Douglas A. Hershey

Kène Henkens

Hendrik P. van Dalen

What Drives Pension Worries in Europe? A Multilevel Analysis

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What Drives Pension Worries in Europe? A Multilevel Analysis

Douglas A. Hershey[1]

Oklahoma State University

Kène Henkens[2]

Netherlands Interdisciplinary Demographic Institute (NIDI)

and

Hendrik P. van Dalen[3]

Netherlands Interdisciplinary Demographic Institute (NIDI);

Tilburg University, Department of Economics

and CentER

[1] Department of Psychology, 116 North Murray Hall, Oklahoma State University, Stillwater, Oklahoma 74078. Voice: (405) 744-4594; Email: douglas.hershey@okstate.edu

[2] Netherlands Interdisciplinary Demographic Institute, P.O. Box 11650, 2502 AR, The Hague, The Netherlands. Voice: (011) 31-70-356-5235. Email: henkens@nidi.nl

[3] Netherlands Interdisciplinary Demographic Institute, P.O. Box 11650, 2502 AR, The Hague, The Netherlands. Voice: (011) 31-70-356-5237. Email: dalen@nidi.nl

Abstract

Nations in Europe have been developing rapidly since the formation of the European Union (EU), not only socially and demographically, but economically as well. One question a number of countries will face during this period of structural transition will be how (and how well) they are able to support their citizens in old age. A related question involves whether individuals worry about their financial future in retirement, and the extent to which they take active steps to save in order to ensure an adequate standard of living. In this study, we analyze data from the third wave of the European Social Survey, which represents 22,609 working adults from 23 countries in Europe. We used multilevel modelling to focus on the explanatory factors that underlie individual and country-level effects in future pension worry and saving behavior. Findings suggest that once individual-level dimensions are taken into account, country-level predictors explain appreciable variance in worry, but not saving practices. Pension worries are more severe in countries with a low retirement age and a strong projected increase in future population aging. This suggests that the drive toward raising the retirement age in a number of EU countries may alleviate some of the worries of its citizens.

Keywords: Retirement; Worry; Saving; Europe; Economic; Multilevel Modelling

What Drives Pension Worries in Europe?

A Multilevel Analysis

One major change many Europeans will face in the coming decades has to do with the level of financial support they can expect to receive in old age, due to the shifting dynamics of pension financing systems in different countries. This is particularly true in previous Eastern Bloc nations, in which pension financing systems are being built (or rebuilt) to meet the needs of large segments of older workers who are nearing retirement. One predictable consequence of this change is worry on the part of the individual worker, who may not have a sense that a reasonable level of financial support is forthcoming. In this study we focus attention on pension-related worry in Europe, the factors predictive of workers' financial concerns, and the extent to which pension worry is related to saving for old age.

The remainder of the paper is structured as follows: first we provide a review of the literature on worry and retirement finances, followed by an overview of the state of affairs regarding pension financing in Europe. Next, we describe the objectives of the study, followed by the methods, results, and discussion.

Worry about Finances & Retirement

The graying of members of the baby boom generation has contributed to an expanding literature on worry about one's future retirement finances. For some, this retirement worry stems from a perceived lack of general knowledge of aging (Hayslip, Beyerlein, & Nichols, 1997), whereas for others, more focal dimensions (health concerns, work-related issues) are the root cause of apprehension. There has been no shortage of studies to suggest the existence of a link between personal finances and worry (Diefenbach et al., 2001; Grulke et al., 2006; Lindesay et al., 2006; Neukam & Hershey, 2003; Skarborn & Nicki, 2000; Watari & Brodbeck, 2000), which is important in light of the inverse relationship between worry and life satisfaction, health, and the ability to manage one's life (Neikrug, 2003; Paolini, Yanez &

Kelly, 2006; Watari & Brodbeck, 2000). At the very least, it is clear that for many the

retirement transition is stressful (Bossé, Spiro & Kressin, 1996; Sharpley & Layton, 1998)

which can give rise to worry, that can be partially alleviated by engaging in financial planning

activities (MacEwen, Barling, Kelloway, & Higginbottom, 1995), setting aside resources for

the future (Neukam & Hershey, 2003), and relying on financial institutions to manage one's

future pension resources (Sievers, 2003).

The Changing Pension Panorama in Europe

Most European pension systems are founded on three pillars: public schemes (so-

called "Social Security" programs), occupational schemes (i.e., employer pensions), and

individual pension plans that highlight the need for personal saving. Each pillar has

advantages and drawbacks in terms of the provision of support, and not all three pillars are

well established in all Member States (Schneider, 2009). That said, the public programs tend

to be of central importance in that they make up the lion's share of income for most European

pensioners (Commission of European Communities, 2000).

European pension programs are not without their difficulties. Ways are needed to

increase the sustainability of currently overburdened state-based financing schemes, and

appropriate governance structures are needed to ensure the integrity of occupational pension

programs (Holden, 2008). Undeniably, many pension programs in Europe—whether state-

based or occupational—are currently in flux and badly in need of reform (Mercer, 2007).

These and other concerns have lead to a lack of trust and low levels of confidence in some

state-based programs (Holden, 2008), which undoubtedly lead many workers to have

concerns about their future pension income.

Concerns that stem from the stability of transitional state-based pension systems—

particularly those developing in former Eastern bloc countries—have led to an aggregate

increased level of saving across countries in Europe, as suggested by recent data from the

European Central Bank (Eurostat, 2009). Indeed, many Europeans are setting aside resources at a rate that outstrips household saving in other developed nations, including the United States (Leetmaa, Rennie & Thiry, 2009). This increased level of saving has been driven by fears in some countries that public schemes are unsustainable in light of massive underfunded liabilities, low participation rates and a large cohort of baby boomers who are soon to retire.

Present Investigation

In this investigation we explore the extent to which Europeans worry about their future pension income, the extent to which they save, and the relationship between pension worry and saving at the aggregate level. Univariate data are presented to describe the degree of worry and level of saving among individuals in 23 European countries. Inferential analyses are also carried out using multilevel modeling to identify both individual- and country-level determinants of pension-related worry and saving. Finally, correlational data—derived from the aggregate level—are presented that suggest a link between worry and saving.

Nine *individual-level predictors* are included in the regression equations we compute to predict worry and saving. Some measures are structural variables that indicate the socio-demographic and economic position of respondents, such as age, gender, health status, education, marital status, number of children, and income adequacy. We also include two psychological predictor variables that indicate respondents' disposition towards saving for the future: future time perspective and planning affect (i.e., the extent to which one enjoys planning). Three *country-level predictors* are also included in the multilevel regressions. These include country-specific values for: (a) the average age of retirement, (b) the 2050 projection of the country-specific old age dependency ratio (i.e., the proportion of the population over 65 relative to individuals 15-64 years of age), and (c) a country-specific measure of income inequality (i.e., the U.N. Gini coefficient).

Pension-Related Worry. In terms of hypothesis development, few studies have been published that have examined pension-related worry in relation to the individual-level predictors used in this investigation. Research has shown that the age-related acquisition of knowledge about late life issues can serve to reduce the anxiety brought on by the impending retirement transition (Hayslip et al., 1997), and for this reason, pension worry levels might be expected to be higher among younger adults relative to older pre-retirees. General and financial worry levels tend to be higher in women relative to men (Grulke et al., 2006; Skarborn & Nicki, 2000), because women tend to occupy more economically vulnerable positions. By extension, one might imagine women's pension-related worry would also be higher. Those in ill health are confronted by financial stressors not faced by healthy individuals (Francoeur, 2001), therefore, one might expect poor health to be related to high levels of pension worry. We found no studies that examined the relationship between pension worry and educational level, but inasmuch as educational attainment is correlated with income (and by extension, income adequacy), we expected highly educated individuals and those with high levels of income adequacy to have low levels of future pension worry. Furthermore, being married or partnered could be expected to be associated with low levels of pension worry, as married individuals have been shown to save more for retirement than their single counterparts (Yuh & Olson, 1997).

As a psychological predictor variable, future time perspective, it seems, could go either way in terms of worry levels. Those with a high future time perspective (i.e., who like to think about the future) might be more mindful about (and worried about) their future pensions, as they could be differentially focused on events that will occur in old age. On the other hand, those with a high future time perspective have been found to be more active retirement planners and savers (Hershey, Jacobs-Lawson, McArdle & Hamagami, 2007) and they expect higher replacement rates after retirement (Van Dalen, Henkens & Hershey, in

press)—financial behaviors and expectations that might be thought of as reducing pension-related worry. It is unclear how the final two individual level variables—planning affect and number of children—will be related to pension worry.

Using a similar line of reasoning as in the case of future time perspective, high levels of planning affect may reduce pension worry, as those who enjoy planning are people who tend to be better at setting aside savings (Ameriks, Caplin & Leahy, 2003). The counterargument in this case, is that knowledge may be mixed blessing. Planners are more likely to be aware of what lies ahead, and hence, more worried about their retirement income than those who remain (blissfully) ignorant as to what the future holds. A similar ambiguity exists when considering the relationship between children and pension worry. In traditional societies, children have served as an informal social security system by taking care of the parents once they become old. Velladics, Henkens and Van Dalen (2006) showed that individuals in former Eastern European Countries rely more on their children for old age care relative to other European countries. In that respect, children can be viewed as a capital good (Nerlove, Razin, & Sadka, 1987). In describing this 'old age security hypothesis,' Schultz (1974) characterized children as being "the poor man's capital." More children imply that pension worries would be reduced. However, in developed societies formal pension systems have replaced the function of children as a capital good, and they have virtually become a 'consumption good.' In developed societies the children's role in reducing pension worry is more limited than it is in traditional societies.

In terms of country-level variables, we expect pension-related worry levels to be higher in nations in which the average age of retirement is low. This is because in such countries, state-based pension insolvency will be a concern in light of the fact that a large cohort of future retirees will need to be financially supported for a prolonged period of time. We also expected worry levels to be high in countries with a low old age dependency ratio.

This is because in such countries, there will be relatively few workers to support retirees through state-based financing programs, and the resulting psychological and financial burden to the worker will be significant. Finally, we expect to find high levels of worry in countries with high level of income inequality. In such countries, worry could be prevalent among individuals who are of limited financial means, with few personal savings and bleak prospects for an occupational pension.

Saving for Retirement. Relative to studies on pension-related worry, numerous studies have been published that link retirement saving practices to demographic and individual difference variables. Indicators shown to be associated with higher saving rates include: being older (Devaney & Su, 1997; Stawski, Hershey & Jacobs-Lawson, 2007), being male (Glass & Kilpatrick, 1998; Jefferson & Preston, 2005), being highly educated (Yuh & Olson, 1997), being married (Rix, 1990; Yuh & Olson, 1997), being in good health (Johnson, Penner & Toohey, 2008; Lum & Lightfoot, 2003), and having a reasonable income adequacy (Bassett, Fleming & Rodrigues, 1998; Poterba, Venti & Wise, 2007; Stawski et al., 2007; Weller, 2006). Furthermore, it has been suggested that having many children should be negatively predictive of retirement saving (Galasso, Gatti & Paola, 2008), as children are themselves considered to be a source of support. Future time perspective has been shown to be positively related to retirement saving practices (Howlett, Kees, & Kemp, 2008; Jacobs-Lawson & Hershey, 2005). And, as to the last individual-level predictor, general planning affect, we were unable to find any studies that had been published on the topic in relation to saving. However, as saving is the end result of financial planning, it would follow that those who enjoy planning (in general), might be more likely to save.

We further anticipate savings rates will be relatively low in countries with a high average age of retirement. This is based on the assumption that the duration of retirement will be shorter in these countries and individuals will have a longer working life in which to save

for old age. We also anticipate that projections of future old age dependency ratios will be a good marker of saving for retirement. To the extent that the dependency ratio in a country is high (e.g., where the ratio of workers to retirees is 4:1 or 5:1), then saving rates should be low. That is because a high dependency ratio indicates a large worker base available to contribute to state-based pension programs (Barr and Diamond, 2006). Finally, we expect a high level of income inequality will affect retirement savings. That is because income inequality at the country level signals that income redistribution by the government (or collective arrangements in the form of supplementary pension contracts) is low, thereby making private savings more likely.

In sum, in this study we hypothesized that low worry levels and high saving rates will be associated with being older, being male, being in good health, being married, having few children and having high levels of education, income adequacy, future time perspective, and planning affect. Moreover, high worry levels and high saving rates should be more pronounced in countries with a low average age of retirement, a low old age dependency ratio, and a high level of income inequality.

<div align="center">Method</div>

Participants

The data in this investigation were drawn from the third (2005) wave of the European Social Survey (ESS). The ESS "is an academically-driven social survey designed to chart and explain the interaction between Europe's changing institutions and the attitudes, beliefs and behavior patterns of its diverse populations." (European Social Survey, 2009). The ESS is aimed at being representative of the residential population aged 15 years and above, regardless of nationality, legal status or citizenship. The sample in the present study contains data from 19 EU countries including: Austria, Belgium, Bulgaria, Cyprus, Denmark, Estonia, Finland, France, Germany, Hungary, Ireland, the Netherlands, Poland, Portugal, Slovakia,

Slovenia, Spain, Sweden, and the United Kingdom. Data were also available from four non-EU countries including: Switzerland, Ukraine, Norway and the Russian Federation, making for an overall sample of 23 nations.

A subset of 22,609 ESS respondents was selected for inclusion in this study, all of whom were engaged in employment for pay at the time of testing. The mean number of respondents per country was 983 (range 509-1456), and the mean age was 41.03 years (range 15-92; $SD = 11.96$). Roughly half (48.8 percent) of the sample were women, and the average educational level was in the upper to post-secondary range.

Questionnaire and Measures

Participation was solicited using an advance letter, followed by an hour long data collection home visit by a trained ESS interviewer. One individual per household was eligible for participation, and that individual was selected randomly from each responding household with more than one person over the age of 15.

As surveys go, the dimensions assessed by the ESS are rather extensive. However, a small core of items was sufficient to examine the issues in which we were interested. Variables from the study can be classified into three types: (1) outcome measures, (2) individual-level variables, and (3) country-level variables.

Outcome Measures. The first outcome measure tapped whether individuals worry about their future retirement income. This single-item indicator was worded as follows: *"Are you worried that your income in old age will not be adequate to cover your later years?"* Ratings were made on an 11-point scale (0 = not at all worried; 10 = extremely worried). The second outcome measure was designed to assess retirement savings adequacy. This item read: *Are you saving (or have you saved) in order to live comfortably in old age?"* (coded dichotomously: 0 = No; 1 = Yes). [1]

Individual-Level Variables. Seven individual-level variables were included in the study. These included six standard demographic items: *age*, *gender* (0 = male; 1 = female), *years of formal education*, *self-rated health status* (1 = very good; 5 = very bad), *marital status* (0 = non-married/partnered; 1 = married/partnered), and the respondent's *number of children*. In addition, *income adequacy* used a four level rating scale (1 = living comfortably on present income; 4 = very difficult to live on present income). Also measured were two psychological indicators: future time perspective and planning affect. The former was assessed using an 11-point rating scale based on the question: *"Do you plan for the future or take each day as it comes?"* (0 = take each day as it comes; 10 = plan for the future as much as possible). The latter item was based on responses to the following statement: *"I like planning and preparing for the future"* (1 = strongly disagree; 5 = strongly agree). Although the future time perspective and planning affect items appear to tap a similar construct (that is, some form of planning orientation), in this study they are measured and analyzed as separate constructs. This is because research has shown that one's planning-related affect is distinguishable from the act of financial planning for retirement (Hershey & Mowen, 2000; Neukam & Hershey, 2003).

Country-Level Variables. Three country-level variables were included in the study. They are described as "country-level" indicators because all individuals in a given country were assigned the same value for each of the three dimensions. They include a measure of income inequality—the *United Nations Gini coefficient* (0 = strong income equality; 100 = strong income inequality) (UNDP, 2007), the *average age of retirement* in the respondents' country (Eurostat, 2008), and the projected *2050 old age dependency ratio* in the respondents' country (theoretical min. = 0; theoretical max. = 1; larger scores mean proportionally more people over 65 relative to working age individuals; Eurostat, 2007).

<div align="center">Results</div>

Bivariate Analyses

We begin by presenting descriptive scores for the two dependent measures—future pension worry and saving—averaged at the country level. The mean scores plotted in Figure 1 are for the worry dimension. As seen in the graph, most scores surrounded the scale midpoint (a score of 5), with somewhat more countries having means skewed in the worried direction. The countries in which respondents had the highest levels of pension-related worry were Poland, Bulgaria and Portugal. Countries with the lowest worry levels included Sweden, Denmark and Norway, with Norway having the lowest worry score overall. Although mean score differences between any two adjacent countries in the graph are small, the score difference between countries at the two ends of the spectrum (i.e., between Poland and Norway) is appreciable—3.50 units on an 11-point base. One thing these data tell us is that even in countries with the lowest worry levels, there is some small level of pension-related worry (i.e., all country means were appreciably above zero). In countries with large projected retirement financing concerns, worry levels are considerable.

Next, we turn our attention to the analysis of self-reported retirement saving behavior. Figure 2 shows the proportion of respondents in each country who answered "yes" to the question *"Are you saving (or have you saved) for old age?"* Thus, a country with a mean score of .60 on this dimension indicates that somewhat more than half of respondents report either saving or have saved. In this graph differences at the country level are fairly clear. The countries in which saving behavior is most common include Denmark, Austria and Slovakia. The saving rate in these nations approaches or surpasses 80 percent. Self-reported saving rates were lowest in the Ukraine, Russian Federation, and Bulgaria—countries in which only 25-35 percent of the population reported having saved.

Multilevel Modeling Analyses

Two separate multilevel regression analyses were calculated to test the factors predictive of pension worry and saving. One advantage of multilevel analysis is that it allows one to take into account the dependency of observations between respondents from the same country. The practical benefit of multilevel modeling is that mean scores and standard errors of country-level variables can be estimated in an unbiased fashion (Dedrick et al., 2009). Furthermore, multilevel modeling will allow us to estimate the extent to which dependent measures vary across countries, and the degree to which variance on each criterion can be explained by individual-level (i.e., micro) and country-level (macro) effects. For each dependent measure, we estimated two multilevel models with random intercepts and slopes.

The first pair of models was for the pension-related worry dimension. This analysis was conducted in two stages. In the first stage, a baseline model (model 1) was computed using only individual-level predictors (e.g., age, education, health status), taking into account dependencies within countries. The omnibus test for model 1 proved to be statistically significant, Wald $\chi^2(9) = 2001.74$, $p<.01$. As seen in the first column of Table 1, each of the individual-level variables—except for age, number of children and future time perspective—was a significant predictor of worry. Those who reported being worried were statistically more likely to be women, individuals in poor health, those who were less educated, individuals who were married, respondents with a poor income adequacy, and those who enjoyed planning for the future.

A separate model was estimated in the second stage of this analysis of pension worry (model 2), in which dependencies within countries were again taken into account and individual-level predictors were entered along with the three country-level variables. Rho in the full model—the fraction of unknown variance due to country effects—was relatively modest at 3.1 percent. The second column shows that the six individual-level predictors that were significant in the baseline model were again significant in the full model (as expected).

Moreover, all three of the country-level variables emerged as significant. Worry levels tended to be higher in countries in which the Gini coefficient is higher (indicative of high income equality), in countries in which the average retirement age is low, and in countries in which the 2050 projection of the old-age dependency ratio was high. Individual-level predictors in this model accounted for 8 percent of individual-level variance in worry. In contrast, some 88 percent of the country-level variance was explained on the basis of individual- and country-level predictors. The overall explained variance in the full model was 18 percent, nearly four percentage points higher than the overall variance explained in the baseline model.

Next, we turn our attention to examine the determinants of self-reported saving. Given that the outcome variable was dichotomous, multilevel logistic regression models were calculated based on the two-step approach used above. The results of this analysis are shown in Table 2. The Wald chi-square for the baseline configuration (involving individual-level predictors and dependencies within countries) was significant, $\chi^2(9) = 1781.34$, $p<.01$, with age, education, marital status, number of children, income adequacy, future time perspective and planning affect all emerging as significant predictors. Health status showed a reliable trend, and gender failed to emerge. Those who reported saving tended to be older, more educated, married or partnered, they had fewer children, a higher income adequacy, a longer future time perspective and more positive affect toward planning.

The overall fit for the second saving model also proved to be statistically significant, Wald $\chi^2(12) = 1784.38$, $p<.01$, yet none of the three country-level variables emerged as significant (see Table 2). A log-likelihood comparison between the first and second saving models verified that the addition of country-level variables failed to have a reliable incremental effect, $\chi^2_{\text{diff}}(3) = 2.52$, *ns.*

Country-specific Analysis of Worry and Saving

An intriguing question that arises in the context of this investigation is whether different levels of worry stimulate different amounts of saving behavior. Unfortunately, the cross-sectional nature of the ESS dataset in combination with the phrasing of the questions made it impossible to causally examine the relationship between these two constructs using individual respondents as the units of analysis.[2] That said, the dataset did allow for the examination of worry and saving at the aggregate level, using countries as the units of analysis. The scatterplot in Figure 3 illustrates the nature of this bivariate relationship, based on 23 data points (i.e., one per country). The negative correlation between saving and worry was statistically significant, $r(21) = -.56$, $p<.05$.

The story told by these correlational data is clear. Among countries in which individuals are saving, worry levels tend to be in the low to moderate range. In countries in which little saving takes place, worry levels are higher. Cypriots and Finns diverge somewhat from this general observation, with fewer than half of respondents in these two countries having saved, but at the same time, they reported minimal pension-related worry. Notable is the absence of data points in the upper right and lower left quadrants of the graph, which indicate the non-existence of countries in which individuals are saving but worried, and not saving but not worried, respectively.

<div align="center">Discussion</div>

In this investigation we studied pension related worry and pension saving behavior among European citizens in an international comparative context. This was accomplished through the use of survey data solicited from individuals living in 23 different European countries. Our findings show clear differences across nations in the amount of pension worry that takes place, as well as differences in the propensity to save for the future. Whereas Scandinavian countries and the Netherlands are characterized by relatively low levels of pension worry, individuals living in Eastern European countries report high worry levels. As

for the latter, pension worry was linked to low levels of pension-related saving, with less than half of the population of most Eastern European countries reporting that they had saved for retirement.

Both individual-level and country-level predictor variables were successfully used to explain worry patterns and saving behavior. Our analyses revealed that high pension-related worry levels are associated with being female, being in poor health, being poorly educated, being married, and having a low income adequacy. As such, worry levels for future pensions are highest among those who find themselves in a particularly vulnerable socioeconomic position. The analysis of pension savings revealed similar findings with respect to individual-level predictors, with the exception of the impact of chronological age. Relative to younger individuals, older adults reported being more likely to save for their future pension.

At the country level, high worry levels were found to be associated with high degrees of income inequality, a low average age of retirement, and a high old age dependency ratio in the country of residence. The observed impact of country-level indicators on pension worry seems to suggest that respondents have a good idea as to the effect of socio-economic and demographic developments on the sustainability of their pension system. Our findings suggest that one way a country can reduce pension worry is by increasing the retirement age. This is a striking result in view of the fact that other studies have shown most workers do not support policies that would raise retirement ages (cf., Velladics et al., 2006). Paradoxically, although individuals would not choose to work longer, the act of doing so would stand to have a positive impact on mental health levels via the reduction of financial worry about future pensions.

A not unrelated finding has to do with the perceived impact of the projected old age dependency ratio on pension-related worry. This finding indicates that respondents are well aware of the demographic pressures that challenge the sustainability of their country's

pension systems. Worry tends to be endemic in nations where the dependency ratio is expected to fall to low levels in the coming decades. Interestingly, a low level of income inequality in a country is associated with low levels of pension worry. This result suggests that a high level of income redistribution by the government or collective arrangements (in the form of supplementary pension contracts) can provide citizens with a greater sense of future income security, while at the same time, reducing the perceived risk of poverty in old age.

As opposed to the clear country-based effects observed with respect to worry, country level variables failed to account for appreciable variation in saving behavior. This finding— that aggregate country-level predictors provided no additional explanatory power when it comes to saving—suggests that saving behavior is mainly determined by an individual's access to the resources that tend to covary with factors such as one's age, health, and educational level. In other words, the unique opportunity structures (Ekerdt, DeViney & Kosloski, 1996) associated with these individual-level dimensions facilitate saving practices.

The present study is not without limitations. One limitation has to do with the nature of some of the scales and variables employed. For example, single-item indicators were used to assess perceived pension worry and whether people save for retirement. In future studies it would be beneficial to expand these measures into multiple-item scales, and examine these constructs in relation to more traditional econometric indicators of savings. The latter objective would allow researchers to assess the extent to which there are systematic biases in individuals' savings perceptions, while simultaneously identifying groups of individuals who reliably over- or underestimate their retirement nest egg. A second limitation is that it is unclear whether systematic (i.e., cross-national) perceptual biases are associated with either perceived pension savings or worry levels, and if they do exist, how they may have affected the findings. Future studies might profitably examine the possibility of cross-cultural

differences in perceptual biases associated with the main dependent variables in this investigation.

Europe is on the brink of an unprecedented aging of the population (Eurostat, 2009). The demographic shifts that are now taking place will undoubtedly present unique challenges to the sustainability of pension systems in each and every European nation. The findings from this study have revealed the existence of diverse pension worry levels across European populations, and the extent to which these worries are rooted in individual access to resources (i.e., those that covary with one's health, income and education). Moreover, our findings reveal that certain country-level factors—such as the average retirement age, inequalities in the distribution of income, and shifting demographic profiles—are also critically important in determining individuals' perceptions of their financial futures. Taken together, these results suggest that in order to alleviate pension related worry, countries should not only consider implementing forward thinking macro-level public policy initiatives, but also, initiatives designed to increase levels of resource support at the individual level.

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Footnotes

[1] We were initially concerned that the dichotomously scored saving rate that was collected as part of the ESS might not be sufficiently sensitive to identify cross-national differences in saving practices. In an effort to establish convergent validity for the ESS measure of saving, mean household saving rates for 19 of the 23 countries used in this study were drawn from Eurostat (Leetmaa, Rennie & Thiry, 2009) and correlated with ESS country-specific mean saving scores. The Kendall's tau rank-order correlation between these two variables showed a reliable trend ($\tau = .29, p = .09$), which suggests that the country-specific saving rates, as measured in this study, are a reflection of actual saving practices.

[2] The self-reported saving behavior item was ambiguous with respect to the time frame in which the saving took place. Therefore, it was not possible at the individual level to causally link worry ratings level to saving behavior.

Figure Captions

Figure 1. Country specific mean scores and standard error bars for the pension-related worry variable.

Figure 2. Country specific mean scores and standard error bars for the self-reported saving variable.

Figure 3. Country-level scatterplot of the relationship between pension worry and saving.

Table 1

Multilevel Regression Models with Individual and Country Variables Predicting Pension-Related Worry

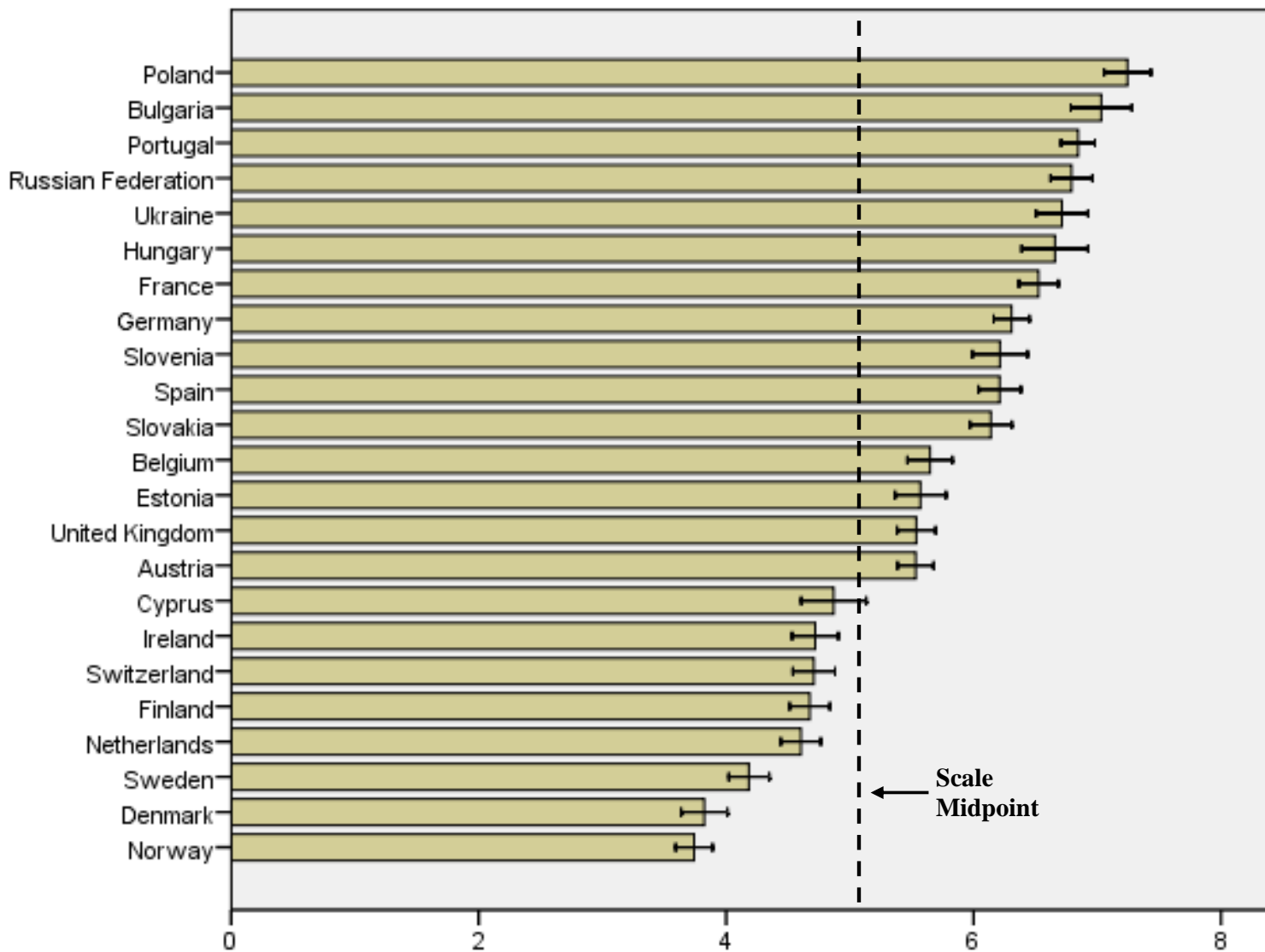| Variable	Model 1		Model 2	
N = 21,564	b	(SE_b)	b	(SE_b)
Individual Predictors				
Age	.002	(.002)	.002	(.002)
Gender	.395**	(.037)	.395**	(.037)
Health Status	.427**	(.026)	.422**	(.026)
Education (Yrs.)	-.036**	(.005)	-.036**	(.005)
Marital Status	.127**	(.043)	.123**	(.043)
Number of Children	-.020	(.018)	-.019	(.018)
Income Adequacy	.923**	(.028)	.917**	(.028)
Future Time Perspective	-.010	(.008)	-.010	(.007)
Planning Affect	.140**	(.023)	.139**	(.023)
Country Predictors				
Gini Coefficient			.056*	(.024)
Avg. Retirement Age			-.127**	(.046)
Old Age Dep. Ratio (2050 projection)			.056**	(.014)
Constant	2.695**	(.193)	6.072*	(3.00)
R^2 within	.084		.084	
R^2 between	.652		.877	
R^2 overall	.143		.181	
Rho	.044		.031	

*$p < .05$; **$p < .01$

Table 2

Multilevel Logistic Regression Models with Individual and Country Variables Predicting Self-reported Saving Behavior

Variable	Model 1		Model 2	
N = 21,496	b	(SE_b)	b	(SE_b)
Individual Predictors				
Age	.035**	(.002)	.035**	(.002)
Gender	-.043	(.032)	-.043	(.032)
Health Status	-.040†	(.023)	-.039†	(.023)
Education (Yrs.)	.037**	(.005)	.037**	(.005)
Marital Status	.349**	(.037)	.350**	(.037)
Number of Children	-.072**	(.016)	-.072**	(.016)
Income Adequacy	-.531**	(.024)	-.530**	(.024)
Future Time Perspective	.061**	(.007)	.061**	(.007)
Planning Affect	.218**	(.020)	.218**	(.020)
Country Predictors				
Gini Coefficient			-.033	(.033)
Avg. Retirement Age			.068	(.063)
Old Age Dep. Ratio (2050 projection)			-.009	(.019)
Constant	-1.618**	(.196)	-4.301	(4.125)

†$p < .10$; *$p < .05$; **$p < .01$

Country (vertical axis)

- Poland
- Bulgaria
- Portugal
- Russian Federation
- Ukraine
- Hungary
- France
- Germany
- Slovenia
- Spain
- Slovakia
- Belgium
- Estonia
- United Kingdom
- Austria
- Cyprus
- Ireland
- Switzerland
- Finland
- Netherlands
- Sweden
- Denmark
- Norway

Scale Midpoint

Pension-Related Worry (Mean Scores)

Horizontal axis: 0, 2, 4, 6, 8

95

Scatter plot of "Presently Saving (or Saved) for Old Age? (Proportion of Respondents in Country)" on the y-axis (ranging from No 0.00 to Yes 1.00) versus "Worried about Income in Old Age?" on the x-axis (ranging from 3.00 to 8.00). Countries plotted: Denmark, Austria, Switzerland, Slovakia, Netherlands, Belgium, Ireland, Germany, Sweden, UK, France, Slovenia, Norway, Hungary, Estonia, Spain, Cyprus, Portugal, Finland, Poland, Bulgaria, Russian Fed, Ukraine. $r(21) = -.56$