefore the public share. A related control is a measure of (short-term) government partisanship (also from Armingeon et al. 2011), for which higher values indicate a more left-ward oriented government. The standard expectation is that a more left-ward oriented government to be associated with a larger public share, but short-term partisanship may not matter much because the policy (network) feedback effects reduce partisan differences, while electoral institutions pick up the long-term effects.

We also include gross enrolment levels in tertiary education in proportion to the age cohort (taken from the UNESCO database of education statistics) as a measure of need. The expectation is that higher levels of enrolment should be associated with higher *levels* of spending although it may or may not spill over into a higher share of public spending depending on the elasticity of private demand. Finally, we control for the size of the public sector (total outlays as percentage of GDP from Armingeon et al. (2011)), because a larger public sector may capture political forces that are also important in explaining the public share of educational spending, yet not captured by any of our other controls. The causal relationship between these two variables is ambiguous, but including the size of the public budget helps us control for the effect of unobserved variables and therefore reduces potential problems of omitted variable bias.

For the micro-level survey data, we use the ISSP Role of Government IV data. Fieldwork for this survey was administered in 2005/06. The ISSP data is high quality and available for a large number of countries,

and while the survey does not contain a question that specifically asks individuals for their preferences regarding the public/private division of labor in education financing, it contains two questions that come as close as any survey we are aware of. The first is the following:

"Listed below are various areas of government spending. Please show whether you would like to see more or less government spending in each area. Remember that if you say ‚much more', it might require a tax increase to pay for it." – „Government should spend money: Education"

Respondents' answers are coded in five categories (from 1 "Spend much more" to 5 "Spend much less"). We collapsed the five categories into a binary categorical variable that takes the value "1" if respondents state that government should spend "more" or "much more" on education and the value "0" in the remaining cases. The advantage of collapsing the five categories into two is that results of the statistical analyses are much more straightforward to interpret, while it does not affect the substantive results.

A disadvantage of the wording of this question is that it does not distinguish between different types of education (academic, vocational, basic, etc.), and it is not specifically about the division of labor between public and private sources of funding. Yet the assumption we have to make for this question to be a good proxy for our theoretical variable is fairly weak (see Figure 6). We essentially have to assume that underlying preferences mostly fall into the shaded cells in Figure 6. If some are in the non-shaded, off-diagonal cells it would attenuate the estimated effects of the observed variable – which is to say, it would make it harder to confirm our hypothesis -- but it would not bias the results in the wrong direction unless more than 50 percent of the observations fall into the off-diagonal cells. This seems a fairly innocuous assumption.

Figure 6. The assumed relationship between observed and unobserved preferences for educational spending.

		Preferences for public spending on education (*observed*)	
		Less	More
Preferences for the public share of educational spending (*unobserved*)	Lower		
	Higher		

We next discuss our key explantory variables. The first one is income, given in income deciles in order to make relative income comparable across countries. As our model implies, without taking institutional context into account, we do not expect income to have a positive or negative significant effect on support for public education spending. Therefore, we include a cross-level interaction term between income and the prevailing private share of education spending. Our hypothesis is that high-income people should be more likely to support further increases in public spending in public systems (i.e. when the private share is low) and vice versa in private systems. We also expect a direct effect of the prevailing private share of education spending on average levels of support. If we observe positive

feedback effects, average support for increasing public spending should be higher in countries with a lower private share in spending.

Furthermore, we include a number of control variables at the micro level. In contrast to income, educational background is expected to have a positive impact on support for more education spending. Having gone through a longer education may be an expression of a strong preference for such education. With regard to age, we expect a curvilinear relationship: Individual support for education spending is hypothesized to increase up to a certain age, either because individuals are in education themselves or have (young) children. Older people, in contrast, most likely oppose further spending on education and support spending on other social policies instead (Busemeyer et al. 2009). We include gender as an additional control. Since women are now more likely than men to attend college, yet still earning less than men, we may expect them favor more public spending. In addition, we include a dummy variable that indicates whether respondents have children or not.[5] The expectation is that having children increases support for education spending and government responsibility for student aid. Since there might be important differences in the impact of macro-level factors between parents and non-parents, we also split the sample in order to assess whether the effect of macro variables varies across subgroups. Finally, we include a number of categorical indicators of labor market status (full-time employed is the base category).

We include several macro-level control variables in the multilevel regression model. Due to the low number of cases on the macro level (n=20), we can only cover a very reduced set of independent variables. One is the current level of public education spending. This is advisable or even necessary, because the question in the ISSP dataset does not specifically take into account differences in the *status quo*. If people's preferences are affected by the status quo level of spending, which is a well-known issue in comparative opinion research, we need to control for differences in this level.

In addition, we include the current level of income inequality (the net Gini index of inequality of household income taken from Solt (2009)). In line with the standard Meltzer and Richard (1981) model we expect inequality to be associated with a higher level of average support for more public spending and government responsibility. The logic is that more than half have a below-mean income and will demand more spending when their income falls.

Because of problems of data availability, the composition of the two samples in terms of countries varies a bit. For the macro level analysis, we cover Australia, Austria, Belgium, Canada, Denmark, Finland, France, Ireland, Italy, Japan, the Netherlands, Norway, Portugal, Spain, Sweden, the US and the UK. Germany, New Zealand, Greece and Switzerland had to be excluded due to missing data either for private spending on education or tertiary enrolment. The period for which we have complete data is 1997-2008. The ISSP dataset contains data for Australia, Canada, Denmark, Finland, France, Germany,

[5] To be more precise, the variable in the ISSP dataset (HHCYCLE) captures the current composition of the respondent's household. Thus, respondents living in households with children are coded "1" and "0" otherwise. This does not take into account individuals with children not living with their parents anymore. Therefore, our estimate could underestimate the share of respondents with children attending university, but unfortunately, there is no better measure available in the dataset.

Ireland, Japan, the Netherlands, New Zealand, Norway, Portugal, Spain, Sweden, Switzerland, the UK and the US. In order to maximize the number of level-2 units (countries), we also include three Eastern European countries (the Czech Republic, Poland and Hungary). Yet, the results do not differ much whether we include these or not. If we restrict the analysis to only the common set of countries our substantive results stand. Yet to maximize N and to generalizable for the whole set of advanced postindustrial OECD countries.

4.2 Methods

The analysis of aggregate data poses serious, but well-known, methodological challenges. Pooled time-series data are often plagued by serial autocorrelation of error terms within countries, panel-specific heteroskedasticity and contemporaneous correlation across units (countries) (Beck/Katz 1995, 1996; Franzese/Hays 2008; Kittel/Winner 2005; Kittel 2006). In the case of the present paper, the problem is aggravated by the fact that some of the independent variables, most importantly the electoral system, usually do not change over time. Therefore, the effects of these independent variables would be suppressed if country fixed effects are used to pick up any unobserved country-specific confounders. Not including country fixed effects, on the other hand, carries the risk that the coefficient estimate of the variable on electoral institutions picks up unobserved differences between country groupings (i.e. Anglo-Saxon countries versus Continental European countries) that are not necessarily causally related to differences in electoral institutions. Our (imperfect) solution to this problem is a) to provide a clear theoretical argument on the causal mechanisms linking electoral systems and policy output (see above) and b) to provide a large number of different model specifications to show the robustness of the findings.

More specifically, we employ three different model specifications: 1. A model that uses panel-corrected standard errors (PCSEs, see Beck/Katz 1995, 1996) as well as an AR(1) process to correct for serial autocorrelation and a time trend variable. This model also includes a time trend variable to deal with potential problems of non-stationarity. 2. A model with PCSE and a lagged dependent variable (Beck/Katz 1995, 1996) that takes account of autocorrelation, but suppresses the explanatory power of other independent variables (Achen 2000). 3. A generalized least squares (GLS) model combined with an AR(1) process to correct for autocorrelation of error terms.

With regard to the micro level analysis of preferences, we apply a simple multilevel logit regression. This model includes macro and micro level variables, taking into account the multilevel structure of the data when estimating standard errors (individuals nested within countries). Our theory predicts an association between macro level variables on the one hand and average levels of support for education spending and government responsibility for student aid on the other. Therefore, our model is essentially a random-intercept model, where average levels in the dependent variable are conditioned by macro-level contexts. The second empirical implication of our model is an association between the private spending share and the income effect (cross-level interaction), which is equivalent to a random-slope model.

4.3 Findings: Macro level

Table 1 presents the findings from the macro-level analysis of the public spending share. Besides electoral institutions, we control for (short-term) government partisanship, union density, the total size of the public sector, neo-corporatism and levels of tertiary enrolment. The table shows that electoral institutions indeed have a significant impact on the public share in education financing in the expected direction (Hypothesis 1a). The public share is significantly lower in majoritarian systems. The variable on electoral institutions is the only one that is robust across all model specifications. The predicted effect of moving from a full PR to a full majoritarian system (recall from above that this indicator has three categories) is a reduction in the public share in spending of 10.2 (model 1), 13.0[6] (model 2) and 7.0 percentage points (model 3). The mean of the public spending share in the sample is 88.8 with a standard deviation of 8.2. Thus, the predicted effect has a magnitude of about one standard deviation.

The control variables behave largely as expected. Union density has a positive and sometimes significant effect as in Wolf (2009). A larger public sector is also associated with a higher share of public spending on education. We also find evidence for a positive association between gross tertiary enrolment and the public spending share (model 1), but it is not significant in the other models. Government partisanship (left-oriented governments score higher on this indicator) and centralized wage-bargaining tend to have a positive effect, but it is not statistically significant in most cases.

However, it is important to remember that electoral institutions also influence the predominance of particular partisan coalitions in the long run (Iversen and Soskice 2011). Figure 7 confirms this by displaying a number of bivariate scatterplots between the long-term average cabinet share of conservatives, social democrats and Christian democrats, respectively. A higher share of social democratic government parties is negatively associated with the private share of education funding, whereas the opposite holds for conservative government parties. Christian democrats are somewhere in between these extremes. These figures confirm that there *is* a strong relationship between partisan politics and education policies (Ansell 2010; Busemeyer 2007, 2009; Iversen/Stephens 2008; Wolf 2009), but it holds for the long-term rather than the short term, and it is conditioned by electoral institutions (Hypothesis 1b).

In table 2, we look at determinants of private spending on higher education (as percentage of GDP) instead of the share of public spending as a robustness check. Accordingly, the expected sign of the coefficient estimates switches, i.e. a larger public sector is shown to be associated with less private spending on education and the impact of union density is negative as well. However, as before, the variable on electoral institutions is the only one that is robust and statistically significant across all model specifications. The average predicted effect (from models 1 and 3, table 2) of a change from full PR to full majoritarian system is an increase in private spending on higher education by 0.4 percentage

[6] This estimate is obtained by the following formula: Coefficient of independent variable / 1 – Coefficient on lagged dependent variable, as recommended by Kittel and Winner (2002) when using a LDV specification.

points. The sample mean for this variable is 0.33 percent of GDP with a standard deviation of 0.4. Again, the predicted effect has the magnitude of about one standard deviation.

Table 1: Macro Level: DV: Proportion of public spending on education

	(1)	(2)	(3)
Dependent variable	Public share of education funding		
Model specification	PCSE-AR(1)	PCSE-LDV	GLS-AR(1)
Public share, lagged level		0.906***	
		(0.0247)	
Government partisanship	0.393**	-0.0650	0.199
	(0.168)	(0.0767)	(0.154)
Union density	0.0523***	0.00633	0.162***
	(0.0173)	(0.00481)	(0.0505)
Public spending, % of GDP	0.198***	0.0729***	-0.00492
	(0.0630)	(0.0166)	(0.0692)
Centralization of Wage-Bargaining	0.491**	0.229*	0.181
	(0.193)	(0.135)	(0.242)
Gross tertiary enrolment	0.0713***	-0.00388	0.0380
	(0.0249)	(0.00623)	(0.0279)
Majoritarian electoral system	-5.179***	-0.616**	-3.546***
	(0.869)	(0.308)	(1.233)
Time trend (year)	-0.150		
	(0.101)		
Constant	372.2*	4.570***	80.93***
	(201.7)	(1.398)	(4.100)
Observations	261	255	261
R^2	0.945	0.967	
Number of countries	17	17	17

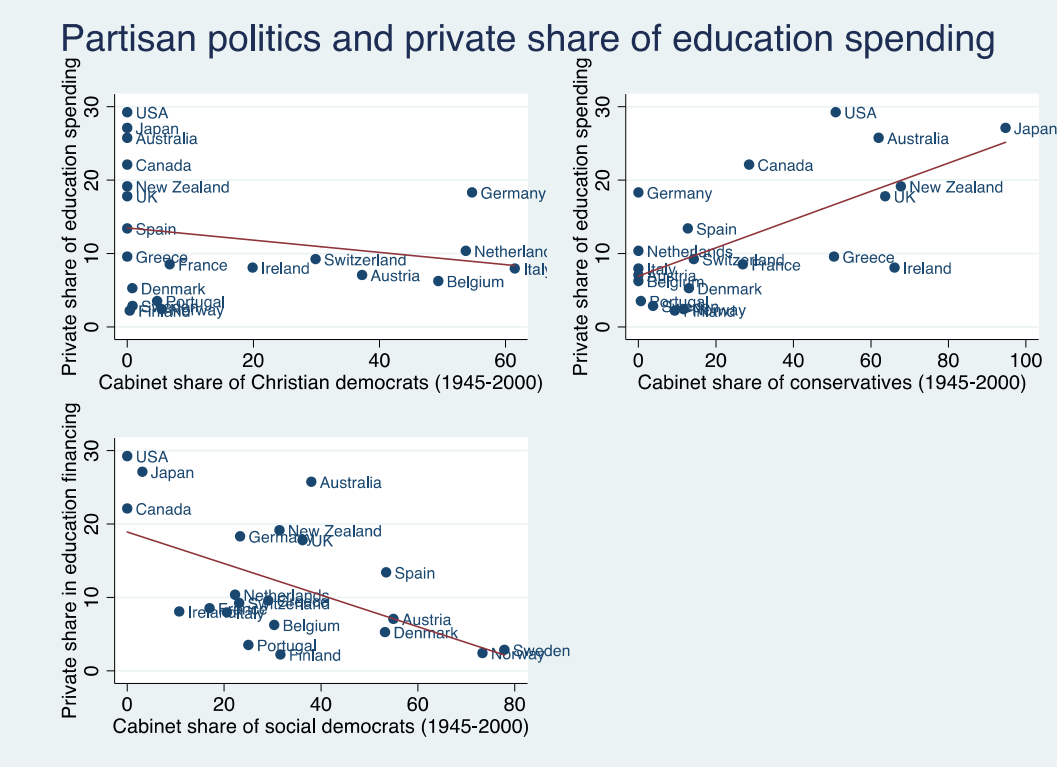
Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Table 2: Macro level: DV: Private spending on higher education (percentage of GDP).

	(1)	(2)	(3)
Dependent Variable	Private Spending on Higher Education, % of GDP		
Model specification	PCSE-AR(1)	PCSE-LDV	GLS-AR(1)
Private spending, lagged level		0.978***	
		(0.0245)	
Government partisanship	-0.00416	-0.00170	-0.000204
	(0.00406)	(0.00349)	(0.00742)
Union density	-0.00269***	9.23e-05	-0.00590***
	(0.000806)	(0.000267)	(0.00229)
Public spending, % of GDP	-0.00817***	-0.000654	-0.00504
	(0.00192)	(0.000867)	(0.00353)
Gross tertiary enrolment	0.000777	-0.000236	0.00164
	(0.000875)	(0.000250)	(0.00134)
Majoritarian electoral system	0.220***	0.0272***	0.139***
	(0.0178)	(0.00826)	(0.0500)
Time trend (year)	0.0131***		
	(0.00381)		
Constant	-25.50***	0.0559*	0.605***
	(7.570)	(0.0328)	(0.198)
Observations	257	239	257
R^2	0.236	0.950	
Number of countries	18	18	18

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Figure 7: Partisanship in the long term and the private share in education financing.



4.4 Findings: Micro level

In table 3, we look at the association between the prevailing division of labor in education financing and individual-level support for increased public spending on education. In general, the micro-level control variables perform mostly as expected. Without taking into account cross-level interaction effects, income does *not* have a significant impact on individual-level support for public education spending (model 1, table 3). Educational background (years of education) has a positive, robust and statistically significant impact on support for more education spending. Women tend to be in favor of more education spending, but this effect is not statistically significant. We also find evidence for the expected curvilinear relationship between age and support in the case of support for public education spending. Labor market status is not a strong predictor of individual support for more education spending, except for the fact (unsurprising) that individuals who are still in the education system support further spending increases.

With regard to macro-level control variables, we find that the existing level of public education spending has a negative effect on support for further increases. We also find a robust positive and statistically significant association between existing levels of socio-economic inequality and average levels of support for public education spending. The predicted change in support for public education spending as a result of an increase in inequality from 22 to 36 points on the Gini index (roughly the difference between Sweden and the US) is an increase from the level of 53 percent to 83 percent. This is consistent with the notion that educational spending is redistributive and that the borrowing costs of private alternatives increase as income (and ability to provide collateral) decline.[7]

A key finding is that there is a robust and significant association between the existing private share in education spending and average levels of support for increasing public spending. This association holds independent of whether we use the private spending share for all levels of education (models 1 and 2, table 3) or focus on tertiary education only (models 3 and 4, respectively). Increasing the private spending share from 5 percent (roughly the level of Norway) to 30 percent (the level of the US) is predicted to be associated with a decrease in support for more public education spending from 77 percent to 63 percent. A similar simulation for the case of private spending on tertiary education yields a reduction of support for public spending from 79 to 60 percent. Of course the network model implies that the causality runs in both directions since preferences for public spending will increase spending, even as they are also affected by such spending. Our data (from one year) cannot tease out this recursive relationship, but the results are consistent with the equilibrium predictions of the model.

The other key finding is that there is a strong cross-level interaction between income and the private spending share. That is, the impact of household income on support for public education spending varies systematically with the prevailing private share of education spending. In public education systems, becoming richer is associated with an increase in support for public education spending, whereas it is associated with a decrease in support in private systems. This cross-level interaction is presented graphically in figure 8, which shows the change in the marginal effect of a one-unit increase in

[7] The estimate is based on model 1 from table 3. Calculations are based on simple logit regressions instead of multilevel models, because the SPost commands in Stata do not work with the latter.

income (at the mean) as it changes with the private spending share. The figure shows that income has a positive effect on support for public education for low levels of private spending share, although the effect is statistically significant only when the private spending share is close to zero. In contrast, the marginal effect of income turns negative and is statistically significant when the private spending share is larger than 20 percent. A similar cross-level interaction effect can be observed for the case of private spending for tertiary education only (model 3, table 3).

The reversal in the effect of income is quite remarkable. So far as we are aware this is true for no other spending area and is implied by no other existing model. The fact that the positive effect in public systems is relatively weak likely reflects that public spending is a composite of spending on lower-level education and subsidies targeted to poorer students, and spending on higher education and measures to ensure high quality (such as low teacher-students ratios). The latter is obviously more important to those with higher income. We would have liked to be able to differentiate clearly between the redistributive and "quality" aspects of educational spending in public systems, but the data does not allow us to do that. We do however have a question about preferences for targeted spending on university students from low-income families and here we find that the effect of income is always negative, even in public systems (the results are reported in Appendix A). The effect of income on the more general question about public spending includes preferences for both targeted and non-targeted spending. For systems with a large private component, by contrast, high-income individuals will tend to view all public spending as redistributive.

As a further robustness test, we split the sample in two: parents (model 5) and non-parents (model 6) in order to address the question whether the effects are stronger in the first group compared to the second. The findings in the table show that by and large, the effects remain similar in direction and in terms of statistical significance in both subgroups despite the significant reduction in number of cases for the subgroup of individuals with children (although the coefficient estimate of the private spending share turns insignificant in model 5 of table 3).

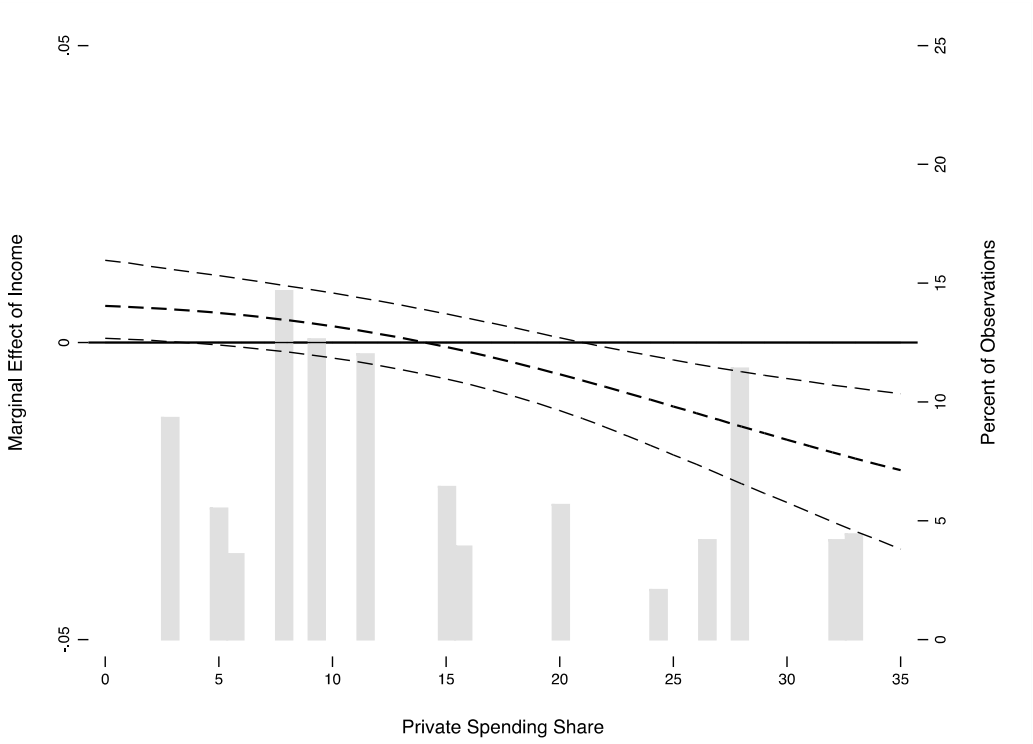
Table 3: Determinants of micro-level support for public education spending.

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent variable	Support for more or much more government spending on education (=1) vs. the same or less (=0)					
Subsample?					Children	No Children
	Micro-level variables					
Income	-0.000157	0.0516***	-0.00326	0.0472***	0.0546*	0.0613***
	(0.00980)	(0.0179)	(0.00990)	(0.0169)	(0.0294)	(0.0228)
Gender (female=1)	0.0547	0.0570	0.0614*	0.0643*	0.167**	0.0140
	(0.0357)	(0.0357)	(0.0364)	(0.0365)	(0.0673)	(0.0425)
Having children	0.312***	0.308***	0.306***	0.301***		
	(0.0392)	(0.0393)	(0.0401)	(0.0401)		
Years of education	0.0294***	0.0282***	0.0295***	0.0283***	0.0176*	0.0309***
	(0.00496)	(0.00497)	(0.00507)	(0.00507)	(0.00931)	(0.00591)
Age	0.0165**	0.0170***	0.0178***	0.0184***	0.0450***	0.0108
	(0.00652)	(0.00653)	(0.00670)	(0.00672)	(0.0170)	(0.00736)
Age, squared	-0.000141**	-0.000148**	-0.000152**	-0.000161**	-0.000459**	-8.47e-05
	(6.77e-05)	(6.78e-05)	(6.97e-05)	(6.98e-05)	(0.000198)	(7.45e-05)
Part-time employed	0.107*	0.108*	0.0975	0.0987	0.150	0.0335
	(0.0619)	(0.0620)	(0.0643)	(0.0644)	(0.103)	(0.0794)
Less than part-time,	0.0405	0.0453	0.0301	0.0368	-0.0578	0.0926
out of labor force	(0.0628)	(0.0629)	(0.0641)	(0.0641)	(0.104)	(0.0809)
Unemployed	0.0558	0.0748	0.0415	0.0617	0.0463	0.0791
	(0.0991)	(0.0995)	(0.0997)	(0.100)	(0.168)	(0.124)
In education	0.523***	0.555***	0.507***	0.543***	0.786***	0.467***
	(0.135)	(0.136)	(0.136)	(0.137)	(0.247)	(0.165)
Retired	0.0374	0.0501	0.0293	0.0461	-0.299	0.0509
	(0.0677)	(0.0679)	(0.0690)	(0.0693)	(0.234)	(0.0741)
	Macro-level variables and cross-level interactions					
Public education	-0.315**	-0.319**	-0.327**	-0.340**	-0.328**	-0.313**
spending, % of GDP	(0.146)	(0.149)	(0.144)	(0.147)	(0.153)	(0.154)
Socio-econmic	0.122***	0.125***	0.143***	0.145***	0.127***	0.125***
inequality (Gini)	(0.0296)	(0.0300)	(0.0327)	(0.0332)	(0.0313)	(0.0312)
Private share	-0.0375***	-0.0284**			-0.0195	-0.0304**
education spending,	(0.0139)	(0.0143)			(0.0153)	(0.0149)
all levels						
Interaction:		-0.00294***			-0.00314**	-0.00330***
Income*private		(0.000840)			(0.00140)	(0.00106)
spending share						
Private share			-0.0218***	-0.0171**		
education spending,			(0.00772)	(0.00795)		
tertiary education						
Interaction:				-0.00154***		
income*private				(0.000412)		
spending share						
(tertiary)						
Constant	-1.593	-1.795	-2.145*	-2.292*	-2.127	-1.679

	(1.251)	(1.271)	(1.235)	(1.254)	(1.367)	(1.325)
Observations	18,971	18,971	18,218	18,218	6,690	12,281
Number of countries	20	20	19	19	20	20

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Figure 8: Graphical representation of the cross-level interaction between income and private spending share, dependent variable: support for public education spending.



5. Discussion and conclusions

This paper addressed two pressing research puzzles: Why do countries vary significantly with regard to the share of private spending on education and why are these differences politically sustainable in the long term? Expanding the argument of Iversen and Soskice (2006), we argued that electoral institutions play a crucial role in shaping distributive coalitions. In PR systems, the center party representing the median voter can align with the representatives of the low-income classes to push for an education system in which the state dominates as provider and financier of education. In majoritarian systems, the median voter forms a coalition with the party of the upper income classes, leading to a larger share of private funding of education. Once in place, the funding system affects individual preferences for public spending because the greater the share of public spending the more expensive it is to opt out. If educational spending is a normal good this means that middle and upper-middle classes will vote for more public spending when such spending is high, but vote for less when it is low. These feedback effects explain why distinct spending equilibria are politically sustainable in the long run. We assessed the empirical validity of the argument both on the micro level of preferences and the macro level of aggregate data, and found considerable support for both conjectures.

Our argument has implications for how we explain inequality. First, and most obviously, the level and composition of public education has implications for the supply and distribution of skills. It is hardly an accident that publicly financed systems tend to have less wage inequality, and we suspect that the decline in the rate of growth in college graduates in the US, and the associated exceptional rise in wage inequality as documented by Goldin and Katz (2007), is closely associated with a rise in the number of middle and upper-middle income parents who opt to pay for children's education privately. Second, besides the question of financing, the institutional set-up of the education system might matter as well. In fact, private education spending might act as a functional equivalent to institutional stratification. Thus, private education spending is above average in countries with comprehensive secondary education systems and relatively open access to higher education (USA, Canada, the UK, but also Japan). Upper income classes might be willing to pay for the education of their children with the goal of effectively limiting access to (elite) higher education in institutionally less stratified systems. In contrast, access to higher levels of education is limited through institutions in education systems with a high degree of stratification, i.e. early tracking and a strong differentiation between academic and vocational education. The need of upper income classes to "price out" the middle or working class is less pressing in these cases and in fact, public spending on higher education can become a form of regressive redistribution from the low- to the high-income classes.

In general, the possibility of "opting out", either by purchasing private alternatives or by gaining exclusive access to superior public services, is likely to shape the politics of many policy areas ranging from pensions and healthcare to childcare and public safety. We hope our approach will inspire new work in these diverse, but theoretically related, policy areas. Theoretically we encourage a more explicit re-consideration of Hirschman's informal conjecture of an interaction between "exit" and "voice".

Finally, we should acknowledge that the present analysis has limitations that might be the starting point for future research in the area of education. First of all, our question on preferences does not address the division of labor between public and private financing directly. We have to assume that higher levels

of support for public spending on education are associated with support for a stronger role of government in education financing. The ISSP dataset contains additional questions on individual support of government subsidies for poor students or whether people consider it fair that income buys access to higher education. We included results for one of these questions in the appendix, but they do not capture what we are after because they specifically capture a redistributive question.

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Appendix A: Preferences for government aid to students from low-income families

In addition to the question we use in the main text, we analyzed a second question:

"On the whole, do you think it should or should not be the government's responsibility to give help to university students from low-income families?"

Compared to the previous question, this question is less about public spending as such, but more about the general distribution of responsibilities between the government and other actors (households, markets). It is also more directly related to the conflict about redistribution, since it asks specifically about government support for students from low-income families. In contrast to the previous question, there are only four answer categories in this case (definitely/probably should be, definitely/probably should not be). Again, we collapse these four categories into two (support and opposition against government responsibility).

[More to be added later.]

Table A1: Determinants of preferences for government support for low-income students.

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent variable	Support for more government aid to students from low income families (1=yes, 0=no)					
Subsample?					Children	No children
	Micro-level variables					
Income	-0.0509***	-0.0559**	-0.0504***	-0.0506**	-0.0393	-0.0732**
	(0.0132)	(0.0241)	(0.0133)	(0.0224)	(0.0401)	(0.0304)
Gender (female=1)	-0.00269	-0.00282	-0.00219	-0.00219	-0.0217	0.000117
	(0.0503)	(0.0503)	(0.0512)	(0.0512)	(0.0949)	(0.0599)
Having children	0.251***	0.251***	0.241***	0.241***		
	(0.0543)	(0.0543)	(0.0553)	(0.0553)		
Years of education	0.00712	0.00723	0.00487	0.00487	0.000946	0.0104
	(0.00712)	(0.00714)	(0.00725)	(0.00726)	(0.0133)	(0.00851)
Age	0.00141	0.00134	0.00204	0.00204	0.0635***	-0.0134
	(0.00969)	(0.00969)	(0.00993)	(0.00994)	(0.0243)	(0.0110)
Age, squared	5.43e-05	5.52e-05	4.19e-05	4.19e-05	-0.000623**	0.000199*
	(0.000103)	(0.000103)	(0.000105)	(0.000105)	(0.000285)	(0.000114)
Part-time employed	0.206**	0.206**	0.184**	0.184**	0.278**	0.186*
	(0.0868)	(0.0868)	(0.0892)	(0.0892)	(0.141)	(0.112)
Less than part-time,	0.119	0.119	0.133	0.133	0.232	0.0711
out of labor force	(0.0866)	(0.0866)	(0.0882)	(0.0882)	(0.144)	(0.111)
Unemployed	0.678***	0.676***	0.665***	0.665***	1.015***	0.539***
	(0.177)	(0.177)	(0.177)	(0.177)	(0.339)	(0.209)
In education	0.244	0.240	0.258	0.258	1.107***	-0.0836
	(0.170)	(0.171)	(0.172)	(0.173)	(0.364)	(0.198)
Retired	0.212**	0.211**	0.239**	0.239**	1.049**	0.136
	(0.100)	(0.100)	(0.102)	(0.102)	(0.424)	(0.108)
	Macro-level variables and cross-level interactions					
Public education	-0.370	-0.370	-0.320	-0.320	-0.325	-0.351
spending, % of GDP	(0.226)	(0.226)	(0.248)	(0.248)	(0.249)	(0.227)
Socio-econmic	0.193***	0.193***	0.222***	0.222***	0.227***	0.184***
inequality (Gini)	(0.0461)	(0.0460)	(0.0564)	(0.0564)	(0.0532)	(0.0465)
Private share	-0.0938***	-0.0947***			-0.0926***	-0.0966***
education spending,	(0.0216)	(0.0219)			(0.0254)	(0.0223)
all levels						
Interaction:		0.000267			-0.000690	0.00109
Income*private		(0.00109)			(0.00183)	(0.00138)
spending share						
Private share			-0.0476***	-0.0477***		
education spending,			(0.0133)	(0.0134)		
tertiary education						
Interaction:				4.06e-06		
income*private				(0.000527)		
spending share						
(tertiary)						
Constant	-0.578	-0.559	-1.737	-1.737	-2.851	-0.0276
	(1.923)	(1.922)	(2.108)	(2.108)	(2.207)	(1.943)

Observations	18,885	18,885	18,134	18,134	6,631	12,254
Number of countries	20	20	19	19	20	20

Standard errors in parentheses
*** p<0.01, ** p<0.05, * p<0.1

Figure A1: Graphical representation of the cross-level interaction between income and private spending share, dependent variable: support for government aid to students from low-income families.