

Stefan Domonkos

Making Increased Retirement Age Acceptable:
The Impact of Institutional Environment on
Public Preferences for Pension Reforms



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Abstract

Population ageing is likely to have a long-lasting negative impact on the financial sustainability of European pension systems. As a reaction to this, some European nations have adopted automatic adjustment mechanisms that connect the amount of starting pensions to the development of demographic and economic factors, such as life expectancy and the old-age dependency ratio. Lacking such measures, other countries account for the financial problems of their public pay-as-you-go pension schemes by ad hoc amendments to their national legislation.

This paper provides empirical evidence that national legislation linking life expectancy at retirement age and the level of old-age pensions attenuates opposition against reforms seeking increases to the statutory retirement age. Using multinomial logit models fitted on individual-level survey data, I analyze the probability that individuals accept a potential increase in retirement age among respondents in the Czech Republic, Poland and Slovakia. The results show that national institutional contexts explicitly binding pensions to the development of life expectancy attenuate opposition against a potential increase in the statutory retirement age.

The implications of the study are of particular importance for policy-makers looking to resolve the problem of constantly increasing old-age dependency ratios in Europe. This requires the application of an incentive structure that increases the acceptability of later withdrawal from the labour market. Analyzing survey data from the late 2000s, this study demonstrates that an explicit attachment between the level of starting pensions and life expectancy at retirement age is particularly useful in motivating longer working careers when life expectancy is on the rise.

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Introduction¹

Population ageing is one of the most often discussed challenges European societies will face in the coming decades. Alongside low birth rates, the life expectancy of pensioners also shows a growing tendency. Under these circumstances, guaranteeing the financial sustainability of public pay-as-you-go (PAYG) pension systems requires measures to address the increasing old-age dependency ratio. These often take the form of ad hoc amendments to existing rules. Nevertheless, some European nations have adopted automatic adjustment mechanisms that allow the demographic situation to influence the level of retirement benefits continuously. Such cases include states implementing a notional defined contribution scheme (NDC) or mandatory fully funded schemes (FDC), where the level of pensions depends, to a large extent, on life expectancy at the age of retirement. In addition, there are a number of countries with a conventional defined-benefit (DB) or points-based system that account for the adverse effect of demographic processes on the financial sustainability of public PAYG schemes by incorporating demographic sustainability factors into their national pension systems.

In this paper, I investigate the impact of the institutional context formed by the national pension legislation on the popularity of reforms seeking to increase the statutory retirement age. Using Eurobarometer 71.3 data collected in 2009 (European Commission 2012a) in the Czech Republic, Poland and Slovakia, I show that automatic measures allowing life expectancy to influence the level of pension benefits changes the reform preferences of the public in favour of increases in the statutory retirement age. In countries where the relationship between demographic processes and the sustainability of the pension system is made explicit through automatic measures of this type, the

1 This paper received the “Best Policy-Relevant Paper Award” at the International Graduate Conference “Crisis and Governance in Europe: Implications for State, Market and Society”, Speyer, April 18-19, 2013. The conference was organized jointly by the German University of Administrative Sciences Speyer, the German Research Institute for Public Administration Speyer as well as the Andr ssy University Budapest and the Danube Research Institute Budapest.

population will be more likely to accept later retirement as a means of stabilizing the pension system.

The three countries chosen for this comparative analysis are the Czech Republic, Poland and Slovakia. They are unique in that their societies and welfare states have undergone a very similar historical development. They share the common heritage of the Bismarckian welfare state whose founding pillars were laid down in the last decades of the Austro-Hungarian Empire, as well as a forty-year-long state-socialist past. Also, these countries and their welfare institutions had to cope with very similar challenges during the years of social and economic transition after 1989 (Myant and Drahokoupil 2011). Moreover, the broader economic environment in the Czech Republic, Poland and Slovakia has been largely similar since the mid-2000s. This includes the development of their gross domestic product (GDP), level of integration into the European Union and average salaries and prices.

Notwithstanding all the similarities between them, the Czech Republic, Poland and Slovakia have reformed their pay-as-you-go (PAYG) public pension systems in very different ways in the past decade. As a consequence, the degree of connection between life expectancy at retirement age and starting old-age pensions range from no explicit attachment at all in the Czech case to very strong and visible attachment in Poland. A cross-sectional study of policy-attitudes in the Czech Republic, Poland and Slovakia, three highly similar cases differing in the variable of interest, can, therefore, lend itself to the analysis of coupling between attitudes towards pension reforms and chosen institutional features of the existing pension system.

Nevertheless, as Naumann (2014) notes, studies on the impact of institutional variables on welfare attitudes often lack a dynamic component. The observation of cross-country differences in institutional features of the welfare state and welfare attitudes at one time point only are rarely sufficient to establish the direction of the causal linkage between the two phenomena. I address this challenge by extending the scope of the empirical study with the case of Portugal, where I analyze Eurobarometer data collected in 2006 and 2009. In 2007, Portugal underwent a major reform of its pension system that included the introduction of a sustainability factor derived from life expectancy. An analysis of pension reform preferences shortly before and after this reform allows me to increase the degree of certainty about the validity of the hypothesized direction of causation, from institutional reform of the pension system to changes in attitudes towards further pension

reforms. There is no other country where pension reform preferences were measured by Eurobarometer surveys shortly before and after a relevant reform episode. The Portuguese case is therefore unique. Selecting it is motivated by this fact.

By investigating changes in public attitudes towards pension reforms, this paper contributes both to the welfare-attitudes and the public-policy literature. It demonstrates that pension-reform preferences can be influenced by specific characteristics of the existing national legislative framework. As has been argued (e.g. Pierson 1993), the legislative framework governing a certain policy area may influence public preferences by providing incentives in order to motivate a certain action, as well as highlighting the strengths and weaknesses of the existing system. When policy-makers attach the level of starting pensions to the development of life expectancy at retirement age, they create an incentive structure that, under the conditions of rising life expectancy, motivates workers to retire later than their older peers did. In addition, such a measure renders the link between demographic developments and the sustainability of the PAYG pension system visible to the greater public, thereby motivating the acceptance of pension reforms.

In contrast to past experimental research on retirement incentives and behaviour (e.g. Fetherstonhaugh and Ross 1999) and survey-based studies concentrating on the effect of information on attitudes towards pension reforms (e.g. Boeri, Börsch-Supan, and Tabellini 2002; Boeri and Tabellini 2012), this study analyzes the impact of policies actually implemented on the propensity of individuals to accept changes in the pension system. The implications of the study are of particular importance for policy-makers, who seek to resolve the problem of constantly growing old-age dependency ratios in Europe. While later retirement seems an indispensable part of the solution (UK Pension Commission 2004; 2006; Barr 2012; OECD 2012), its unpopularity among the electorate forces political elites to avoid it. Implementing pension policies that would lead to an increasing public acceptance of the idea that later retirement and/or a higher statutory retirement age are indispensable for the sustainability of the national pension system may be helpful in resolving this political stalemate.

The paper has the following structure. Section one discusses the theoretical framework and formulates hypotheses. Section two describes the data. Section three is devoted to expounding the method used. Section four presents the results. Section five discusses the results.

1. Theoretical background

Population ageing and the related increase in the old-age dependency ratio has become one of the most widely discussed questions in Europe both among social scientists and in the general public. The topic gained prominence mainly after the World Bank published its comprehensive study *Averting the Old-Age Crisis* (World Bank 1994) on global population ageing and its impact on pension systems. The World Bank identified the source of the problem as the demographic transition resulting from declining fertility rates and increasing life expectancy (World Bank 1994).

The problem of an increasing old-age dependency ratio and its financial consequences for public PAYG pension schemes provoked considerable reform activity across Europe. Since 1990, statutory retirement age has increased in the overwhelming majority of industrialized nations (Whitehouse et al. 2009). In most cases, reforms provided for ad hoc adjustments in the parameters of the existing system. However, there are also countries that have undergone more substantial changes that consisted in the introduction of automatic adjustment mechanisms allowing life expectancy to influence the level of starting pensions. This second category of countries includes those that replaced their conventional DB-systems with an NDC-scheme (e.g. Poland, Sweden)², added a demographic sustainability factor to their defined-benefit or points-based PAYG system (e.g. Finland, Germany, Portugal) or introduced fully-funded schemes with savings to be annuitized upon retirement (e.g. Poland, Slovakia).

While raising the retirement age is considered vitally important for the sustainability of public PAYG pension systems (UK Pension Commission 2004; 2006; Barr 2012; OECD 2012) these measures are very unpopular among the public (e.g. Bonoli 1997; Gordon and Mathers 2004). Building upon Pierson's seminal work (1996; 2001),

2 It should be noted that not all countries that have an NDC system allow increased life expectancy to affect the level of pensions continuously. Italy's NDC system includes an actuarial coefficient that is derived from life expectancy. However, this coefficient is not established annually, but only once every three years. In addition, the link between life expectancy and the level of pensions is made more obfuscated as the Italian transformation index is not merely derived from life expectancy at the age of retirement, but also the possibility of leaving behind beneficiaries entitled to survivors' benefits (For more details, see OECD 2009).

Giger (2012) shows that, in line with Pettersen's (1995) theoretical argument, retrenchment in the area of pensions provokes a stronger backlash from the public than austerity in unemployment protection. The hypothesized reason for this is that the pension system is the largest social policy program of the modern welfare state, and that most people expect to have to rely on the statutory pension system in the future (Pettersen 1995). Therefore, retrenchment in this policy area is likely to attract more public attention and a harsh electoral backlash (Giger 2012).

Nevertheless, empirical research also suggests that pension-reform preferences are strongly influenced by both individual-level variables and the institutional features of the national pension system. Boeri, Börsch-Supan and Tabellini's (2002) enquiry into public preferences for various pension-reform options finds some notable differences among the attitudes of various societal groups. The younger and the more educated an individual is, the less likely this individual is to oppose retrenchment in the pension system. Furthermore, wealthier individuals are more likely to accept lower pensions in return for a lower retirement age. More importantly, beyond the effect of individual-level variables, the authors also find that the important reform episode of the Riester pension overhaul triggered a greater awareness among Germans about the weaknesses of their public pension system and growing acceptance of the idea that a reduction in pension generosity may be unavoidable. After the Riester reform was passed in the Bundestag in January 2001, an increasing number of respondents began to accept the view that a pension crisis is likely to come in the near future, or that large-scale benefit reduction is unavoidable (Boeri, Börsch-Supan, and Tabellini 2002, 400). In their further work using an experimental survey design, Boeri and Tabellini (2012) corroborate the hypothesis that more information on challenges concerning the sustainability of the public pension system attenuates public opposition against pension reform.

This paper explores the link between attitudes towards pension reforms and features of the existing pension system. It argues that, under the conditions of growing life expectancy, a pension system that forges a connection between the level of starting pensions and life expectancy at the age of retirement increases willingness to retire later. While attaching the generosity of the pension system to demographic factors is still likely to result in retrenchment, this retrenchment comes gradually and can be (partly) avoided by either contributing more to

one's pension during one's working life or retiring later. The incentive structure created by sustainability factors derived from life expectancy at the age of retirement and actuarial formulae embedded in DC schemes seems particularly useful in the shifting of public opinion in favour of later retirement. For those that seek to avoid cuts in pensions due to longer life expectancy, later retirement is the best choice. In comparison with higher contributions, a higher retirement age does not lead to lower current disposable income. In addition, an institutional set-up that adjusts pensions proportionately to the increase in life expectancy emphasizes that later retirement does not decrease the average anticipated time spent in pension.

Moreover, decreases in pensions derived from growing life expectancy are likely to be efficient in changing public attitudes as retirement at the same age as earlier cohorts of pensioners leads to a perceived monetary loss compared to earlier pensioner cohorts. It is known from behavioural economics and prospect theory (Kahneman and Tversky 1979; 1984; Tversky and Kahneman 1991) that individuals react more to losses than to gains. In this framework, the full pension of the previous cohorts could be seen as a reference value. As the distress individuals feel when falling below the reference value is greater than the utility derived from gains above the reference value (Kahneman and Tversky 1984), a decrease in the value of the starting pensions relative to a reference value will lead to greater adjustments in attitudes than a similarly large remuneration of postponed retirement would bring about. A system in which reaching a starting pension equal in its size to the starting pension of older cohorts requires deferred retirement can, therefore, be particularly successful in motivating a growing acceptance of later retirement. The mechanism described acts primarily on an individual level. Nevertheless, a higher propensity to postpone one's retirement is also likely to lead to a higher propensity to accept an increased statutory retirement age. In the end, the micro-mechanism explained by Kahneman and Tversky's (1979) prospect theory is, therefore, likely to result in a shift in retirement behaviour, in favour of postponed retirement, as well as changed attitudes towards pension reforms, in favour of accepting a higher statutory retirement age.

However, beyond individual-level incentives, the automatic mechanisms described may also alter the features of the broader environment. Creating an institutionalized link between starting pensions and life expectancy leads to year-on-year adjustments in the conditions of

retirement, thus increasing the visibility of the topic of demographic ageing and its impact on the sustainability of public PAYG pension systems. Hence, this policy design is particularly likely to bring demographic ageing to the forefront of public interest. Increased awareness about the necessity of parametric changes in the public PAYG system would drive individuals to accept a higher statutory retirement age as a macro-level solution to the unsustainability of the public pension system under its current form. The expectations of this paper concerning the effects of automatic measures on pension-reform preferences are thus in line with previous empirical studies that demonstrate the importance of information for changing welfare attitudes (Boeri and Tabellini 2012). However, in contrast to previous scholarly work, this study investigates the impact of policies put into practice. This paper therefore serves as a bridge between the policy feedback literature (e.g. Weir and Skocpol 1985; Wendt et al. 2010; Fernández and Jaime-Castillo 2013), emphasizing the importance of institutional variables in the formation of welfare attitudes and the information-literature focusing on the effect of relevant information on welfare attitudes (Boeri, Börsch-Supan, and Tabellini 2002; Boeri and Tabellini 2012).

Hypotheses

Using survey data collected in the Czech Republic, Poland and Slovakia, I test two hypotheses on the development of pension-reform preferences. The three nations analyzed share the common historic legacy of state-socialism and the subsequent economic and political transition. Their 1989 starting points were, broadly speaking, similar and they all belong to the economically and politically most advanced transition economies (Myant and Drahokoupil 2011). They constitute a small group of three nations that are comparable with each other in a number of aspects, yet their pension systems show remarkable heterogeneity. Most importantly, the pension systems of the Czech Republic, Poland and Slovakia differ in the strength of attachment between starting pensions and life expectancy at the moment of retirement.³ Poland is an example of a country whose national pension system forges a strong and visible connection between life expectancy and starting pensions. By contrast, the Czech Republic has no such

3 For an overview of basic information on the Czech Republic, Poland and Slovakia, see Appendices A and B.

link in its pension system. The pension system of the Slovak Republic is composed of a points-based PAYG system and a fully-funded DC system popular primarily among younger workers. It represents a mixed case situated between Poland and the Czech Republic.

The main hypothesis of the paper deals with the relationship between mechanisms accounting for life expectancy and the public acceptance of increased retirement age.

H1: Workers whose starting pensions are explicitly connected to life expectancy at retirement age are more likely to accept increases in the statutory retirement age than workers whose starting pensions are not explicitly influenced by life expectancy at retirement age.

Both the private and public pillars of the Polish national pension system fully take into account life expectancy in calculations of starting pensions. For later retirement, both its NDC and FDC pillars allow substantial increases in the level of starting pension. The Czech pension legislation includes provisions on the remuneration of deferred retirement, but these contain no explicit reference to demographic variables. Slovakia is situated between these two extreme cases, yet, as will be explained, is considerably closer to the Czech Republic. The Slovak public PAYG pension system does not explicitly attach the level of starting pensions to life expectancy at the age of retirement. However, at the time when the survey was conducted, the country had a relatively large mandatory funded pillar.⁴ Savings on individual accounts in this pillar are to be annuitized upon retirement, in which case life expectancy at the moment of retirement is taken fully into account in the pension formula. Nevertheless, it is questionable to what extent the presence of the mandatory funded scheme in the pension system could influence public opinion in the Slovak Republic.

4 It should be noted that the second pillar of the Slovak pension system was transformed from mandatory into voluntary in 2008, the default option being not to join the private fully-funded system. Nevertheless, the popularity of the second pillar did not suffer much, as the number of savers in 2010 still reached almost 1.5 million (approx. 60 per cent of the active population). The data of the Slovak Ministry of Welfare show that in 2010, the age composition of mandatory private-pillar members was rather skewed towards the younger part of the population. The share of second-pillar members generally exceeded 65 per cent among those in their 30's. However, only 35 per cent of 50-years-olds were members of the new system in 2010, and there were very few members aged 55 or more (see Appendix D).

Membership in the DC scheme is widespread mainly among younger workers and even they are enrolled in both the DC and the DB system.⁵ If the first hypothesis is true, Polish workers will be most likely to accept increases in the retirement age. By contrast Czech workers will be the least likely to accept reforms bringing a higher retirement age. Keeping in mind the state of the pension system in Slovakia in 2009, one might conclude that the country represents an intermediate case between the Czech Republic and Poland, where significant cohort differences should prevail in attitudes towards the pension system.

The second hypothesis of the study builds on the first hypothesis, and it deals with differences in the impact of the institutional environment on the preferences of individuals depending on the amount of time spent as members of a given pension scheme.

H2: The larger a portion of their working life two individuals spent under vastly differing pension systems, the larger is the probability that their pension-reform preferences will differ.

In the context of this study, hypothesis 2 indicates that younger cohorts will exhibit sharper cross-country differences between the Czech Republic and Poland than older cohorts, because the former have spent all their short working lives in two pension systems that differ in the degree to which they connect starting pensions to life expectancy, while the latter also experienced the pre-1999 Polish pension system that was similar to the currently existing Czech pension system. In addition, public attitudes to pension reforms may differ more among young Czechs and Slovaks than among older cohorts from these two countries, the reason being that young Slovaks socialized into the world of work after the 2005 introduction of the Slovak private funded pension scheme. Thus, young people in the Czech Republic and Slovakia are expected to differ more in their pension-reform preferences than middle-aged workers from the two countries.

The hypotheses build on the key assumption of the policy-feedback literature (for a review, see Béland 2010 and Campbell 2012) accord-

5 A member of the second (funded) pillar of the Slovak national pension system contributes nine per cent of covered income to the funded private scheme and nine per cent to the public points-based system. Those who did not join the private pension scheme contribute eighteen per cent of their covered income to the state-run points-based scheme.

ing to which existing policies influence public opinion. The study of the Czech Republic, Poland and Slovakia can be useful for mapping the association between the institutional set-up of the pension system and the acceptance of increases in the statutory retirement age. Nevertheless, given that there are no pre-reform data available for the three countries analyzed, the direction of the causal link between public opinion and legal regulation of the welfare state cannot be established relying on these cases alone.

In order to address this issue, the analysis of the three central and eastern European countries is followed by a repeated cross-sectional study of the development of public opinions on pension reforms between 2006 and 2009 in Portugal. The analysis of Portuguese data makes it possible to increase confidence in the validity of the policy-feedback hypothesis in the case of the topic studied in this paper.

2. Data

In order to test the two hypotheses outlined in this study, I use Eurobarometer wave 71.3 data collected in 2009 (European Commission 2012a) in the Czech Republic, Poland and Slovakia. The decision to concentrate on these three polities is motivated by the broad similarities observable in the historical paths of these nations. Given these similarities, they can be thought of as three genuinely comparable countries with differences in the strength of the link between life expectancy at retirement and starting pensions.

Public opinions on the subject of pension reforms are mapped using two questions. Interviewers asked economically active (employed and self-employed) respondents what pension reforms they would accept in order to ensure the sustainability of the national pension system. Secondly, economically inactive respondents (pensioners, students, temporarily unemployed and other economically non-active persons) were asked what pension reform they think working members of the society would accept. Given that there are large differences in the wording of the two questions, I decided to focus primarily on workers who were asked to give their own preferences on pension reforms.

The exact wording of the response variable is the following: 'If you had to choose from the following possibilities aimed at guaranteeing the financing of the pension system in (OUR COUNTRY), which one would be most acceptable for you?' The options explicitly provided are

(i) 'work and contribute for longer', (ii) 'maintain the retirement age and increase your social security contributions' and (iii) 'maintain the current retirement age and accept that you will receive less'. The interviewers also noted down three spontaneous answers, (iv) 'a combination of all three', (v) 'none of these' and (vi) don't know.

An important advantage of the response variable chosen is that it presents realistic reform options currently discussed in a number of European countries (Fernández and Jaime-Castillo 2013). Past studies often limited the scope of their enquiry to questions about preferences for more funding for various welfare programs. This study focuses instead on attitudes towards specific reform options all of which are present in current policy debates, making its results highly relevant for policy experts.

The list of explanatory variables in the analysis of data from the Czech Republic, Poland and Slovakia includes the country dummies and a number of demographic and socio-economic control variables. These are age, coded into five-year cohort groups, gender, marriage, number of children, size of community where the respondent resides, years of education, income satisfaction, and confidence in the future of the pension system. Finally, as I assume country specific age-effects, I also include interaction terms between age and the country dummies.⁶

3. Method

Given the categorical multinomial nature of the data, I use multinomial logit models with country-level fixed effects fitted on the pooled sample from the Czech Republic, Poland and Slovakia. The Hausman-McFadden (1984) test for the irrelevance of independent alternatives (IIA) does not show a violation of this assumption, which means that the multinomial logit approach can be used and there is no need to apply more complex modelling techniques that do not rely on the IIA assumption. Given the small number of level-two units or clusters (in this case, countries), the application of a multi-level model or clustered standard errors would not be appropriate. In fact, the low number of clusters leads to a decrease in the standard errors instead of the expected increase.

6 For a list of variables used in the models, see Appendix C.

After estimating the model parameters, I simulate post-estimation predicted probabilities of preferred reform choices using the algorithm proposed by King, Tomz and Wittenberg (2000).⁷ I test the hypotheses outlined by deriving cross-country first differences in the predicted probabilities for typical individuals from the pooled sample. I define a typical individual as one who reaches an average value in each of the variables included in the models. The approach to determining the average values for a given variable depends on the nature of the variable. For continuous or discrete variables with a large number of possible values in the sample space, I use the arithmetical mean of the pooled cross-country sample. The arithmetical mean is also used in the case of dummy variables.⁸ In the case of discrete variables, for which the sample space includes only a limited number values, I use the median as the relevant average value.

As the relevant reform episodes⁹ that have resulted in a variety of pension systems in the countries analyzed are suspected to have a different effect on the youngest workers than on the rest of the working population, I simulate predicted probabilities for individuals aged between 45 and 49, which is the mode of the pooled sample, and young workers aged 20-24. Following the rules for establishing the average values of variables used in the model, a typical individual from each of the V4 countries is assigned the arithmetic mean of the dichotomous variables on gender and marital status, and the median on income satisfaction, years spent in education, community size, number of children in respondents' household and degree of confidence in future pensions.

7 The simulations of quantities of interest based on the multinomial logit models are done using the Clarify program (*Tomz/Wittenberg/King, 2003*), an add-on to the STATA software tool.

8 Given this technique of establishing an average through dichotomous categories, a typical individual will not be assigned zero or one, but rather a middle value between zero and one. While this value is not part of the sample space of the dummy variable, choosing it to describe a typical individual is a way of avoiding concentrating on just one (male or female; married or unmarried) part of the sample when simulating quantities of interest.

9 In the context of the present study, relevant reform episodes are the replacement of the conventional DB PAYG system by a public NDC system and a mandatory funded pillar in Poland in 1999, and the introduction of a mandatory fully-funded scheme to the Slovak pension system in 2005.

4. Results

The predicted probabilities presented in Figure 1 demonstrate that maintaining retirement age and contributing more is the preferred option among individuals aged 45-49 in the Czech Republic and Slovakia. In Poland, working and contributing longer is the reform option most likely to be chosen. Furthermore, after controlling for relevant demographic and socio-economic variables, Slovak workers are the most unlikely to accept an increase in the statutory retirement age. Compared to other options explicitly given, the probability of choosing lower pensions is rather small in all three countries. The data also suggest that, in the cohort group analyzed, respondents in the Czech Republic seem to have the largest propensity to explicitly repudiate all pension reform options provided. Their Polish and Slovak counterparts are significantly less likely to oppose reforms (see cross-country comparisons in Figure 2).

Figure 1: Predicted probabilities of reform choices in the Czech Republic, Poland and Slovakia (cohort group 45-49)

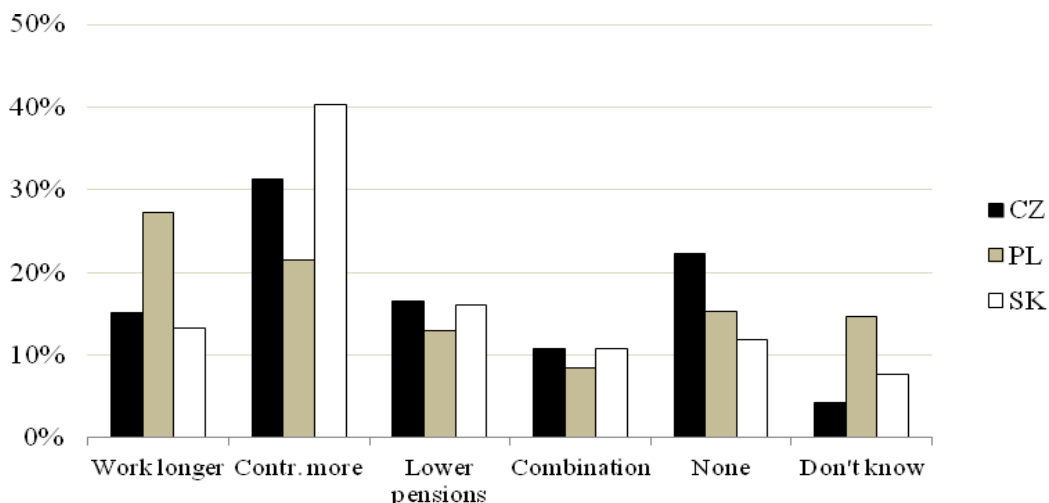
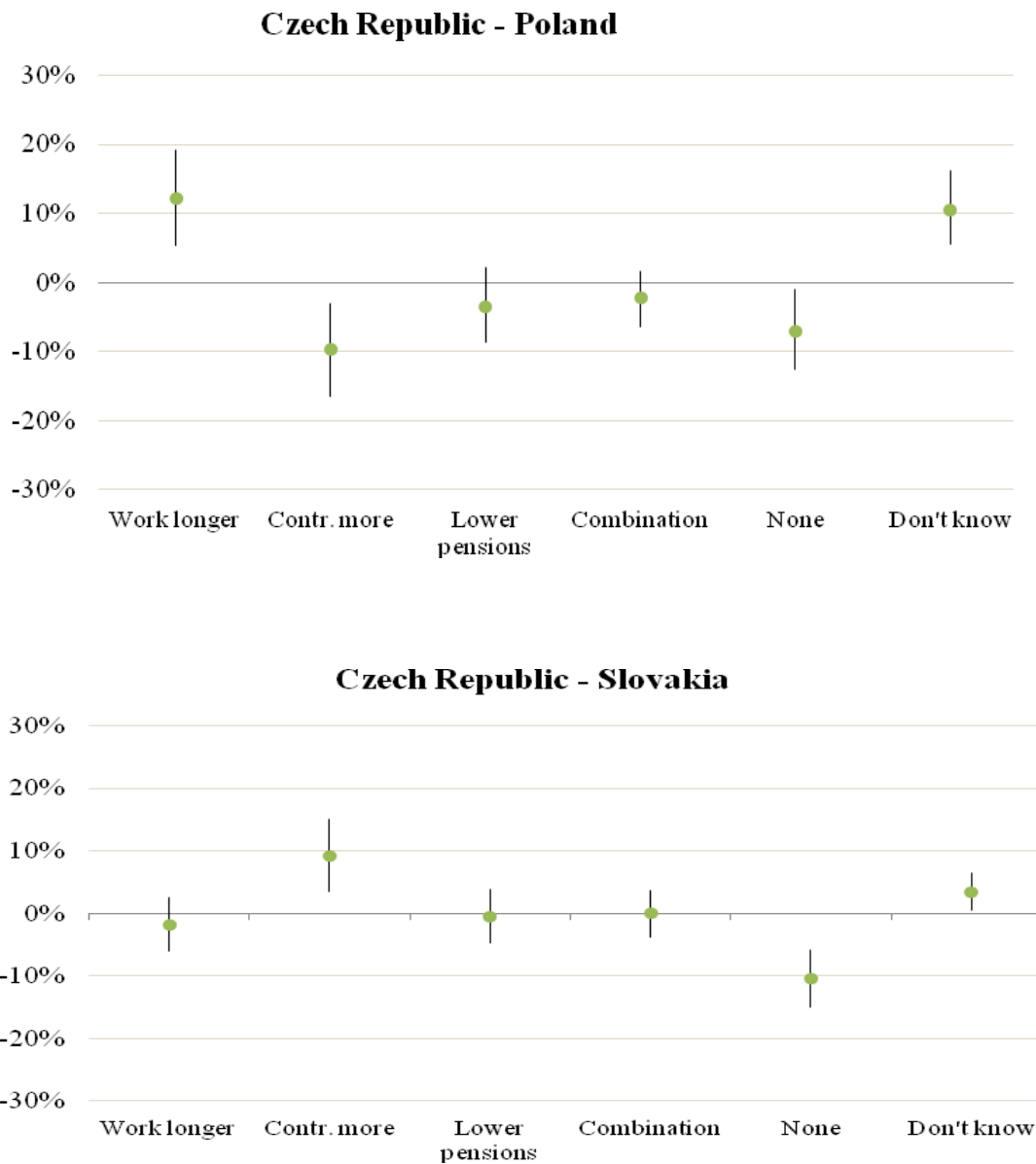


Figure 2: Cross-national differences (cohort group 45-49)

First differences between predicted probabilities of pension-policy preferences in the listed pair of nations. The points represent the mean of the estimate of the first differences, the lines represent the 95% confidence interval.

The analysis of simulated choice probabilities of the three options explicitly given, and their refusal, seems to show evidence in line with hypothesis 1. Beyond these four options, interviewers noted if the respondents expressed a preference for a combination of all three options to be implemented or could not make a decision ('don't know'). Middle-aged workers in the three countries do not differ significantly in their propensity to choose a combination of all three reform options. In

contrast, Polish respondents appear to be much more likely than Czechs and Slovaks to choose 'don't know', which might indicate a higher degree of uncertainty in society about the necessity of reform. It seems that middle-aged Polish respondents are somewhat more likely not to have a distinct, well-defined opinion on pension reforms than their counterparts from the Czech Republic, and Slovakia. Nevertheless, those Polish workers that have an opinion on pension reforms are most likely to prefer a higher statutory retirement age as a means of stabilizing the national pension system.¹⁰

The theory tested in this paper implies that the opposition of Slovak workers against increases to the retirement age should be smaller than in the Czech Republic. This does not seem to be the case in the cohort analyzed. There is, nevertheless, a good reason to believe that cross-country differences among workers in their early- and mid-twenties in the Czech Republic and Slovakia will take a different form. The cohort group aged 45-49 spent most of their formative years in Czechoslovakia. Most importantly, until the mid-2000s, they worked as members of two distinct, yet rather similar pension systems. Moreover, the new Slovak pension system introduced in 2005 was not primarily targeted at this cohort group.¹¹ In contrast to this, younger workers from the Czech Republic and Slovakia not only lived most of their life in the post-Czechoslovakian period, but they also joined the labour market under two very differing pension systems. While the introduction of the second pillar does not seem to have influenced the behaviour of individuals in their mid- and late-forties, the reform preferences of young Slovak workers, many of whom have been required to join the mandatory FDC scheme at the moment of entering the la-

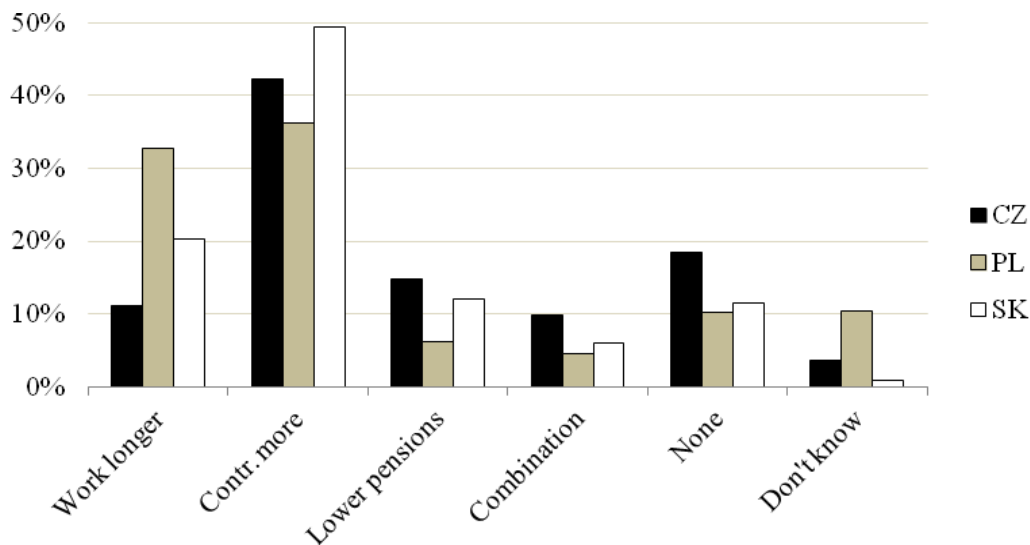
10 The option of combining all reform scenarios deserves particular attention in this context. This option can also be understood as a 'soft acceptance' of working and contributing longer. Nevertheless, the sensitivity analysis conducted shows that recoding the response variable does not alter the substantive results.

11 Until the introduction of the points system in the Slovak Republic in 2004 and the mandatory-funded pillars in 2005, the pension systems of the Czech and Slovak Republics have been very similar in their governing principles. The cohort group aged 45-49 at the time of the reform includes workers aged 41-45 at the time when the second pillar was introduced in Slovakia. These workers were allowed to join the new scheme, but it was often emphasized during the reform process that the second pillar is primarily meant for younger people below the age of 45 (e.g. SME 2004).

bour market, might differ significantly from the preferences of their peers from the Czech Republic.

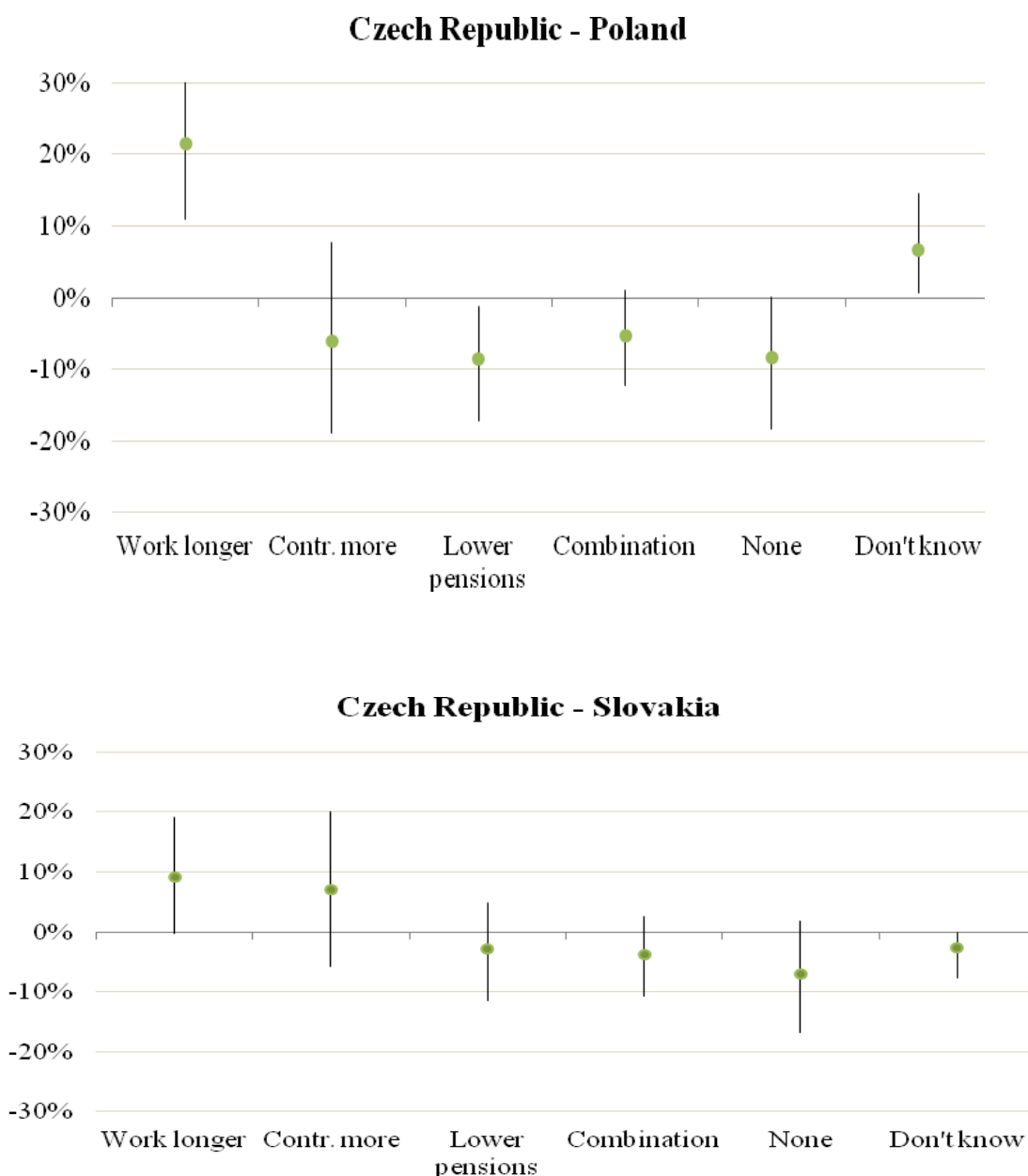
An analysis of the first differences in pension-reform preferences, this time focusing on young workers aged 20-24, certainly shows a somewhat different picture compared with the previous analysis. It appears that the young cohort group that have lived most of their short working life under markedly different pension systems in the Czech Republic, Poland and Slovakia, also exhibit larger cross-country differences in their acceptance of reforms aimed at increasing the statutory retirement age than middle-aged workers.

Figure 3: Predicted probabilities of reform choices in the Czech Republic, Poland and Slovakia (workers aged 20-24)



Figures 3 and 4 include predicted probabilities and chosen cross-country differences for workers aged 20-24. This cohort spent most of its working life under the Polish three-pillar system, operating since 1999. Moreover, aged 16-20 at the time when the Slovak second pillar was introduced, they are part of the main target group for the new Slovak pension policy as well.

Figure 4: Cross national differences (workers aged 20-24)



First differences between predicted probabilities of pension-policy preferences in the listed pair of nations. The points represent the mean of the estimate of the first differences, the lines represent the 95% confidence interval.

The differences in the propensity to accept a higher statutory retirement age between young Polish and Czech workers are very large and statistically highly significant. An average Polish worker from the 20-24 cohort group is 21 per cent more likely to accept late retirement than their Czech counterpart. This divergence in the preferences of the

two nations is also present in the group of middle-aged workers, but, as the data show, it becomes more pronounced among younger workers. By contrast, the propensity to choose maintaining the retirement age and contributing more or receiving less is smaller in Poland than in the Czech Republic, even though the differences are statistically less significant. Young Polish workers are approximately eight per cent less likely to oppose all reform options than their Czech counterparts, but seven per cent more likely to choose the 'don't know' option. This again indicates a higher degree of uncertainty about the necessity or preferred shape of reforms, but a higher propensity to accept later retirement if an individual agrees to pension reform.

In contrast to middle-aged workers, preferences in favour of reforms introducing a higher retirement age show marked differences among young workers in the Czech Republic and Slovakia. A young Slovak worker is ten per cent more likely to choose late retirement as an acceptable reform option than a young Czech worker. While this difference does not reach the proportions of the divergence between Czech and Polish respondents, it is both statistically ($p < .1$) and substantially significant. Furthermore, young Slovaks are seven per cent less likely to explicitly oppose all reform options, a result that is statistically significant at the ten per cent-level.

5. Discussion

The first hypothesis of the paper, derived from prospect theory and previous empirical work on the impact of information on the formation of welfare attitudes, states that links between life expectancy and starting pensions foster the acceptability of increases in the statutory retirement age. The study finds strong evidence in favour of this hypothesis. As cross-country differences between the Czech Republic and Poland, as well as the Czech Republic and Slovakia indicate, the effect appears to be strongest in those cohorts that moved into the world of employment already under retirement schemes binding the level of pensions to life expectancy at retirement.

The second hypothesis builds on the first hypothesis and states that attitudes towards pension-reforms will be more different among individuals that lived longer under two different institutional environments. This empirical study finds strong support for this hypothesis in the data. Workers in their mid- and late-forties from the Czech and Slovak Republics have lived a large part of their working lives under

similar pension systems and middle-aged workers also did not constitute the main target group for the 2005 Slovak pension reform. Their attitudes towards the possibility of an increased statutory retirement age are also rather similar. By contrast, younger workers from the Czech Republic and Slovakia seem to diverge much more in their opinion on parametric changes in the retirement age, Slovaks being significantly less hostile towards possible increases.

The findings presented are robust with regard to various model specifications tried within the framework of a sensitivity analysis. Multinomial logit models are also vulnerable to the violation of the independence of irrelevant alternatives (IIA) assumption, stating that the relative odds of two alternative outcomes of the multinomial response variable must be independent of other outcomes. Nevertheless, as mentioned earlier, The Hausman-McFadden IIA test (Hausman and McFadden 1984) indicates that, in the case of the models used, the IIA assumption holds.

The cross-sectional analysis of data from the Czech Republic, Poland and Slovakia is most useful for analyzing the relationship between pension-reform attitudes and the features of the existing pension system. Nevertheless, the study relies on the assumption that it is the institutional and legislative environment that influences attitudes and not the other way around. While there is a vast theoretical and empirical literature underpinning this idea (Pierson 1993; Skocpol 1992; Mettler and Welch 2004; Fernández and Jaime-Castillo 2013), it might be useful to gather additional evidence in favour of the policy feedback effect in this particular case. A repeated cross-sectional study measuring attitudes before and after a shift in pension policy may be particularly useful in this respect.

Eurobarometer wave 71.3 from 2009 (European Commission 2012a) and 66.3 from 2006 (European Commission 2012b) contain identical questions on the acceptability of pension reforms options. Portugal carried out a comprehensive reform of its pension system in 2007, which falls between these two waves of the Eurobarometer surveys. The Portuguese case can be instrumental in increasing confidence in the validity of the assumed direction of causation.

A key feature of the new Portuguese system - operational since 2007 - is the demographic sustainability factor. This is calculated as a ratio of the 2006 life expectancy at age 65 and the life expectancy at age 65 one year prior to the year when a cohort reaches the statu-

tory retirement age (Campos and Pereira 2008).¹² If life expectancy upon retirement increases, the sustainability factor reaches values below one. This, in turn, causes a decline in the starting pensions of the cohort of new pensioners relative to the cohort that reached retirement age in 2006. The introduction of the sustainability factor has already led to a 4.78 per cent decrease in the starting pensions between 2006-2013 (Pereira 2012).¹³

Other features of the Portuguese pension system also changed in 2007, but the importance of these adjustments is rather small. The statutory retirement age remained 65 years. The level of mandatory contributions as a percentage of covered income also remained the same. By contrast, the remuneration of retirement after 65 increased moderately as well as the penalty for early retirement (Cunha et al. 2009). However, having evaluated the new legislative environment in detail, it appears safe to conclude that these changes are not likely to affect significantly the retirement conditions of a standard Portuguese worker.¹⁴ In contrast, the application of the demographic sustainability factor has wide-ranging consequences for the level of starting pensions.

12 The 2006 life expectancy of the cohort that reached retirement age (65 years) in 2006 was 17.89 years. The life expectancy of the cohort that reached age 65 in 2011 was 18.62 years. The sustainability factor is calculated as the ratio of these two numbers, which is 0.961.

13 According to Cunha et al. (2009), if the sustainability factor were to be applied in the same form in 2020, it would lead to a twelve-per-cent decrease in the starting pensions of the 2020 pensioner cohort relative to starting pensions in 2006.

14 In the case of those workers who have already accumulated forty years of seniority in the pension system, the new rules lead to an annual bonus of twelve per cent instead of the previously used ten-per-cent increase in their full pension for every additional year of work after the age of 65. Moreover, in the pre-2007 system, those that did not reach forty years of seniority were not entitled to gain a bonus above the normal accrual rate for working past 65. According to the new rules, the pensions of this latter group additionally increase up to a rate of 0.65 per cent for each month worked past the age of 65. It should, nevertheless, be noted that the post-2007 Portuguese pension system establishes the maximum pension at 92 per cent of the individual's average working income. After reaching this point, further work does not lead to additional increases in pensions (Cunha et al. 2009), which is a major disincentive for deferred retirement. The effective level of punishment for early retirement also became dependent on one's past earnings registration. The new system changed the standard penalty for early re-

My expectation is that, under the new institutional set-up of the Portuguese pension system, the public acceptance of reforms seeking to increase the retirement age will grow. Furthermore, the introduction of the sustainability factor might undermine tendencies to preserve the pension system in its current form, therefore I expect a decline in the probability of choosing explicit opposition against all reform options provided.

I analyze the data using multinomial logit models of the same specification as in the study of the Czech Republic, Poland and Slovakia.¹⁵ The post-estimation simulated predicted probabilities show that the reform preferences of a typical Portuguese worker shifted considerably between 2006 and 2009. After controlling for relevant demographic and socio-economic variables, it is the refusal of all options that an average worker is most likely to choose in 2006. In 2009, working and contributing for longer becomes the option most likely to be chosen by an average Portuguese worker. By contrast, explicit opposition to all reforms loses popularity. A comparison of the predicted probabilities of reform choices for Portugal 2006 and 2009 is presented in Figure 7.

tirement from 4.5 per cent per year to half-a-per-cent for each month of retirement before the age of 65 (Cunha et al. 2009). However, the effective penalty for early retirement is considerably smaller. A worker older than 55 with an earnings registration exceeding thirty years earns twelve months of penalty-free early retirement per each additional three years of registration period (OECD 2011).

- 15 The Eurobarometer surveys used differed in the question on self-assessed income adequacy. While the 2009 survey included respondents' answer to a question on satisfaction with household income, the 2006 wave asked respondents to evaluate to what extent they agree with the statement that they have a well paid job. While the two questions are different, their fundamental underlying concept is the same.

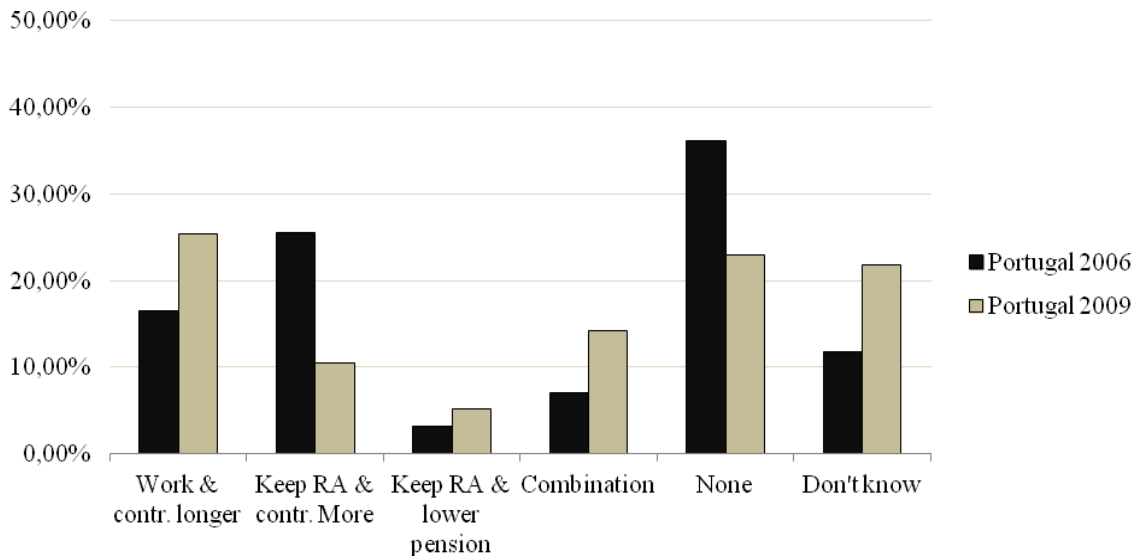
Figure 7: Expected probabilities (Portugal 2006 and 2009)

Table 8 includes the first differences between the predicted probabilities of a typical Portuguese worker in 2006 and 2009.

Figure 8: First differences in expected probabilities (Portugal 2006 and 2009)

The points represent the mean of the estimate of the first differences, the lines represent the 95% confidence interval.

As can be seen from the evaluation of first differences in Portugal between 2006 and 2009, after the 2007 pension reform, the option 'work and contribute for longer' experienced significant gains in its popularity and so did the option of combining the three measures. At

the same time, under the new institutional environment, the probability of refusing reforms overall decreased significantly as well as the popularity of the proposal to maintain the retirement age and increase contributions. These results are strongly in line with the initial assumption of the paper, according to which the strength of the link between life expectancy and the level of pensions influences attitudes towards pension reforms. However, it should also be noted that a typical Portuguese worker in 2009 is approximately ten per cent more likely to choose 'don't know' than in 2006. While outright opposition to any reform declined and the probability of choosing an increased statutory retirement age rose, there seems to be a growing uncertainty in society about the necessity or acceptability of pension reforms. In this respect, the findings of the analysis conducted on the Portuguese data are fully in line with the conclusion derived from the study of the Czech Republic, Poland and Slovakia.

What are the main implications of these findings for policy and practice? Automatic measures binding the level of starting pensions to life expectancy at the moment of retirement seem to be a particularly useful policy instrument in changing public attitudes towards later retirement. In an institutional environment, where the link between the sustainability of the pension system and demographic development is rendered more visible to the public by an actuarial formula or a sustainability factor, such as the one used in Portugal, citizens will be more likely to accept an increased retirement age as a solution to the societal problem of unsustainable public pension systems.

Nevertheless, the question is whether it is necessary to adjust the statutory retirement age in a system that already accounts for life expectancy upon retirement at all ages. After all, the abolition of a formal statutory retirement age would also be possible in such systems. Nonetheless, past research (Berkel and Börsch-Supan 2004; Hurnard 2005; Coppola and Wilke 2010) has shown that the statutory retirement age has a significant influence on people's pension decisions, even in countries where considerable divergence is allowed between the actual retirement age and the statutory one. A large part of the population reacts to an increase in the statutory retirement age by postponing retirement even if earlier retreat from the labour market is, in principle, still possible. The statutory retirement age thus appears to be a particularly important policy signal which seems to lead to a reconsideration of retirement decisions by individuals. The fact that creating a link between life expectancy and starting pensions attenuates

the opposition against a higher retirement age opens up an important window of opportunity for policy-makers concerned with the sustainability of public PAYG schemes in ageing societies.

Conclusion

In the present study, I have provided empirical evidence that automatic measures linking the level of starting pensions to life expectancy at the moment of retirement attenuate public opposition against increases in the statutory retirement age. The study used Eurobarometer survey data collected in the Czech Republic, Poland and Slovakia in 2009. The findings were further corroborated by the results of a repeated cross-sectional analysis of Eurobarometer survey data collected in Portugal in 2006 and 2009, i.e. shortly before and after the country's largest pension reform in the past decade.

The study provides ample evidence in favour of the hypothesis that automatic mechanisms linking the level of starting pensions and life expectancy increase public willingness to accept a higher statutory retirement age as a solution to the sustainability-problems of the public pension system. It links the effects of policy measures on reform preferences to theories on the influence of information and negatively framed incentives on people's attitudes. While there is a considerable body of literature discussing the effect of information and framing on policy preferences in the public, this literature is mostly based on experiments and survey experiments. By contrast, the present study focuses on the policy environment individuals live in.

The findings of the study are of particular relevance to policy-makers seeking for answers to the challenges demographic aging poses to PAYG pension systems. Adjustments of the retirement age appear to be an indispensable part of the solution. From a 'generational accounting' perspective, they decrease the implicit debt of the pension system. From a macroeconomic perspective, they address the expected problem of labour shortages due to demographic ageing (Barr 2012).

The results of the empirical study presented in this paper further strengthen the relevance of implementing automatic adjustment mechanisms in the pension systems of countries struggling with the adverse effects of demographic ageing. However, as D'Addio, Keese, and Whitehouse (2010) emphasize in their study on the employment

of elderly workers, that motivating postponed retirement or attenuating opposition against increases in the general retirement age is only part of the solution. Labour-market barriers to the employability of elderly workers require the close attention of policy-makers as well. Without having an adequate demand for the skills elderly workers can offer in the labour market, the introduction of automatic mechanisms might easily lead to pension inadequacy. Therefore, introducing strong incentives to drive the effective retirement age higher should go hand-in-hand with adequate labour market policies targeting the employability of the elderly.

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Appendices

Appendix A: Key macroeconomic indicators (CZ, PL, SK, as of 2009)

	GDP (EU27=100)	GDP growth	Unemployment	Wages (usd PPPs)*	Price level (OECD=100)	Pension replacement rate**	
						Men	Women
Czech Republic	83	-4.5	6.7	19312	71.77	64.36	64.36
Poland	61	1.6	8.1	19242	58.68	68.23	50.61
Slovakia	73	-4.9	12.1	18638	70.11	74.51	74.51

* Given in 2011 US Dollars

** For single men/women with an average income

Source: GDP, GDP growth, Unemployment: Eurostat; Wages, Prices, Pension replacement rate: OECD.stat

Appendix B: The main features of the national pension systems (CZ, PL, SK, as of 2009)

Country	Overall structure	Mandatory old-age retirement contributions as % of covered income	Retirement age and life expectancy	Early retirement	Late retirement
Czech Rep.	Conventional DB PAYG system and a voluntary tax-subsidized FDC scheme (similar to the 3 rd pillar in other CEECs).	Social Security Contributions (SSC) by Employer: 21.5% SSC by Employee: 6.5% Total SSC: 28% (20% of which are used as old-age pension contributions)**.	62 for men and 54-60 yrs and 8 months for women depending on the number of children raised. Life expectancy at age 65: 16.6 years.	Early retirement can take place, at most, 3 years before the regular retirement age. The penalty for early retirement amounts to 0.9%-1.5% of the regular pension for each 90 days of early retirement.	Possible without limitations; the monthly benefit increases due to a longer coverage period; a bonus of 1.5% of the retirement benefit is gained for each 90 days of deferral.
Poland	Three-pillar system; 1 st pillar: public mandatory NDC PAYG scheme; 2 nd pillar: Private mandatory FDC scheme; 3 rd pillar: Private voluntary FDC scheme.	Employer: 9.76% Employee: 9.76% Total: 19.52% (7.3% of which go to the mandatory FDC scheme)*.	65 years for men and 60 for women. Life expectancy at age 65: 16.7 years.	Not possible under the general pension system, but some occupational groups (e.g. pilots, steel workers) can receive a bridging pension.	Possible without limitations; higher pension benefits in case of late retirement stem from the actuarial formula used in the NDC and FDC schemes. The source of bonus is the larger notional pension wealth and shorter life expectancy at higher retirement age.
Slovakia	Three-pillar system; 1 st pillar: public mandatory points-based scheme; 2 nd pillar: Private mandatory FDC scheme; 3 rd pillar: Private voluntary FDC scheme.	Employer: 14% Employee: 4% Total: 18% (9% of which go to the mandatory FDC scheme)*.	62 years for men and 57 years and 6 months-61 years and 6 months for women.* Life expectancy at age 65: 15.2 years.	Possible 2 years before the statutory retirement age. Penalty for early retirement reaches 0.5% of retirement benefit for each 30 days of early retirement.	Possible without limitations; the monthly benefit increases due to a longer coverage period; additional bonus for late retirement reaches 0.5% of retirement benefit for each 30 days of deferral completed.

* Information valid as of 2008.

** Refers to social security contributions in total

Sources: National legislation, and Eurostat data on life expectancy

Appendix C: Operationalization of the dependent and independent variables

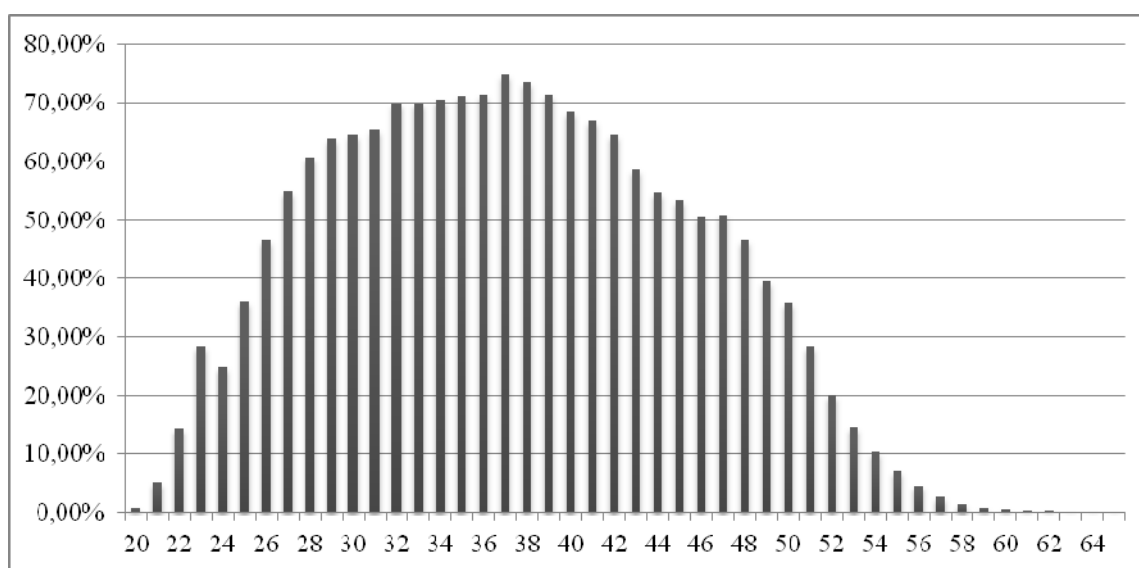
Variable	Short description	Type	Coding
PREFOPT	Preferences for reform options	Discrete, categorical	1 'work and contribute for longer' 2 'maintain retirement age and contribute more' 3 'maintain retirement age and receive less' 4 'a combination of all three' 5 'none of these' 6 'don't know'
CZ, PL, SK*	Country dummy variables	Discrete, dichotomous	1 if respondent is from the given country 0 if otherwise
COHORTS*	Age coded into five-year cohort groups, starting at the age of 15	Discrete, ordered	Starting with the age of 15, each cohort group consists of five cohorts; 15-19, 20-24, 25-29etc..
YEAR	Year dummy for the analysis of Portuguese data	Discrete, dichotomous	1 if observation from 2009, 0 if observation is from 2006
GENDER	Gender dummy	Discrete, dichotomous	1 if respondent is female, 0 if male
MARRIED	Marital-status dummy	Discrete, dichotomous	1 if respondent is married, 0 if otherwise
CHILDREN	Number of children aged 0-14 in respondent's household	Discrete, ordered	Between 0-3, the value indicates the number of children 4 indicates four or more children in household
COMSIZE	Number of inhabitants in the municipality of the respondent	Discrete, ordered	1 rural area (PL) or up to 5000 2 up to 20 000 3 up to 100 000 4 above 99999 (CZ)/100 000 (PL + SK)
EDUC	Age when respondent left full-time education	Discrete, ordered	0 no full time education 1 to 9 (up to 14 years/22 years and older)
INCOME**	Respondent's evaluation of the financial situation of household	Discrete, ordered	1 very good 2 rather good 3 rather bad 4 very bad

Variable	Short description	Type	Coding
PCCONF	Degree of confidence about future pensions	Discrete, ordered	1 very confident 2 somewhat confident 3 not very confident 4 not at all confident

* The models also include the multiplicative interaction terms of the country dummies and the cohort variable.

** The evaluation of income for observations from Eurobarometer 66.3 (2006) from Portugal relied on a question worded differently than in the case of data from Eurobarometer 71.3 (2009). Nevertheless, both the variable used from Eurobarometer 71.3 and the variable used from Eurobarometer 66.3 provide a comparable image about the respondent's satisfaction with her own financial situation.

Appendix D: Share of second-pillar members in Slovakia in their respective cohorts (as of 2010)



Source: Ministry of Welfare of the Slovak Republic and the Statistical Office of the Slovak Republic (SLOVSTAT database)

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