

Are Aging OECD Welfare States on the Path to Gerontocracy?

Evidence from 18 Democracies, 1980–2002

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ABSTRACT

Since 1990 the age of the average OECD median voter has increased three times faster than in the preceding 30 years. We use panel data from 1980–2002 to investigate the effects of population aging on both the program size and the benefit generosity of public pensions in 18 OECD countries. Population aging is accompanied by cutting smaller slices out of larger cakes: it increases aggregate spending on pensions but freezes or decreases the generosity of individual benefits. Controlling for political, institutional and time-period effects, we find that public pension efforts are significantly mediated by welfare regime type. Moreover, since the late 1980s pension effort has more fully adopted a retrenchment logic. It is the politics of fiscal and electoral straitjackets, not gerontocracy, which shape public pension spending today. While population aging is accelerating, contrary to alarmist political economy predictions democracies are not yet dominated by a new distributive politics of elderly power.

Key words: *Generation, Pension Politics, Population Aging, Welfare Retrenchment, Median voter, JEL Classification Numbers: H55, D72*

In the last twenty-five years the political, economic, and social consequences of aging OECD societies have risen to the top of the agenda of policy communities and social scientists alike. Fertility rates have hit

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post-war lows and elderly cohorts live longer but typically do not retire later (Castles 2004; Ebbinghaus 2006). As a result, pay-as-you-go public pension systems in maturing welfare states have come increasingly under strain, especially in advanced capitalist democracies (Immergut et al. 2007; Myles and Pierson 2001), but also in emerging democracies in Europe (Vanhuysse 2001; 2006). International institutions such as the IMF (2004), the OECD (1996) and the World Bank (1994) have devoted major policy documents to addressing the perceived old age crisis. In electoral-*numerical* terms, the political balance between different age cohorts has shifted in favor of the elderly in most rich democracies. Theoretically at least, the possibility exists that future distributive conflict over state resources will be played out less along lines of class, skill, or ideology, and more along generational lines, with growing elderly age cohorts increasingly gaining the upper hand over shrinking younger age cohorts. Starting with Preston (1984), Pampel and Williamson (1985), and Hecló (1988), this has led many political scientists and sociologists to consider the likelihood that, along a number of electoral and public policy dimensions, liberal democracies are increasingly likely to reflect inter-generational conflict or elderly power (e.g. Busemeyer et al. 2008; Castles 2004; Esping-Andersen and Sarasa 2002; Lynch 2006; Pampel 1994; Pampel and Williamson 1989; Sabbagh and Vanhuysse 2008).

Economists and political economists have been particularly prominent in painting a gloomy picture of the redistributive consequences of demographic change. As populations age, median voters get older and the pro-public-pension coalition gains political clout. The closer the elderly come to obtaining an electoral majority, the more pension politics can dominate. Systemic reforms or even benefit reductions then become much harder, heralding a possible beginning of gerontocracy politics. Denouncing the ‘deficit delusion’ and ‘fiscal child abuse’ of US policy-makers, Kotlikoff and Burns (2004) predict that a ‘coming generational storm’ will have arrived by 2030. Discussing Germany, Sinn and Uebelmesser (2002:157) conclude that the beginning of the next decade will be ‘Germany’s last chance for a partial transition to a funded pension system. Thereafter, the country will effectively be a gerontocracy.’ Reviewing the social-economic consequences of demographic change worldwide, the IMF (2004:165) lists the year in which voters aged 50 and older will comprise at least 50·1 per cent of all voters, after adjusting for the notoriously higher turnout rates of elderly voters. Under the ominous heading ‘The Last Train for Pension Reform Departs In . . .,’ the IMF declares that countries such as Denmark, Greece, Italy, Norway, Portugal, and Sweden have until 2019 to reform their pensions. The US, Germany and France are said to be able to ‘board the last train’ until

2015, while Finland and Switzerland will have practically entered the age of gerontocracy by 2012.

Prior empirical research has indeed found that the proportion of elderly voters in the population tends to increase *overall* pension expenditure. But since population aging increases the ‘objective’ need for pension spending, even a governor who does not confront any electoral pressures would also increase overall pension spending because *any* pension system based on open-ended statutory entitlements will, *ceteris paribus*, lead to increased aggregate expenditure as the number of older people qualified to draw pensions increases. What makes theories of gerontocracy noteworthy is their prediction that population aging significantly affects the generosity of *individual* pensions. The more specific question thus regards not program size but benefit generosity. Are pensions *per elderly person* higher, the higher the weight of elderly voters? In this article we therefore compare the effect of population aging on both the size and the generosity of public pensions in mature welfare states, using two alternative ways to capture the effect of the latter variable. To do so, we investigate 18 OECD countries between 1980 and 2002.

Population aging and public pensions: theory and evidence

Theoretical political economy models in the tradition of Browning (1975) stem from median voter assumptions that postulate how re-election seeking politicians and self-interested voters shape pension policy. Each voter is assumed to vote for the pension system that promises him/her the largest lifetime utility. Within such frameworks, population aging can have two opposite effects on pension benefits. First, the ‘elderly power’ hypothesis suggests that a larger share of elderly people in society will increase individual pensions (Persson and Tabellini 2000; IMF 2004; Mulligan and Sala-i-Martin 1999, 2003; Sinn and Uebelmesser 2002; for reviews see Galasso 2006; Galasso and Profeta 2007). Since the elderly internalize only the benefits and not the costs of higher pension contribution rates, they will tend to vote for more generous pension benefits for themselves. So, too, might a growing share of under-65s who sense they will soon be pensioners. As population aging increases the electoral clout of pensioners and soon-to-be pensioners, it is predicted to lead to ‘elderly power.’

By contrast, the ‘fiscal leakage’ hypothesis, similarly drawing on the median voter framework, reaches very different conclusions. It holds that low fertility rates and longer life expectancies decrease the expected profitability of pay-as-you-go systems to currently working voters, thereby inducing them to favor smaller current pensions (Razin et al.

2002; Breyer and Stolte 2001; Razin and Sadka 2007). This effect might be triggered if current contributors lose their trust in the implicit generational contract which underlies pay-as-you-go systems (Sabbagh and Vanhuysse 2008). The young are willing to pay taxes for the currently retired only because they expect the young in the succeeding generation to do the same for them. Awareness of population aging may lead current workers to expect smaller future pension benefits than those they currently pay to the currently old. The fiscal leakage hypothesis therefore predicts that as long as the voting bloc of the retired does not represent an absolute majority, population aging will actually *reduce* pension benefits.

Both sets of median voter models can be criticized on similar grounds. On the supply side of pension politics, they tend to ignore the degree to which aggregate public expenditures, driven as they are by path dependence effects and long-term spending commitments, are an instance of ‘inheritance before choice’ (Rose 1990). Governments cannot generally change welfare state programs at will. Rather, they inherit fiscal commitments of past governments, grounded in laws and institutional structures (Rose 1990; Pierson 2004). This is particularly true for public pension schemes, where entitlements are defined by prior contributions which give pensions the status of vested rights (Scharpf 2000). On the demand side of pension politics, the implicit assumption of median voter models that current pension incomes are the main determinant of pensioners’ political behaviour ‘exogenizes away’ a wide array of well-established influences. While voter volatility has been on the rise in Western Europe in recent decades, the elderly are among the groups least likely to act as floating voters, as their party identifications tend to be more firmly established than those of younger generations (Butler and Stokes 1974; Goerres 2009). And while elderly voters record comparatively high voting turnout levels, they do not tend to vote as a homogenous constituency, single-mindedly focused on the real value of their pensions (Goerres 2009). Instead of seeking to maximize pension incomes, older people may actually follow Simon-type satisficing approaches to guard against the threats of advancing age, by trying to maintain a portfolio of resources that includes welfare benefits but also social capital and emotional capital (Rose 2008a). In fact, pension incomes do not even appear to be the core concern of elderly voters with falling consumption demands. It is health, not pensions, which tends to be elderly persons’ biggest priority (Rose 2008b).

Having noted these inherent limitations in median voter models, in this article we will mainly focus on the empirical support for competing theoretical predictions regarding the effect of population aging on public policy. Note that we do not focus here on either *general* welfare state effort

(as measured, for instance, by total social spending as a percentage of GDP) or old-age bias in public spending (e.g. Pampel 1994; Esping-Andersen and Sarasa 2002; Lynch 2006). What, then, is the current state of evidence on the effect of population aging on public pension effort specifically? Thus far, the evidence for the ‘fiscal leakage’ hypothesis has been scarce and less than convincing. Razin et al. (2002) show that the old age dependency ratio has a negative effect on the labor tax and on total social transfers. However, they apply standard OLS procedures on a sample of 13 countries over 28 years without taking into account problems of autocorrelation and non-stationarity. Employing event history analysis, Hicks and Zorn (2005) show that the share of elderly increases the likelihood of cuts in welfare spending. But these authors subsequently published an errata list acknowledging that, upon closer scrutiny, none of their main findings are correct or can be reproduced (Hicks and Zorn 2007).

In contrast, Castles (2004) finds that older populations in 1960 reduce social spending cutbacks. Moreover, Pampel and Williamson (1989: 71, column 4), Lindert (1996), Breyer and Craig (1997), Tabellini (2000), Disney (2007) and Shelton (2008) all find that the proportion of elderly people in society increases either public pensions or tax and contribution rates. Breyer and Craig (1997:721), for instance, conclude that public pensions are the ‘kudzu of government programs,’ in that they keep expanding every decade. However, the above results are strong only when the size of public pensions is measured as pension expenditure per GDP or GNP (see also Galasso and Profeta 2002). When the dependent variable is pension expenditure per elderly person as a share of GDP per capita, as in Pampel and Williamson (1985; 1989: 71, column 9), the proportion of elderly turns out to have only a weak effect. When the dependent variable is pension expenditure per elderly person, as in Breyer and Craig (1997) and Mulligan and Sala-i-Martin (1999), the proportion of elderly has no significant effect. Empirical studies in political science and political sociology, while much more sensitive to institutional and contextual variables, generally reach similar neopluralist conclusions to political economy models regarding effect of population aging. Especially in the USA, it is argued, the swelling of the ranks of pensioner interest groups has been accompanied by a rise of lobbying power and ultimately helps to explain benefit levels and growth rates (Pampel and Williamson 1985, 1989; also Huber and Stephens 2001, Pierson 1994).

On the whole therefore, the existing evidence on the effect of population aging on the overall size of pension programs tilts in the direction of a positive effect. This is consistent with the ‘elderly power’ thesis, but only unsatisfactorily so. The theoretically more specific

question of whether and how aging affects the generosity of *individual* pension benefits remains largely unsettled. Moreover, in order to discover the public policy effects of population aging, it is clearly desirable to test for how they may change across time. Between 1960 and 1990, the average OECD median voter age increased by 0.7 years. But in half the subsequent time span (1990 to 2005), the median voter age actually increased by three times as much; 2.1 years (own computations from United Nations 2006). Yet, Castles (2004) excepted, none of the studies reviewed above uses data later than 1994. Instead, we use data from a sample of 18 OECD countries covering a maximum time span from 1980 to 2002. The sample includes Australia, Austria, Belgium, Canada, Denmark, Finland, France, Germany, Ireland, Italy, Japan, the Netherlands, New Zealand, Norway, Sweden, Switzerland, the United Kingdom and the United States. Covering both the decade before and the decade after the time when median voter age started accelerating should allow us to better estimate the changing effect of population aging on pension effort.

Refined hypotheses

The finding that demographic composition is an important determinant for the size of public pensions as measured by expenditure per GDP and pension contribution rates does not discriminate well against alternative explanations, since these variables do not precisely capture the predictions of the political economy models of population aging. Both major competing hypotheses imply that a larger share of elderly will alter the *generosity* and not just the absolute size of public pensions. For instance, Persson and Tabellini (2000:130) specifically predict ‘that pensions per retiree will be higher, the higher the weight of old voters, as this shifts the median-voter equilibrium toward a more generous pension system’. From a theoretical political science perspective, the case for studying benefit generosity, rather than merely program spending, is equally strong. Pointing out that ‘it is difficult to imagine that anyone struggled for spending per se,’ Esping-Andersen (1990:21) criticized macro-social spending studies for their inability to indicate much about the impact of welfare programs on the well being of individual citizens or households. One core reason, eminently applicable to pensions and population aging, is that changes in macro-social needs can mask real cuts in individual benefits. As many observers have noted, whenever the percentage growth of welfare program dependents exceeds the percentage per capita reduction in welfare benefits, aggregate spending data will misleadingly indicate higher welfare effort even despite benefit cuts (see also Allan and Scruggs 2004:498; Korpi and Palme 2003; Rose 1984, 1985; Scruggs and

Allan 2006). Given knowledge of total pension expenditure per GDP, pension effort varies with GDP. For instance, a recession will make pensions macro-spending grow faster as a percentage of GDP, even without any real budget changes (Rose and Peters 1978). Similarly, in the context of a growing service-sector economy, Baumol cost-disease implies that productivity growth in services lags behind that in the manufacturing (Esping-Andersen 1999; Pierson 2001). This means that a constant rate of welfare spending per GDP over time would actually imply *lower* levels of welfare services being provided to citizens.

Our study is distinctive in its multiple dependent variables. We aim to study both the size and the generosity of public pensions. In an effort to reproduce prior empirical findings on the effect of aging on the size of pensions spending and to assess the performance of our statistical model, we test Hypothesis 1: *Positive size effect*: Societies with a larger share of elderly citizens devote more resources to public pension programs overall (the open-ended statutory ‘entitlements’ argument). Predictions of the competing effect of population aging on pension benefit generosity are tested by (H2) *Positive benefit effect*: The generosity of individual public pensions increases with a larger share of elderly people in society (the ‘elderly power’ argument). (H3) *Negative benefit effect*: The generosity of individual public pensions decreases with a larger share of elderly people in society (the ‘fiscal leakage’ argument)

Data and method

Our dataset better allows us to assess the validity of alternative theories of gerontocracy, which have predictions for both time series and cross country data. A cross-country setup including developing and industrialized countries, as in Perotti (1996) or Tabellini (2000), is unable to capture the time effect of aging in mature welfare states. Appendix Table 1 presents the definition and source of the variables employed in the regression analysis.

Dependent variables

Our empirical analysis employs three alternative dependent variables. Cash pension expenditure as a percentage of GDP is used to test Hypothesis 1 (data were taken from OECD 2007). To test Hypotheses 2 and 3 and to check the robustness of our findings, we employ two different measures. Following Breyer and Craig (1997) and Mulligan and Sala-i-Martin (1999), pension expenditure per elderly person is used as our first proxy for pension benefit generosity. This variable is computed

by dividing cash public pension expenditure by the number of individuals aged 65 and older (OECD 2007b). Second, as an alternative measure for public pension generosity, we also use the pension generosity scores calculated by Scruggs (2005). These take into account the average minimum and standard pension replacement rates, the number of years needed to qualify for public pensions receipt, and the pension take-up rates. The minimum pension replacement rate is calculated as the ratio of net public pension paid to a person with no work history at retirement, while the standard pension replacement rate measures the ratio of net public pension paid to a person earning the average productive worker wage in each year of their working career upon retirement. (see also Scruggs and Allan 2006: 62). Table 1 compares the temporal development between 1980 and 2002 of our three dependent variables and of the

TABLE 1. Old age dependency rates and measures of pension effort

Country	Old age dependency ratio ^a		Pension exp. as per cent of GDP ^b		Pension generosity ^c		Real pen. exp. per elderly ^d	
	1980	2002	1980	2002	1980	2002	1980	2002
Australia	14.8	18.9	3.1	3.2	9.1	8.1	9.7	9.7
Austria	24	22.8	9.8	12.4	11.8	13.1	9.8	10
Belgium	21.7	25.9	5.9	6.9	11.4	12.4	9.1	9.2
Canada	13.9	18.5	2.8	4	10.3	12.7	9.8	9.8
Denmark	22	22.2	4.6	5.3	13.5	13.5	13.4	13.4
Finland	17.7	22.8	4.7	4.7	14.7	12.6	9.2	9
France	21.9	25	7.5	10	13.6	12.6	9.4	9.7
Germany	23.4	27	9.8	10.9	7.6	6.7	9.6	9.7
Ireland	18.2	16.4	4	2.5	7.8	10.4	8.9	8.8
Italy	19.3	26.9	7.2	11.2	8.7	15.3	9.5	9.4
Japan	13.5	27.6	2.9	6.8	8.1	9.8	19.3	19.1
Netherlands	17.4	20.2	5.4	4.6	13.3	13	9.3	9.1
New Zealand	15.4	18.1	6.8	4.5	15.5	15.8	10.8	10.1
Norway	23.4	22.8	4	4.9	13.9	15	13.4	13.7
Sweden	25.4	26.5	6.6	6.8	17	11.4	13.6	13.8
Switzerland	21.4	23.7	5.5	6.4	7.4	6.4	10.9	10.5
UK	23.3	24.3	3.8	5.3	7.5	9.3	8	8.2
USA	17.1	18.6	5.1	5.4	11.7	11.4	9.8	9.6
Mean	19.7	22.7	5.5	6.4	11.3	11.6	10.8	10.7
Stand. Dev.	3.8	3.5	2.1	2.9	3.1	2.7	2.7	2.7
Range	11.9	11.1	7	9.9	9.6	9.4	11.4	10.9
Coef. Var.	0.2	0.2	0.4	0.4	0.3	0.2	0.3	0.3

Note: a = Old age dependency ratio measured as the share of elderly (65+) as a percentage of the working age population (15–64) (OECD 2007b), b = Cash pension benefits as a percentage of GDP (OECD 2007a), c = Generosity of public pension benefits in percentage points (Scruggs 2005), d = Real cash pension expenditure in \$ US at constant prices (2000) per working age population (15–64) log transformed (OECD 2007a)

Old Age Dependency Ratio, *ODR* (defined as the number of people aged 65+ divided by the number of people aged 15–64).

Clearly, there has been significant variation in our sample. Compare, for instance, the widely varying levels of public pension spending per GDP and pension generosity scores of similarly ‘aging’ countries such as Switzerland and Austria. Conversely, countries such as Sweden and New Zealand exhibit roughly similar levels of spending per GDP and pension generosity scores despite wide gaps in their *ODR*. Generally, conservative-corporatist welfare states such as Austria, Italy, France and Germany stand out with respect to pension spending per GDP and, the latter country excepted, score high also on pension generosity scores (more on this below). Overall, only three countries in our sample have reduced pension expenditure per GDP over time, but reductions in both our measures of pension benefit generosity took place much more frequently. Mean levels of macro-pension effort have increased between 1980 and 2002, but have remained stable for the two measures of benefit generosity. Similarly, mean values for standard deviation, range, and coefficient of variation have increased or stayed stable for pension program size, but they have decreased or stayed stable for both measures of pension benefit generosity.

Independent variables

Consistent with Breyer and Craig (1997) we include controls in all our models for GDP per capita (log), real GDP growth rates, long-term interest rates and inflation rates to capture some of the economic foundations of public pension programs. Another important fundamental relates to labor markets. Increasing labor market participation rates among as many working-aged citizens as possible is a straightforward way of improving the fiscal foundations of public pensions systems even in a context of population aging (Barr 2001; Castles 2004). We therefore include in Models 5 and 6 of Tables 2, 3, and 4 two labor-market related variables: *Female Participation Rate*, defined as the female share in the active labor force, and *Elderly Participation Rate*, defined as share of 55plussers in the active labor force. Both variables would be predicted to have a negative effect on our three variables of pension effort to the extent that higher shares of each group that actually participate in the labor market may create less of a ‘welfare dependency culture’. Alternatively, both participation rates could be predicted to have a positive effect, as they enhance the social security revenues and therefore the fiscal foundations for pension spending.

Our chief independent variable is the *Old Age Dependency Ratio*.¹ *ODR* admittedly does not capture the population up to 15 years of age, which

is also an economically dependent demographic group (Castles 2004:120; 124). But since children do not vote, *ODR* is a better measure for political analysis, as it is a proxy for the relative electoral strength of different generations of (potential) voters. *ODR* is in our view a better measure than the median voter age that lies at the heart of most theoretical political economy models, as it more directly captures the relative numerical balance between elderly and working-age voters. Temporal changes in *ODR* lag behind those in median voter age, as much of the *ODR* growth acceleration is still expected after 2012 (United Nations 2006). *ODR*, lastly, is also a conservative measure in the sense that it includes aging voters of working age, who may increasingly identify their self-interest with that of pensioners as they approach pension age (Van Parijs 1998; IMF 2004). We attempt to capture the latter effect through an alternative dependency ratio: the *55plus Ratio*, defined as the number of those aged above 55 (that is, ‘elderly’ workers and pensioners combined) as a percentage of the population aged 15–54. Lastly, the brunt of population aging still lies in the near future in most OECD democracies, when current median voters will have actually reached pension age. We attempt to capture expected future population aging, a proxy for these impending demographic problems, by means of *ODR Projection Difference*, defined as the difference between the United Nations World Population Prospect (2006) projection of a country’s *ODR* twenty years hence and its *ODR* at present.

Estimation strategy

In line with prior empirical studies by Lindert (1996), Breyer and Craig (1997) and Disney (2007), our annual observations have been grouped into eight-year averages, as we are primarily interested in structural changes rather than annual fluctuation. The variables for each country are calculated as averages of, respectively, the periods 1980–1986, 1987–1995 and 1996–2002. This makes a sample of up to 54 observations ($T = 3$, $N = 18$). The use of these eight-year periods is a way for taking into account the fact that electoral and social changes often need time to materialize into public policy pension efforts. Each period represents two average legislation periods, which should be long enough for voters to influence the course of pension politics. The statistical model takes the following form:

$$y_{i,t} = \beta_0 + \beta_1(x_{i,t}) + \beta_2(z_{i,t}) + \gamma_i + \varepsilon_{i,t}$$

where $y_{i,t}$ denotes pension expenditure per GDP, pension generosity scores or real pension benefit per elderly in country i at time t . The variable x denotes the set of control variables (log GDP per capita, real

GDP growth, long-term interest rate and inflation rate) derived from the entitlements model. The variable z denotes the independent variable of main interest. One key question regards whether the unit effects should be treated as random or fixed.² Without plausible theoretical grounds or empirical evidence for the random effects assumption, bias and consistency considerations alone would lead to a fixed effects model, which is preferable with non-experimental data (Halaby 2004: 521; see also Allison 1994: 181; Nickell 1981: 1418). To test the prediction of political economy theories of pension spending, the fixed effects (or within country) estimator is particularly apt as these theories specify how electoral outcomes change pension spending and generosity within and not between countries.³ Below, Tables 2 to 4 (on main demographic effects) and Table 5 (on political and institutional effects) investigate each time the same models with respect to three different pension effort dependent variables: program size, generosity scores, and spending per elderly.

Empirical analysis: baseline effects of population aging

Table 2 indicates that *Interest rate* has a negative effect and *Inflation rate* a positive but non-significant effect on pension program size, consistent with Breyer and Craig (1997). GDP levels have a positive effect on program size, and GDP growth rate a negative effect. The finding on growth confirms those by Disney (2007) and Allan and Scruggs (2004) and may have two possible explanations. First, since GDP is used as a denominator for pension expenditure, GDP growth decreases pension expenditure per GDP if pension expenditure remains unchanged. Second, following the formal argument by Breyer and Craig (1997), pension expenditure per GDP represents a proxy for the pension contribution rate. In this respect, GDP growth may reduce the relative burden of social insurance contributions on labor income (Disney 2007: 547). Using the alternative dependent variables in Tables 4 and 5 does not significantly alter the general pattern for *Interest rate*, *Inflation rate*, and GDP levels and growth rates. To check for the influence of public-financial constraints, we also introduced general government debt rates per GDP and government budget deficits per GDP as control variables in all 9 Models for all three dependent variables, but both variables were generally non-significant (results not shown).

Table 2 also gives results for our test of the positive size effect (or entitlements) hypothesis (H1). The effect of *ODR* is positive and statistically significant, although this is somewhat sensitive to model specification. Cross-sectionally, countries with a larger share of elderly thus appear to devote more resources towards pension programs. This finding is consistent with prior findings on older datasets regarding pension

spending per GDP (e.g. Breyer and Craig 1997; Pampel and Williamson 1985; 1989; Tabellini 2000). Interestingly, investigating the sense of expected demographic worsening appears to indicate a potential sense of future-orientation among current-day policymakers (Model 3). The more the ODR is expected to increase over the next twenty years, the more the size of public pensions today is likely to be *cut*; an effect that is significant at the one-per cent level. Surprisingly perhaps, enlarging the imputed electoral pensioner constituency by including elderly workers again changes the picture (Model 4). The effect size for *55plus Ratio*, while positive, is much smaller and the effect is not significant.

Once we consider two different measures of pension benefit generosity rather than program size, the main effect of population aging turns out

TABLE 2. Determinants of pension expenditure as a percentage of GDP

	Model 1 Random	Model 2 Fixed	Model 3 Fixed	Model 4 Fixed	Model 5 Fixed	Model 6 Fixed
GDP per capita (log)	0.79 [1.4]	0.97 [1.7]	- 0.55 [1.4]	0.72 [1.7]	1.8 [1.5]	1.81 [1.7]
GDP growth	- 0.43*** [0.1]	- 0.45*** [0.1]	- 0.39*** [0.1]	- 0.48*** [0.1]	- 0.51*** [0.1]	- 0.50*** [0.1]
Interest rate	- 0.16** [0.07]	- 0.16* [0.08]	- 0.16** [0.07]	- 0.18* [0.09]	- 0.19* [0.09]	- 0.21** [0.1]
Inflation rate	0.12 [0.08]	0.12 [0.09]	0.19** [0.09]	0.12 [0.09]	0.093 [0.06]	0.072 [0.1]
ODR	0.13* [0.07]	0.093 [0.07]			0.088* [0.05]	0.12* [0.07]
1988–1995	- 0.026 [0.6]	- 0.074 [0.8]	1.46* [0.8]	0.11 [0.8]	- 0.87 [0.7]	- 0.93 [0.8]
1996–2002	- 0.38 [0.9]	- 0.44 [1.3]	2.47* [1.4]	- 0.21 [1.3]	- 1.18 [1.2]	- 1.8 [1.4]
ODR 20 year dif.			- 0.16*** [0.05]			
55plus ratio				0.031 [0.03]		
Elderly part.					- 0.13*** [0.03]	
Female part.						0.0006 [0.03]
Observations	54	54	54	54	52	52
Number of id	18	18	18	18	18	18
R-squared	.	0.54	0.66	0.54	0.79	0.61
Adj. R-squared	.	0.47	0.6	0.46	0.75	0.54

Note: N = 18 countries, T = averages for 3 periods (1980–1987, 1988–1995, 1996–2003).

Random = random effects estimator. Fixed = fixed effects estimator (see footnote 2 for further information). Robust standard errors in brackets, *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$ levels of significance, constant included but not reported.

to be rather different. With the fixed effect specification, the coefficients in Model 2, 5 and 6 for ODR and in Model 4 for *55plus Ratio* have no statistically significant effect on pension generosity scores (Table 3). But all four population aging coefficients have a significant and *negative* effect on real pension expenditure per elderly (Table 4). As with program size, both Tables 3 and 4 indicate that the coefficients for *55plus Ratio* have the same direction as for *ODR*, but they are smaller in size. In other words, enlarging the imputed pensioner constituency by assuming ‘elderly’ working-age citizens to think like pensioners rather than like younger working-age citizens actually weakens the empirical support for elderly power theories. The effect of the expected future demographic aging (Model 3), lastly, is insignificant as regards spending per elderly,

TABLE 3. Determinants of pension generosity (dependent variable: Scruggs generosity score)

	Model 1 Random	Model 2 Fixed	Model 3 Fixed	Model 4 Fixed	Model 5 Fixed	Model 6 Fixed
GDP per capita (log)	2.68 [2.3]	5.93 [3.6]	3.52 [3.0]	5.62 [3.5]	6.95* [4.0]	5.18 [3.1]
GDP growth	- 0.11 [0.2]	- 0.28 [0.2]	- 0.21 [0.2]	- 0.37* [0.2]	- 0.35 [0.2]	- 0.53** [0.2]
Interest rate	0.12 [0.2]	- 0.0035 [0.1]	- 0.01 [0.1]	- 0.045 [0.1]	- 0.056 [0.1]	- 0.18 [0.1]
Inflation rate	0.04 [0.1]	0.047 [0.1]	0.17* [0.09]	0.062 [0.1]	0.0052 [0.1]	- 0.096 [0.1]
ODR	0.16 [0.1]	0.19 [0.2]			0.21 [0.2]	0.17 [0.1]
1988–1995	- 0.86 [1.1]	- 2.54 [1.7]	- 0.029 [1.3]	- 2.23 [1.6]	- 3.53* [2.1]	- 4.20** [1.7]
1996–2002	- 1.76 [1.9]	- 4.74 [2.9]	0.024 [2.2]	- 4.31 [2.7]	- 6.10* [3.5]	- 7.35** [2.8]
ODR 20 year dif.			- 0.26*** [0.08]			
55plus ratio				0.045 [0.06]		
Elderly part.					- 0.052 [0.06]	
Female part.						0.16*** [0.06]
Observations	54	54	54	54	52	52
Number of id	18	18	18	18	18	18
R-squared	.	0.24	0.4	0.21	0.32	0.46
Adj. R-squared	.	0.13	0.31	0.093	0.19	0.36

Note: N = 18 countries, T = averages for 3 periods (1980–1987, 1988–1995, 1996–2003) Robust standard errors in brackets, *** p < 0.01, ** p < 0.05, * p < 0.1 levels of significance, constant included but not reported.

but significant, large, and negative as regards the pension generosity score.

Population aging today (though not in the near future) appears to simultaneously increase program size (the positive size hypothesis, H1) and to reduce the generosity of benefits going to the elderly today (the negative benefit hypothesis, H3), at least as measured by real spending per elderly person. This finding evidently needs to be further refined, below. However, these ‘bare effects’ of population aging do hold true *after* controlling for the well-known argument that maturing welfare states have now entered a new era of post-Golden-Age retrenchment politics (Huber and Stephens 2001; Pierson 1994; 2001; Vanhuysse 2001; Weaver 1986). That is, to incorporate the stylized observation that OECD democracies have on the whole experienced accelerated median voter

TABLE 4. Determinants of real pension expenditure per elderly person

	Model 1 Random	Model 2 Fixed	Model 3 Fixed	Model 4 Fixed	Model 5 Fixed	Model 6 Fixed
GDP per capita (log)	0.2 [0.5]	0.16 [0.4]	0.12 [0.5]	0.29 [0.4]	0.034 [0.3]	- 0.012 [0.4]
GDP growth	- 0.074*** [0.03]	- 0.073*** [0.03]	- 0.037 [0.03]	- 0.065** [0.03]	- 0.069** [0.03]	- 0.073** [0.03]
Interest rate	- 0.038* [0.02]	- 0.038 [0.02]	- 0.030* [0.02]	- 0.029 [0.02]	- 0.027 [0.02]	- 0.034 [0.02]
Inflation rate	0.027 [0.02]	0.028 [0.02]	0.026 [0.02]	0.024 [0.02]	0.034* [0.02]	0.028 [0.02]
ODR	- 0.039 [0.02]	- 0.039** [0.01]			- 0.047*** [0.01]	- 0.043*** [0.01]
1988–1995	- 0.37* [0.2]	- 0.35** [0.2]	- 0.37* [0.2]	- 0.43*** [0.2]	- 0.24 [0.2]	- 0.26 [0.2]
1996–2002	- 0.34 [0.3]	- 0.31 [0.2]	- 0.35 [0.4]	- 0.41 [0.3]	- 0.044 [0.3]	- 0.16 [0.3]
ODR 20 year dif.			- 0.0018 [0.01]			
55plus ratio				- 0.015** [0.007]		
Elderly part.					- 0.020* [0.010]	
Female part.						0.0045 [0.009]
Observations	54	54	54	54	52	52
Number of id	18	18	18	18	18	18
R-squared	.	0.78	0.74	0.78	0.81	0.77
Adj. R-squared	.	0.75	0.7	0.74	0.78	0.72

Note: N = 18 countries, T = averages for 3 periods (1980–1987, 1988–1995, 1996–2003) Robust standard errors in brackets, *** p < 0.01, ** p < 0.05, * p < 0.1 levels of significance, constant included but not reported. For information on logged variables, see appendix Table 1.

aging since the early 1990s, we have included dummies for the two most recent eight-year periods, 1988–1995, and 1996–2002 in all Models in Tables 2–3–4. The emerging picture indicates increased retrenchment in more recent years, as compared to the early-to-mid-1980s. Both the middle period and the most recent period effects are negative for every single model that includes *ODR*, and for all three dependent variables. This ‘retrenchment politics’ picture is further corroborated by the observation that when it comes to pension program size and generosity scores, the size of this negative period dummy effect is at least as large, and most often significantly larger, in the case of our most recent period (1996–2002) as compared to our middle period (1988–1995).

Taken together, these observations on the demographic and time period effects appear to provide further empirical footing for the thesis that the political economy of pensions has become a different, more cutbacks-driven, ballgame in the 1990s than it was in preceding decades. The increasing political and budgetary pressures that accompanied the faster growth of elderly cohorts appear to have required stronger overall financial commitments while simultaneously necessitating cuts in pension benefits, or, at a minimum, the end to the rise in benefit generosity. At least among the EU member states in our sample, the adoption of the Maastricht criteria in 1991 may have served as an independent additional source of pressure on pre-existing budget deficits. In other words, pension politics appears to have caught up with the dynamics of retrenchment that have transformed welfare state politics more generally since the 1980s. Population aging simply appears to have driven home more urgently to governments, or at least finance ministers, the basic fiscal fundamentals of budgetary constraint (Rose 1984; 1985). Total yearly expenditure on pensions is a function of the number of pensioners alive in a given year times the unit cost per pensioner. Since the number of pensioners is currently increasing due to the post-war baby boom and increasing life expectancy, higher macro-level pension spending inevitably follows, unless pension unit cost growth is reduced. One way of interpreting our findings in Tables 2 to 4 is to argue that both developments are now occurring simultaneously, leading OECD governments, as it were, to cut smaller (micro-)slices out of larger (macro-)cakes.

A further caveat might qualify these assessments. An important additional driver of spending effort in public pension systems is their underlying labor market foundations. In many countries, the working-age population has shrunk in recent decades because current youth cohorts study much longer rather than going out to work in their late teens. At the other end of the career cycle, elderly workers have been sent on early retirement schemes, sometimes on a massive scale, especially in continental Western Europe (Ebbinghaus 2006) and, still more so, in

Central and Eastern Europe (Vanhuysse 2006). Conversely, female labor force participation rates have been on the rise in many post-industrial economies (Esping-Andersen 1999). Models 5 and 6 in Tables 2 to 4 therefore investigate the effect of the labor market participation rates of, respectively, elderly workers (of both genders) and working-age women.

Once we control for *ODR*, period effects, and macro-economic variables, female participation has a positive effect on all three pension effort variables, though it is large and significant only in the case of pension generosity scores (Table 3). This provides tentative support for the interpretation that higher female participation rates improve the fiscal scope for public pension effort. But interestingly, higher levels of labor market participation among elderly workers *reduces* pension effort on all three variables, and the effect is significant for both program size (Table 2) and spending per elderly (Table 4). This appears to contradict the argument that workers, *qua* workers, tend increasingly to reason like pensioners as they approach pensionable age (IMF 2004; Van Parijs 1998). This might be because elderly workers, when participating, are also prone to fiscal leakage reasoning (Razin et al. 2002; Razin and Sadka 2007). Alternatively, larger shares of elderly workers actually participating in the labor market may contribute to a ‘work culture,’ reducing popular support among this group for high pension outlays for current pensioners.

The role of politics and institutions

To refine the above insights and to check for the role of political and institutional effects, we have computed a further set of three regression models in Table 5 on the same three dependent variables. We focus on the effect on pension effort of the particular strength and constitution of governing coalitions in Model 7. The coalition variable is based on the number of parties in government and their parliamentary status. It ranges from strong (lowest value signifies one single party government in which one party takes all government seats) to weak (highest value signifies a caretaker government not intended to undertake any kind of serious policymaking). Contemporary theories of welfare state politics do not provide clear-cut hypotheses on the role of government coalition strength. Scholars of blame avoidance often argue that retrenchment efforts will become less transparent, hence less risky, if blame is shared by bringing many political players on board (Weaver 1986; Pierson 1994; 2001). A larger number of participating parties is then predicted to increase the potential for pension retrenchment. The veto player approach (Bonoli 2001; Huber and Stephens 2001; Tsebelis 1999) argues the opposite. It assumes that parties are more or less cohesive

entities representing the interests of specific groups. A larger number of political parties in government decreases the possibility to achieve substantial policy reform, especially cutbacks, as coalition partners need to compromise and protect a larger number of interest groups.

Results show that the strength of the governing coalition matters mainly for pension program size. Interestingly, weaker coalitions appear *better* able to reduce program size. This lends support to the blame avoidance thesis over the veto player thesis. Note also that our period dummies in these Models 7 again support a ‘retrenchment politics’ interpretation. Both the middle period and the most recent period effects are systematically negative for all three dependent variables. In addition, regarding program size and generosity scores, the size of the period dummy is much larger in the case of the most recent period 1996–2002 as compared to the middle period.

Models 8 and 9 in Table 5 test the effect of welfare regime type as defined by, respectively, Lynch (2006) and Esping-Andersen (1990). The rationale for these variables is familiar. Extensive bodies of literature have documented the important role played by the particular model of welfare regime in shaping social spending (e.g. Castles 2004; Esping-Andersen 1990; 1999; Korpi and Palme 2003; Myles and Pierson 2001). Model 8 represents a first attempt to investigate the effect of welfare regime type. Including time-invariant variables for the regime affiliation into the statistical model now requires applying the between-effects estimator, since the random effect assumption has to be rejected on both theoretical and methodological grounds. The between-effects estimator draws solely on the cross-sectional information in the data using period averages. Instead of applying the wrong model (random effects) for the wrong reasons (time invariant variables), we have therefore decided to use a between-effect estimator providing unbiased estimation coefficients.⁴

Lynch (2006) explains varying degrees of public policy old-age-bias according to two critical junctures: the early twentieth-century choice between citizenship-based and occupational ways of structuring welfare provision, and the choice after World War II between programmatic and particularistic modes of electoral competition. These junctures, Lynch argues, produced a continuum of old-age spending bias among contemporary OECD democracies. Here we focus only on both extremes of this continuum, which coincide with the institutional-structural divide between ‘Beveridgean’ regimes with universal or means-tested benefits and ‘Bismarckian’ regimes with income-related contributory benefits. Model 8 thus includes only Lynch’s (2006: 57) nine most citizenship-based (or Beveridgean) welfare regimes and her five regimes classified as most occupational (or Bismarckian): Italy, Austria, Belgium, the USA and

TABLE 5. The influence of politics and institutions on three pension effort measures

	Pension exp. as per cent of GDP				Pension generosity				Real pen. exp. per elderly			
	Model 7	Model 8	Model 9		Model 7	Model 8	Model 9		Model 7	Model 8	Model 9	
	Fixed	Between	Between	Between	Fixed	Between	Between	Between	Fixed	Between	Between	Between
GDP per capita (log)	1.76 [1.8]	- 3.44 [3.9]	- 3.73 [3.9]	5.68 [3.6]	- 1.81 [5.9]	- 4.35 [4.9]	0.3 [0.4]	- 0.084 [6.1]				
GDP growth	- 0.48*** [0.1]	- 0.79 [0.6]	- 0.79 [0.6]	- 0.28 [0.2]	- 0.71 [1.0]	- 0.72 [0.8]	- 0.077** [0.03]	- 0.27 [1.0]				
Interest rate	- 0.16* [0.08]	0.057 [0.5]	- 0.0031 [0.5]	- 0.0034 [0.1]	2.01** [0.8]	1.51** [0.7]	- 0.038* [0.02]	- 0.39 [0.8]				
Inflation rate	0.073 [0.08]	0.56 [0.7]	0.65 [0.7]	0.06 [0.1]	- 1.65 [1.1]	- 0.89 [0.9]	0.02 [0.02]	- 0.55 [1.1]				
ODR	0.098 [0.07]	0.26 [0.2]	0.22 [0.2]	0.19 [0.2]	0.018 [0.3]	- 0.32 [0.3]	- 0.039** [0.02]	- 0.088 [0.3]				
1988-1995	- 0.58 [1.0]			- 2.38 [1.7]			- 0.43** [0.2]					
1996-2002	- 1.04 [1.5]			- 4.55 [2.9]			- 0.41 [0.3]					
Gov. coalition type	- 0.43* [0.2]			0.13 [0.4]			- 0.071 [0.06]					
Citizenship-based sys		- 3.18* [1.4]			- 0.35 [2.2]			3.67 [2.3]				
Occupational systems		- 0.061 [1.3]			- 0.42 [2.0]			2.57 [2.0]				
Liberal			- 3.43** [1.4]			- 2.63 [1.8]		0.0004 [2.3]				
Social democratic			- 2.88* [1.3]			2.12 [1.6]		3.24 [2.1]				
Observations	54	54	54	54	54	54	54	54				
Number of id	18	18	18	18	18	18	18	18				
R-squared	0.6	0.69	0.69	0.25	0.5	0.67	0.8	0.36				
Adj. R-squared	0.53	0.48	0.48	0.11	0.15	0.44	0.76	- 0.087				

Note: N = 18 countries, T = averages for 3 periods (1980-1987, 1988-1995, 1996-2003). Robust standard errors in brackets, *** p < 0.01, ** p < 0.05, * p < 0.1 levels of significance, constant included but not reported.

Japan (no comparable data were available on Greece and Spain). Controlling for macro-economic variables and *ODR*, both these regimes types turn out to have a negative though not significant effect on pension generosity scores and a positive, non-significant effect on real benefits per elderly. Turning to program size as a share of GDP, the independent effect of citizenship-based welfare regimes is significant and negative, indicating that the institutional set-up of this first set of Beveridgean welfare regimes can be conducive to overall pension program cutbacks. The effect of occupational regimes, while also negative, is much smaller and non-significant.

However, Lynch's (2006: 57) citizen-based welfare regimes are really a motley crew composed of Nordic welfare regimes (Sweden, Denmark, Norway, Finland) and Anglo-Saxon regimes (the UK, Ireland, Canada, Australia and New Zealand). These, of course, comprise two very distinct models of welfare capitalism that differ markedly on a wide range of dimensions, including, but not limited to, their degrees of de-commodification, post-tax-and-transfer redistribution and poverty alleviation and, importantly for our purposes, the relative generosity and size of their public pension systems. To scrutinize the effect of welfare regime type on pension effort in greater detail, Model 9 therefore further subdivides only Lynch's nine citizen-based regimes, according to Esping-Andersen's (1990) classic typology into liberal and social-democratic regimes. This provides more specific information regarding pension retrenchment differences between these two Beveridgean regime subsets. Applying these regimes dummies, Model 9 indicates that social-democratic regimes also pursue pension program size cutbacks (Kitschelt 2001). Regarding real benefits per elderly, the positive association with citizen-based regimes from Model 8 now appears, in Model 9, to be near-zero in the liberal subset, but still positive in the social-democratic subset. In similar vein, Model 8's finding of a small negative relationship between citizenship-based regimes and generosity scores is revealed in Model 9 to have been composed of a much larger positive effect in the case of social-democratic regimes and an equally large negative effect for liberal regime. Unpacking Lynch's citizenship-based regimes indicates that while both citizenship-based regime types have cut overall pension program size, benefit generosity has been cut or stabilized in the liberal cases but has actually been expanded in the social-democratic cases.

Overall, these regression analyses indicate that pension spending efforts in public pension systems are strongly but not solely driven by macroeconomic trends and fiscal needs. In addition, institutional differences as expressed in welfare regime design appear to be a continuing core factor behind pension effort, independently of population ageing as such. Even in our sample of fast-aging OECD democracies, larger elderly

voting weights do not translate automatically into expansion of either program size or benefit generosity. This interpretation is in line with Castles's (2004:133–134) point that the expansion of OECD pension spending between 1980 and 1998 is less strongly related to population aging than to pension system coverage and generosity – variables that reflect the institutional set-up of welfare regimes. On the other hand, as the politics of welfare retrenchment are not the mirror image of welfare expansion, ratchet effects are likely to be present. That is, the larger electoral clout of elderly voters may more strongly constrain governments' scope for pension *cutbacks*. As Castles (2004:133–137) notes, between 1980 and 1998, OECD social expenditure retrenchment has been *least* extensive where populations have been aging most rapidly and where the initial elderly constituency was the largest to start with. Conversely, the fact that liberal welfare regimes are younger demographically and leaner substantively (Table 1) may have allowed them to further reduce already lower levels of pension program size and pension benefit generosity (Table 5, Model 9).

Both social needs and political-institutional structure are likely to mediate the electoral power-pension spending nexus, and to shape the policy effects of population aging. The role of welfare regime type is, in addition, likely to reflect distinct labor-market-welfare-state constellations. For instance, in the social-democratic regimes, macro-level pension program cuts have gone hand in hand with increases in generosity scores and in real benefits in these already generous pension systems. This is a joint result of much better labor market participation levels, which provide better fiscal foundations for public pensions systems, and of higher levels of investment in human capital through education spending and labor market spending (Iversen and Stephens 2008; Vanhuysse 2008).

Consider, by contrast, occupational (or conservative-corporatist) welfare regimes, which cope with high old age dependency rates of a magnitude comparable to those in Denmark and Norway. These regimes stand out in terms of all three measures of pension effort (Table 1). This may be partly a result of the highly patronage-based modes of political competition in countries such as Belgium, Austria, and Italy (Lynch 2006) and of the institutional ways in which conservative regimes create a strong perception of pensions as acquired rights among voters. This is consistent with Scharpf's (2000) suggestion that in conservative welfare systems, the contributory-financed pension entitlements tend to acquire a quasi-legal status of property rights, leading pensioners to expect, and fight for, protection against retrospective cuts. Pensions are seen as a vested entitlement, and contributors expect to draw something out of the system once they retire (see also Disney 2007). In addition, conservative regimes uniquely combine a high level of state involvement in providing

generous earnings-related pensions with a number of other policy features. Levels of early and disability retirement in conservative-corporatist countries such as Germany, Italy, France and Belgium have been eclipsed in recent decades only by those in post-communist Hungary and Poland (Vanhuysse 2006). Conservative regimes occupied five of the top six spots amidst a population of 21 OECD countries on Lynch's (2006) ranking of pro-elderly public policy bias (see also Esping-Andersen and Sarasa 2002). As Castles (2004: 127) reports, pension programs have kept expanding between 1980 and 1998 in the OECD due to causal factors *other* than population ageing, most dramatically where generous early retirement, low levels of labor market participation and high pension benefit generosity have created a 'triple whammy' spending drive.

The mediating effect of welfare regime type and other political institutions on pension policies, as on welfare preferences (Sabbagh and Vanhuysse 2006, 2008), is still far from being settled either theoretically or methodologically (Kittel and Winner 2005). Future comparative research on the institutional foundations of welfare state policies would benefit from larger cross-sectional pension effort data not currently available, or from international survey data to introduce institutional pension measures into a pooled analysis. Other effects of population aging on public policy remain to be explored in future research. This article has focused exclusively on a single welfare program, albeit the one that constitutes the largest share of social spending budgets wide across the OECD. To more fully understand the multiple effects of population ageing, future research should disaggregate government spending further into different programmes other than pensions, in order to take into account the functional relations between welfare programs (Rose 1984, 1985). Since growth in public finance is constrained by growth in revenues and by growth of other government programs, changes in either of these factors can tighten or loosen pension spending constraints (Rose and Karran 1987). In times of growing fiscal austerity, retrenchment requirements at the macro level can thus lead governments to try and reduce spending growth on either pensions or competing programs, or, alternatively, to increase revenues. At the micro level, fiscal retrenchment strategies are more likely to lead governments to reduce upward adjustments of pension benefits that take into account inflation and/or economic growth, rather than reducing absolute nominal money values of pension benefits.

Discussion

Broadening the working definition of public pension effort by investigating not just program size but also benefit generosity has allowed us to

unearth a pair of conflicting truths about the effects of accelerating population aging in our 18 OECD democracies. The absolute amount spent on pensions in aggregate is increasing (Hypothesis 1), but brakes have been put on the generosity of individual pensions in relative if not absolute terms (Hypotheses 2 and 3). Population aging has generally been associated with increased macro-level pension spending, particularly since the late 1980s, though this depends on institutional context. However, our conclusion is not just that the positive size effect or ‘entitlements’ hypothesis (H1) cannot be rejected. We also found that population aging has been associated with decreasing pension benefit generosity or, at least, a halt to increasing generosity since the late 1980s. Thus we can reject the theoretically more specific hypothesis of a positive benefit effect (H2), which is increasingly put forward, or implicitly assumed, by the political economy literature and by international financial institutions. The argument that ‘elderly power’ is likely to lead to more generous pension benefits cannot, thus far, be corroborated empirically. If anything, we have found tentative support for the less frequently proposed negative benefit effect or ‘fiscal leakage’ hypothesis (H3) in the form of the negative effect of population aging on real pension expenditures per elderly person, though not on pension generosity scores.

As we have indicated, the weak support for elderly power predictions by median voter models may not come as much of a surprise to empirical researchers doing more richly contextualized analysis. At the macro level, median voter models ignore the degree to which aggregate public expenditures such as pensions are driven by path dependence and long-term spending commitments that make it difficult for governments to change spending effort at will (Rose 1990). At the micro level, the assumption that current pension incomes are pensioners’ dominant concern ignores large bodies of attitudinal and behavioral research, indicating, among other things, that pensioners rarely behave like floating voters (Butler and Stokes 1974) and do not tend to vote as a homogenous single-issue constituency (Goerres 2009). Recent studies indicate that elderly voters actually care less about the real value of their pensions than about health issues (Rose 2008a,b). Future research could therefore usefully analyse the effects of population aging on health care spending. Health spending not only disproportionately benefits elderly voters; it also tends to be supported by *non*-elderly voters, who can benefit in both present and future life cycle stages. Moreover, unit cost growth in health spending may rise faster than that in pension spending. For both reasons, health care macro-spending growth might well exceed pension spending growth in the face of population aging. Lastly, health spending may have important second-order effects for subsequent population aging to the extent that it affects longevity.

In sum, it is the logic of retrenchment politics and double fiscal-electoral straitjackets, not gerontocracy, which reigns supreme in the political economy of pensions today. More than in previous decades, contemporary public pension politics is driven by tighter macro-fiscal constraints, caused by the increasing budgetary pressures accompanying the growth of elderly cohorts. Larger pensioner populations have indeed led to larger overall spending commitments. At the same time, the concomitant budgetary pressures appear to have stabilized or reduced real pension expenditures per elderly person, as if governments were forced to cut smaller slices out of larger cakes. This interpretation is compatible with the very substantial amount of pension reform and retrenchment activity that has been observed across the OECD in the 1990s and the present decade (e.g. Castles 2004; Huber and Stephens 2001; Immergut et al. 2007; Pierson 2001; Lindbom 2007). Future work integrating also the revenue side of pension spending (Rose and Karran 1987; Swank and Steinmo 2002) as well as human capital investment policies (Iversen and Stephens 2008; Vanhuyse 2008) promises to shed further light on the political dynamics of population aging. Our findings also point to the need to pry open further black boxes regarding the political tactics employed, the concrete measures used, and the coalitions involved, in program-specific retrenchment.

Our findings also point to the continuing primacy of comparative politics when studying the policy effects of population aging. The dialectical pressures arising from aging electorates and budgetary constraints are mediated by institutions. *Partisanship* effects may be on the wane in pensions as in other contemporary welfare programs.⁵ But political-institutional variables still matter crucially. In particular, the design and organizational set-up of welfare state programs and their interaction with labor markets shape the extent to which numerical pressures are translated into policy outcomes. These variables, too, receive comparatively little attention in median voter models, yet they crucially mediate the effect of absolute voter numbers on public pension effort. Looking towards future developments, growing pensioner constituencies may continue to reshape the distributional and electoral logics of welfare state politics, forcing those governments in most dire financial straits to mitigate the severity of benefit cuts by an increased reliance on obfuscation measures, grandfathering clauses, blame buffering, pension indexation and benefit formula changes, and other hidden retrenchment measures. Such tactics certainly appear to have formed an essential part of the pension reforms that have been pursued across Europe since 1990. There is no doubt, then, that demographic pressures will continue to exert severe pressures on many OECD public pension systems in the decades ahead. However, fast-aging welfare states are not yet at present

driven by the political logic of gerontocracy, but by a combination of demographic pressures and open-ended entitlements.

NOTES

1. While we follow common practice by studying the ratio of 65plussers to working-age people on pension effort, the reported effect of this measure on our second dependent variable (pension spending per elderly) may be negatively biased, as independent and dependent variables incorporate the number of 65plussers in, respectively, the numerator and the denominator. This provides a further rationale for using pension replacement rates as an alternative measure of pension generosity.
2. The random effect estimator is heavily influenced by cross-sectional variance and depends on the assumption that unobserved heterogeneity is mean independent of the causal variable (Halaby 2004: 511). The fixed effects estimator, which exploits within unit variation as a mean of purging unit heterogeneity, offers to dispense the random effects assumption and still obtains unbiased and consistent estimates when unit effects are arbitrarily correlated with explanatory variables (Halaby 2004: 516).
3. Political economists often acknowledge this. Breyer and Craig (1997: 717), who rely on the random effect estimator, nevertheless concede that their 'prior belief was that within-country estimates are more reliable tests'. Nickell (1981: 1418) similarly argues that 'if one takes the view that, in any particular model, the individual effects are likely to be correlated with all the observed exogenous variables, then one is led inexorably to the fixed effects model.'
4. Note, however, that findings for the between-effect estimator specification should not be overvalued since the statistical model suffers from a small number of observations ($N = 18$). This concerns particularly real pension expenditure per elderly, where negative values for the adjusted R-squared already indicate that the overall statistical model is not significant.
5. We ran models similar to those in Table 5 to explore the effect of partisan politics, measured as the share of cabinet seats belonging to the dominant leftwing, respectively rightwing, party. Findings (available on demand) indicate that the effect of both ideological formations in power, though negative, is consistently small and non-significant, for all three dependent variables. On partisanship in general social spending, see, e.g., Kittel and Obinger (2003), Huber and Stephens (2001).

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APPENDIX TABLE 1. Definition and source of variables

Variable	Definition	Source
Pension expenditure as % of GDP	Cash pension benefits as a percentage of GDP	OECD (2007a)
Pension generosity score	Scruggs index composed of public pension minimum and standard replacement rates, minimum qualifying period, and pensions take-up rate	Scruggs (2005)
Real pension benefits per elderly	Real cash pension expenditure in \$US at constant prices (2000) per working age population (15–64) log transformed	OECD (2007a), WDI
Log GDP per capita	Log of real Gross Domestic Product per capita	Penn World Tables (2007)
Real growth rate	Real Gross Domestic Product growth	World Bank (2007)
Interest rate	Long-term interest rate	Armingeon et al. (2007)
Inflation	Consumer price index growth	World Bank (2007)
Old age dependency ratio (ODR)	Old-age dependency ratio measured as the share of the elderly (65+) as a percentage of the working age population (15–64)	OECD (2007b)
ODR 20 year dif.	Projection for ODR in year $t + 20$ minus ODR in year t	United Nations (2006)
55plus Ratio	Old-age dependency ratio measured as those aged 55+ as a percentage of those aged 15–54	OECD (2007b)
Elderly part.	Elderly (55–64) labor force participation rate (percentage)	OECD (2007b)
Female part.	Female labor force participation rate (percentage)	OECD (2007b)
Gov. coal. type	Classification: (1) single party majority government (2) minimal winning coalition (3) surplus coalition (4) single party minority government (5) multi party minority government	Woldendorp, Keman and Budge (1998), Armingeon et al. (2007)
Citizenship-based systems	Citizenship-based welfare regimes with universal and means-tested systems (SWE, DNK, NOR, FIN, UK, IRE, CAN, AUS, NZL)	Lynch (2006:57)
Occupational systems	Occupational welfare regimes with particularistic competition (ITA, BEL, AUT, USA, JPN)	Lynch (2006:57)
Liberal welfare regime	AUS, CAN, IRE, NZL, UK	Esping-Andersen (1990)
Social dem. welfare regime	DNK, NOR, FIN, SWE	Esping-Andersen (1990)

Note: Full statistics available from authors.