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Eliciting Individual Preferences for Pension Reform

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Abstract:
Rising costs and changing demographics require that pension system reform is an important policy goal of most developed countries. While existing literature has explored issues such as the fiscal and redistributive impact of such reforms, few studies have been undertaken to investigate the preferences of individuals for various pension reforms. This paper aims to fill this gap and uses data from a discrete choice experiment conducted in Ireland to investigate individual preferences for alternative state pension schemes. In particular, we examine preferences for characteristics of means-tested, universal or earnings-related pension systems. Our results suggest that individuals' income and age group are important determinants of their preferences and that reform of the Irish pension system is warranted towards a more generous redistributive system.

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1 Introduction

The implementation of state pension systems has been one of the most important achievements of social policy in the developed world during the twentieth century. However, discussions on the "pension crisis" and the way to reform pension systems have rapidly emerged due to demographic and budgetary pressures. Pension reform is now at the forefront of the political agenda of many European countries. The reform process is nonetheless slow, despite the urgency required, partially due to political sensitivity and also due to the redistributive nature of these systems.

The main focus of this paper is to elicit individuals' preferences for various state pension systems and attempt to determine the factors shaping these preferences, including how tastes for the redistributive power of pension systems are formed. Several studies within the political economy field have attempted to identify the forces that drive support for income redistribution and the welfare state. Schwarze and Härpfer (2007) summarize these hypotheses into three arguments. The first is an efficiency argument which posits that individuals are willing to pay to reduce the risk associated with their *ex ante* income distribution because they may be risk averse. The second is the self-interest argument which considers that egoistic pecuniary motives are a major determinant of individual preferences. That is, people would support redistributive government policies if they expect to gain from them. This logic has been suggested by the median voter model (Meltzer and Richard, 1981)[1], as well as by the Esping-Andersen (1985) power resource theory. However, both on the theoretical and empirical grounds, the median voter hypothesis has often been questioned (Moene and Wallerstein, 2003, Kenworthy and McCall, 2008). Finally, the third argument relates to inequality aversion. In some studies, stated preferences techniques have been introduced to analyze preferences for redistribution by the state. For instance, Corneo and Grüner (2002) find empirical evidence that three effects drive support for redistributive policies: the "homo-oeconomicus" effect, the "public values effect" and the "social rivalry effect". On

[1] Meltzer and Richard (1981) posit that self-interest is a key determinant of attitudes towards redistributive social policies.

the contrary, Fong (2001) finds little evidence that self-interest is an important determinant of demand for redistribution, suggesting instead that social preferences are more important.

In the field of distributive preferences for pension programs, it has been shown that social security is supported primarily by self–interested desires on the part of some citizens. Old age public pensions create self-interested beneficiaries that might be against the retrenchment of the welfare state (Pierson, 1994). Little empirical studies have been conducted to confirm or disconfirm this hypothesis. Preferences may also be other-regarding, referred to as social preferences. For example, means-tested schemes have proved to be politically sustainable even if they are concentrated on a small number of people. On the empirical side, a strand of literature has developed to analyze the preferences and opinion of citizens concerning pensions (See for instance the Special Eurobarometer survey on Pension Policy and Pension Reform conducted in 2004).

Boeri et al. (2001) use stated preferences contingent valuation methods to analyze attitudes towards possible pension reforms in Germany, Italy, France and Spain. The authors find that citizens are aware of the unsustainability of the Pay As You Go (PAYG) pension system but lack information about the costs. van Groezen et al. (2009) analyze the determinants of individuals' preferences for particular kinds of pension provision (public, occupational and private) in 15 European countries. They suggest that it is not so much individual characteristics that shape people's opinions towards the preferred pension system type, but national effects, such as different cultures, languages and historical developments, and the desire to maintain the current pension arrangements.

Delaney et al. (2006), examine preferences for specific forms of redistribution in Ireland: unemployment payments, old age pensions and child benefit and find support for self-interested preferences. Lynch (2006) tests whether individuals who benefit from

pension systems will oppose the retrenchment of the state in twelve European countries but does not find strong support for that hypothesis. Attitudes towards the welfare state in general, and perceptions of individual economic well-being, both appear to have more impact on the support for public pensions. Devroye (2003) finds that low income American families are less in favour of privatizing social security than the other socioeconomic groups. Political affiliation may also have an impact on reforming pensions. Hamil-Luker (2001) analyzes the impact of age on public opinion toward government spending on old age assistance and finds that age is not a strong predictor of preferences.

A challenge for many countries in relation to pension reform is that of rapid ageing, which although makes reform essential, reform options are significantly constrained due to fiscal pressures. In this study we will focus on a country, Ireland, where the old age dependency ratio is relatively low and although the population will age in the medium term, it will be relatively lower than other countries due to high fertility rate (Gerald, 2004). Thus options for reform are less constrained than elsewhere, not being dominated solely by public finance constraints, enabling us to assess more easily underlying population preferences for reform.

Old age pensions are a key component of the welfare state in Ireland. On the one hand, they fulfil various objectives among which redistribution and poverty alleviation. On the other hand, public pension expenditures represent a large share of social public expenditures. Over the last decade, several reports and academic research papers aimed at presenting an overview of the Irish pension system and possible alternatives as regard policy options for reform have been published. Examples include the reports prepared under the aegis of the Pensions Board: the “National Pensions Review (2005)” the “Special Savings for Retirement (2006)”; and the “Green Paper on Pensions (2007)”. The latest OECD report (OECD, 2013) also discusses the recent evolution of the Irish pension system. As in other countries, the focus of these analyses has been on the

economic implications of reform and population ageing, rather than on the political economy dimension of the feasibility or public attitude to reform. The paper presented here represents a significant empirical contribution to the political economy of reforming pensions as it deals with voters' opinion for reforming pensions using a novel methodology in the social policy discipline.

The remainder of this paper is structured as follows. In order to understand the policy context of the work in this paper, section two describes the functioning of the Irish pension system, the challenges that threaten its sustainability and the debate around pension reform in Ireland. In section three we describe the methodology we use in our paper. Section four outlines the questionnaire design undertaken to assess preferences and presents summary statistics for the sample. Section five presents the results from the statistical models. Finally, in section six, the conclusions to the paper are presented.

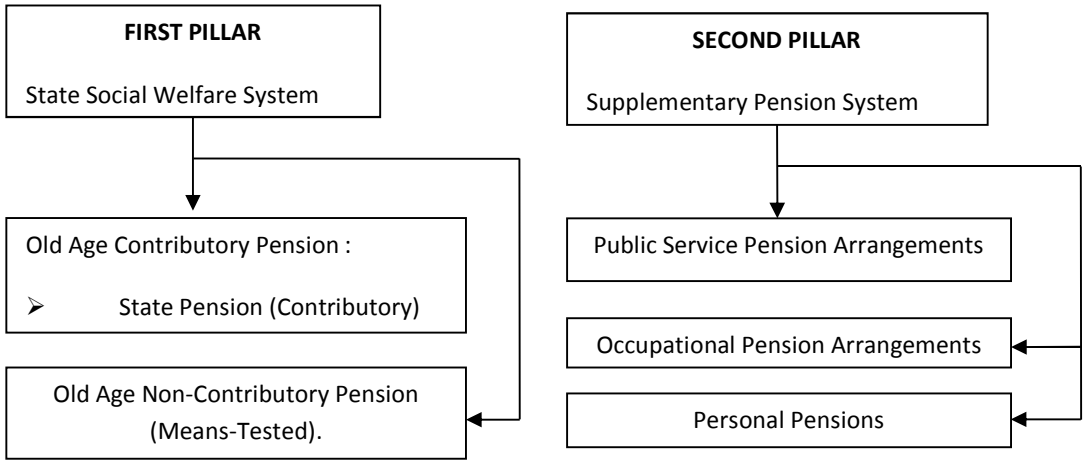
2 The challenges of population ageing and poverty for the Irish pension system

2.1 Pension provision in Ireland

The Irish pension system is in many respects typical of the Anglo-Liberal style of welfare state, with a relatively insignificant social insurance system, where means testing and progressive income taxes are more important. The state pension system has its origins in the UK old age assistance act of 1908, with a social insurance pension being introduced for those 70 years and older in 1961 and a retirement pension at 65 years introduced in 1970 (see O'Donoghue, 2002). The scheme is Beveridgean in focus with more emphasis on poverty alleviation than on income replacement. Together, the public and private pension schemes operating in Ireland (Figure 1) serve several objectives to different degrees, namely, maintenance of individual standard of living during the period of retirement, poverty alleviation and income redistribution.

Figure 1

Pillars of the Irish pension system



2.2 The old age social welfare system

The public pension system, - first pillar, public and mandatory - is funded on a PAYG basis, has three components; a State pension – Contributory - available from age 66; a State pension – Transition, available from age 65, but requiring retirement; and, a survivor's pension. All are flat rate payments that vary slightly based upon contribution history but are independent of earnings, with additional payments for dependants. These are supplemented by means-tested benefits, financed through taxation for those not covered by the insurance system, which result from significant historical gaps in social insurance coverage. These are nevertheless declining due to the progressive extension of coverage since 1974 (Department of Social and Family Affairs, 2002), resulting in the share of pensioners claiming means-tested payments falling from 45 % in 1994 to 30% in 2004, and expected to reach 14% in 2017.

2.3 The supplementary pension scheme

The second and third (private and voluntary) pillars are represented by supplementary occupational and/or individual pensions; voluntary tax incentivised private or occupational system, where the main objective is to smooth income over an individual's

lifetime. Growth in occupational and private pension schemes only accelerated in earnest after the Finance Act 1972 which set up a clear legal and fiscal framework for them, but has levelled out in recent years. After a period of increasing coverage of occupational pensions, an ESRI report published in 1995 found that 52% of the employed workforce was covered by occupational schemes, down from 54.4% 1985, but up from 35.6% in 1974. Recent Statistical Office figures in 2008 indicated that the percentage of employees with an occupation pension has remained relatively constant at approximately 52%. The proportion of defined contribution schemes has increased from 12% in 1992 (National Pensions Board (1993)) to 17% in 1995 (Hughes and Whelan (1996)) to 33% in 2008 (National Pensions Board (2008)) of which the majority are in the private sector, where about 50% of the pension members are members of defined contribution schemes.

Personal pension arrangements consist essentially of *Retirement Annuity Contracts* (RACs) used by the self-employed and the *Personal Retirement Saving Accounts* (PRSAs) introduced in 2003 to meet the willingness of the government to extend the supplementary coverage. The main problem related to supplementary arrangements in Ireland concerns the low coverage (around 50 %), especially among the self-employed. Low contribution rates represent a further inefficiency; they are seen to be insufficient to guarantee adequate replacement rates after retirement. It is therefore not surprising that the government prioritises incentives that would make employers, employees, self-employed and others contribute more into private pension arrangements (both occupational or private). The government is also revising its incentives policy so that it is more effective. Recently, the National Pensions Framework planned to implement a "soft mandatory" supplementary pension to all employees (Department of Social and Family Affairs, 2010). However, the economic crisis may preclude the implementation of this plan.

2.4 Poverty among the elderly

Pensioners in Ireland are a vulnerable group due to being highly dependent on transfer payments and having very low labour force participation. In this respect, the *National Anti-Poverty Strategy* (NAPS) adopted by the government in 1997 to address the problem of poverty, and *National Action Plan against Poverty and Social Exclusion* (NAP/incl), identify older people as a particularly vulnerable group to poverty. Both documents list a number of targets in relation to income support and service provision for the elderly. The average net income for a pensioner in 2005 was €327.55 per week (Green Paper (2007)). In 2002, a single pensioner had a replacement rate relative to Gross Average Industrial Earnings of 27.2 % if reliant on means tested benefits and 32 % of Gross Average Industrial Earnings.

While coverage of the insurance scheme is increasing, due to the low replacement rate and lower indexation, the level of household earnings growth over the boom years saw a rapid rise in elderly poverty; the relative poverty rate of pensioners rose from 5.9 % in 1994, to 43.3% in 2000 (compared with 16.9% for the working age population) and 44.1 % in 2001 (Department of Social and Family Affairs, 2002). Increased indexation of state pensions in the past decade has seen a fall in the poverty rate to 14% in 2006, but rose again in 2007 to 17%.This is high by international standards. In 2005, Ireland had the highest level of relative income poverty in the EU among over-65s (OECD (2005)). However, the latest CSO figures show a rapid decrease in the '*at risk of*' poverty rate among the elderly, falling to 9.7% in 2011(CSO, 2013), as a result of a number of years where state pensioner income has been prioritised.

2.5 Population ageing: Key demographic trends

While less serious than some other EU countries, demographic ageing is expected to result in rising old age dependency ratios, which will put fiscal pressures on the public finances. Nevertheless, the demographic situation is relatively favourable for the next 20 years (Gerald, 2004), especially compared to the situation in the other European

countries. Ireland still has a young population, and consequently a longer period to prepare for the transition from low to high dependency.

The increase of the population share of those aged 65 and over represents the main pressure on the public services as age-related public expenditures will have to rise. Pensions are expected to represent the most important part of these increases. Hence, much of the debate relating to the pensions public policy in Ireland centres around the impact of demographic and economic change on the public finances (DOF, 1998) and the potential cost and funding arrangements. Public spending on first pillar pensions (including public service pensions) is projected to rise from 4.6 % in 2000 to roughly 9-14% of GDP in 2050 (Natali, 2004). Thus, the country is faced with both cost and adequacy issues in relation to the pensioner population. Consequently, the combination of the poverty risk among the elderly with the challenging demographic pressures calls for targeted intervention of the State in the field of pensions.

2.6 Reforming the Irish pension system

Because of the concerns raised above about the future increase in public pension expenditures, the National Pensions Reserve Fund Act (2000) established a national pensions fund to help finance both public pensions and public service occupational pensions. Each year, at least 1 per cent of GNP will be deposited in the fund between 2001 and 2055. The objective was that, from 2025, the exchequer will be able to draw down monies from the fund to finance expenditures on public pensions and on the occupational pensions of public sector workers. However, given the public finance pressures that have resulted from Ireland's deep economic recession, the fund has been drawn down early to support emergency measures to bolster credit institutions.

There have been a number of structural reforms over the 1990's and 2000's that has resulted in an increase in coverage and since 2001 an increased replacement rate, towards a target of 34 % of average earnings set by the National Pensions Policy

Initiative (NPPI[2]). The NPPI also advocated increasing supplementary pension coverage rates with a target coverage rate of 70 % and through increasing personal pension accounts by setting legislative framework to put in place to provide Personal Retirement Saving Accounts (PRSAs). However these reforms have been largely parametric, with policy relying on incrementalism to move towards a universal pension scheme in time rather than through a quick move. There seems to be very little public appetite, as manifested in public consultation exercises like the Green paper on pensions in 2007, for major structural reforms such as the move to an earnings related state pension for instance.

The debate has further been developed more recently[3] focusing on improved adequacy, the abolition of the retirement requirement at age 65 to allow older people to continue to contribute to the economy if they wish to do so, mandatory membership of PRSAs for all workers and a review of the generous tax relief for private pension provision which costs a similar amount as the social welfare pension. The age at which state pensions will be paid will rise from 65 at present to 68 in 2028. The Green Paper on Pensions, 2007 discusses different policy options including the introduction of universal pensions, reforming and back-dating the homemaker's scheme, replacing the average contribution test with a total contribution approach and miscellaneous issues relating to social welfare pensions including indexing, the existence of two contributory pension schemes, social insurance for spouses of farmers or the self-employed. The Green Paper also considers the introduction of a mandatory or soft-mandatory supplementary pension scheme. The latest OECD report on pensions in Ireland (OECD, 2013) also offers a discussion on potential reforms to the Irish pension system.

Despite these reports, reforming Ireland's pension system is still a difficult task. However, it can be made easier by understanding citizens' preferences concerning the

[2] The NPPI has been launched in order to facilitate national debate on how to achieve a developed national policy system and to formulate a strategy and make recommendations for actions needed to achieve the system.
[3] See Submission to the National Pensions Board on the Pensions Review, Combat Poverty Agency, September, 2005.

size and shape of the welfare state and more generally, by tackling the sources of political conflict over the potential directions of reform and the different approaches to address sustainability. The different alternatives that can be considered range from maintaining the status quo to some option reforms. Note that maintaining the status quo would mean that, in the short to medium term, about 47,000 people on average would remain outside the Social Welfare pensions system (Green Paper on Pensions, 2007). The other options can be divided into enhancing Social Welfare pensions on the one hand and encouraging greater personal savings through supplementary pensions on the other. Reforming the state pension system implies making it more generous (through improving the adequacy of the system) and less means-tested (through extending coverage). This would require higher public spending on pensions, and thus higher contribution rates. Shifting away from the usual Anglo-Saxon type and implementing earnings-related pension benefits can also be considered. The main focus of this paper is to evaluate these reform options from the citizens' point of view.

3 Background to the Discrete Choice Experiment Methodology

The demand for reforming the public pension system is assessed using the stated preferences method of Discrete Choice Experiments (DCEs). DCEs involve the generation and analysis of choice data through the construction of a hypothetical market using a survey. In a DCE, respondents to the survey are given a hypothetical setting and are asked to choose their preferred alternative among several competing alternatives. Alternatives are described by a set of attributes, each of which is set to a specific level, and respondents are asked to choose their preferred alternative in each choice set. Usually the choice set contains an alternative that reflects the current status (status quo) of the good being evaluated, which in this case would denote the characteristics of the current pension scheme. In our study, we designed a DCE to value individuals' preferences regarding the parameters of the Irish public pension system, more precisely through estimating preferences for attributes of alternative pension systems (means-tested, universal or earnings-related), each implying a different degree of distribution.

As is standard practice with DCE data, the random utility model (RUM) as developed by McFadden (1974) is used to analyze the choices made by the respondents. According to Random Utility Theory (RUT), the indirect utility function that an individual *k* allocates to one alternative *i* (U_{ki}) is composed of two parts: a deterministic part (V_{ki}) which is typically assumed to be linear and additive in the attributes (*x*) of the *A* different alternatives in the choice set, and a stochastic element (ε) which represents the unobservable influences on individual choice.

The indirect utility function associated with alternative *i* for an individual *k* can be written:

$$U_{ki} = V_{ki}(x_{ki}) + \varepsilon_{ki} = \beta x_{ki} + \varepsilon_{ki} \qquad \textbf{(1)}$$

Where β represents the vector of preference parameters (coefficients) associated with the vector of attribute levels x_i

The probability that respondent *k* prefers option *i* to any option *j* in the choice set can be expressed as the probability that the utility associated with alternative *i* exceeds that associated with all other alternatives:

$$P\left[(U_{ki} > U_{kj}) \forall i \neq j\right] = P\left[(V_{ki} - V_{kj}) > (\varepsilon_{kj} - \varepsilon_{ki})\right] \qquad \textbf{(2)}$$

Assuming that the error terms are independently and identically distributed (IID) with an extreme-value (Weibull) distribution implies that the probability of any particular alternative *i* being chosen as the most preferred can be expressed in terms of the logistic distribution (McFadden, 1974). The following specification is known as a conditional logit (CL) model:

$$P(U_{ki} > U_{kj}, \forall i \neq j) = \frac{\exp(\mu V_{ki})}{\sum_{j \in A} \exp(\mu V_{kj})} \quad \textbf{(3)}$$

The CL model is associated with a number of convenient properties but does have a number of limitations (see Train, 2003 for a discussion). As a result, within the DCE literature it is now commonplace to estimate more flexible specifications. One of the more flexible model specifications used in the literature is the random parameters logit (RPL) model, which we present in this paper. In the RPL model, the parameters vary over decision-makers in the population with $f(\beta)$. Therefore, the unconditional choice probability represents the integral of the logit probabilities over all possible values of β_n. As a result, the choice probability can be represented by a product of logits. Also, the RPL model reported in this paper is estimated using a panel specification which takes accounts of the fact that several observations are drawn from the same respondent (as respondents are asked to complete a number of choice tasks each). Therefore, we define a sequence of choices y_n which is observed for a particular respondent as $y_n = < y_{nt=1,\ldots\ldots\ldots\ldots,} y_{nt=T} >$ for the T choice occasions. Given these specifications, the RPL model can be specified as:

$$Prob_{ij} = \int \prod_{t=1}^{T} \left(\frac{\exp(\beta_i{}' x_{ij})}{\sum_j \exp(\beta'_i x_{ij})} \right) f(\beta_i) d\beta \quad \textbf{(4)}$$

Where *Xij* is a vector of attributes that vary across available alternatives and T is the number of choices.

4 Survey instrument design and sample characteristics

4.1 Questionnaire and sampling design

The survey instrument was developed following several rounds of testing, which involved one pilot test, individual interviews, discussions with members of the public and one focus group composed of participants from the general public. The resulting

questionnaire comprised three parts: Part I: Attitudinal questions section; Part II: DCE section; and, Part III: Socio-economic section. The DCE aimed at investigating attitudes towards the current Irish state-run pension system and towards some of the likely reforms resulting from the modification of the parameters of the system. These involve changes in its principles including the degree of redistribution, type of redistribution and poverty among the elderly. As shown in 1, five attributes were selected to form the basis of the DCE.

Table 1: Description of the attributes and levels

Attributes	Levels				
Weekly State Pension for a low income individual	≤210	210	220	260	180
Weekly State Pension for a high income individual	≤210	210, 0, 500	220, 0, 520	260, 0, 620	180, 0, 430
Weekly contribution to finance State pensions for the average wage	€30-35	€35-40 €15-20 €50-55	€40-45 €15-20 €55-60	€45-50 €20-25 €65-70	€30-35 €10-15 €45-50
Poverty rate among the elderly	Medium (10%-15%)	Low (5%-10%) High (15%-20%)	Very low (<5%) Medium (10%-15%)	Very low (<5%)	Medium (10%-15%) Very high (20%-25%)
Minimum retirement age (years)	65, 68	65, 68	65, 68	65, 68	65, 68

The first attribute chosen for the DCE is the amount of the weekly state pension benefit for a low income working individual (a low income worker is defined as someone who earns two-thirds of the average industrial earnings). The second attribute is the amount of the weekly state pension benefit for a high income working individual (a high income worker is defined as someone who earns three times the average industrial earnings). The weekly state pension for a low income individual takes on five different levels, among which the first corresponds to the actual state benefit. The levels of the weekly state benefit for a high income individual vary accordingly to describe either a means-tested, a universal or an earnings-related system. The third attribute is the cost attribute

and it represents the weekly contribution amount required from the general public to finance the alternative pension systems for an average individual worker. The fourth attribute is the poverty rate among the elderly implied by each alternative system. Finally, the fifth attribute is the earliest retirement age at which individuals are allowed to receive their State pension, which takes on two values, either the current retirement age: 65 years or a higher retirement age: 68 years. Following many DCE studies, the attributes were combined into eight choice sets, comprising all the alternatives allowed by the design comprised of 32 alternatives. As shown in table 2 below, each choice set comprised four alternative choices. A baseline alternative corresponding to the current system is included in each choice set.

Table 2: A sample choice set

Policy option / **Features of the State pension system**	**Current situation**	**Policy option A**	**Policy option B**	**Policy option C**
1. Weekly State Pension for a **low income** individual	≤ €210	€210	€180	€220
2. Weekly State Pension for a **high income** individual	≤ €210	€210	€180	€0
3. Weekly contribution to finance State pensions for the **average wage**	€30 - €35	€35 - €40	€30 - €35	€15 - €20
4. Poverty rate among the elderly.	Medium (10% - 15%)	Low (5% - 10%)	Medium (10% - 15%)	Medium (10% - 15%)
5. Minimum **retirement age**	65	65	65	68
Please Tick your preferred option				

The sampling strategy was designed so as to obtain a representative sample of the Irish adult population. The questionnaires were administered using door-to-door sampling techniques. In most cases, and in accordance with respondents' wishes, the questionnaires were dropped off and collected later according to an arranged time. The sampling approach for the survey followed a two-stage procedure. Sampling was first stratified according to the two principle Irish areas classification: Urban/Rural. The

second stage involved the choice of locations that are representative of the Irish population in terms of age, gender and socio-economic status. The survey was administered to a representative sample of 498 respondents drawn from the adult Irish population entitled to vote (individuals aged 18 years and over). This left a total sample of 326 individuals. The overall response rate of the survey was 65 percent.

4.2 Descriptive statistics for the sample

4.2.1 Profile and main characteristics of the survey respondents

Table 3 presents the distribution of our sample across age, gender, income groups, marital status and private pension ownership. We also present the corresponding distributions on a national level to illustrate how representative our sample is compared to the general Irish adult population. Based on this, our sample does appear to be representative of the Irish population with only slight variation associated with age and marital status.

Table 3: Summary Statistics and Validation of Sample

Descriptor	% of Sample	% of Irish Population aged >15*
Age group		
(1) 18-24	21.17	18.75
(2) 25-34	15.34	20.4
(3) 35-49	22.7	24.61
(4) 50-64	16.87	13.64
(5) 65+	14.11	12.6
Male	51.2	49.5
Individual Holds a private pension	39.93	41.2
Married	51.26	58.3
Income Group		
(1) Household Income < €20,000	15.79	13.7
(2) Household Income >= €20,000 and <€40,000	29.93	29.99
(3) Household Income >= €40,000 and <€60,000	23.68	24.4
(4) Household Income >= €60,000 and <€80,000	16.45	14.9
(5) Household Income >= €80,000	14.14	16.7
Observations	326	

*Source: Actual estimates sourced from CSO (2013) for information on age group, gender and marriage rates, OECD (2013) for information on private pensions and EU-SILC (2013) for income group data.

4.2.2 Attitudinal profile of the survey sample[4]

People's knowledge surrounding the functioning of the pension system seems to be age-related as older respondents are more informed about how the pension system operates and about the level of the pension benefit it provides. While among the general public, very few people are very well informed (17%), the majority of retirees (+50%) are very well informed. This result also holds for questions related to people's knowledge about their (likely) retirement income. We expect better informed voters to be more likely to favour reforms (See Boeri et al. 2001).

In total, 41% of respondents are in favour of a higher pension benefit for the poor (equivalent to a means-tested system) and 37% are in favour of the same pension benefit for everyone (universal system). Only 20% of individuals are in favour of an earnings-related pension system. Among these respondents, 51% belong to the highest income band. This same income group is the least in favour of the other proposed pension systems.

Respondents were further asked to state their preference towards three options to deal with demographic ageing. The solution that appeared to be the most popular is increasing the retirement age followed by saving more for retirement. The solution that is least popular is greater government expenditure on pensions. Respondents were also asked to state their level of agreement with three pension principles. The majority of respondents (36%) strongly disagree with the principle that it is an individual's responsibility to save for old age. Approximately 47% of respondents strongly agree with the statement that it is the government's responsibility to provide each pensioner with a pension benefit. Finally, 41% of respondents slightly agree that the way the pension benefit is provided in Ireland should remain the same, and 31% of respondents strongly disagree with this statement. The general finding, therefore, is that the status quo (maintaining the current state pension system) is not the preferred option among the

[4] Data provided in this section comes from the survey descriptive analysis.

majority of Irish respondents. Regarding payment for the pension benefit, a large majority of respondents (66%) chose the option: the richer should pay proportionally more than the poor, which suggests that respondents prefer a progressive contribution system.

Besides just asking specific questions on pensions, we also queried respondents on their general attitudes towards the welfare state and competing demands for redistribution. Concerning income inequality in Ireland, more than 41% of respondents strongly agree with the statement "differences in income in Ireland are too large". Furthermore, 39.5% are in favour of less inequality and more tax. A higher proportion of individuals also strongly agree with the statement that it is a government's responsibility to reduce income inequality.

5 Model Results

Table 4 presents the RPL model results. For the RPL model, we specified the non-cost attributes with a random distribution to represent the heterogeneity amongst respondents in their preferences for the attributes of the pension system. For each randomly specified variable there are two components within the RPL model, the mean of the random variable and the associated standard deviation of the random variable, both with standard errors, so inferences can be drawn in relation to the significance of the coefficients. Statistical significance of the estimate of the mean coefficient but insignificance in the standard deviation implies that there is limited preference heterogeneity across the population. If however the mean coefficient is not significant, but the standard deviation is significant, then there is large diversity in population preferences for the attribute which are both positive and negative (Howley et al., 2012). To further allow individuals to have non-linear preferences for the attributes, we also included squared terms in our model.

Table 4 *Results from the RPL model*

Random Parameters in Utility Functions	**Mean of coefficient**	**Standard Deviation of coefficient**
State pension benefit for low income	0.184 (0.038)***	0.02 (0.0017) ***
State pension benefit for high income	.045(0.011) ***	0.0035(0.002) ***
Poverty rate among the elderly	-18.94 (0.6.02) ***	.004(2.97)
Retirement age	-.111(0.157)	.27(.037) ***
Non-Random Parameters in Utility Functions		
State pension benefit for low income squared	-.005(.8)***	
State pension benefit for high income squared	-.4(.97)***	
Poverty rate among the elderly squared	12.06(16.89)	
Cost	-.447(.14)***	
Cost-squared	.002(.008)	
Explaining heterogeneity in means of random coefficients		
State pension benefit for low income*income group 1	-.0098(.007)	
State pension benefit for low income*income group 2	.01(.006)	
State pension benefit for low income*income group 3	-.012(.007)	
State pension benefit for low income*income group 4	.02(.008)***	
State pension benefit for low income*age group 1	.026(.006)***	
State pension benefit for low income* age group 2	.016(.007)**	
State pension benefit for low income* age group 3	.002(.006)	
State pension benefit for low income* age group 4	.002(.006)	
State pension benefit for low income* female dummy	.012(.004)***	
State pension benefit for low income* private pension	.027(.003)***	
State pension benefit for high income*income group 1	-.006(.001)***	
State pension benefit for high income*income group 2	-.008(.0009)***	
State pension benefit for high income*income group 3	-.005(.0007)***	
State pension benefit for high income*income group 4	-.006(.0008)***	
State pension benefit for high income*age group 1	.0014(.0009)	
State pension benefit for high income* age group 2	.003(.0009)***	
State pension benefit for high income* age group 3	.002(.0005)**	
State pension benefit for high income* age group 4	-.06(.0005)	
State pension benefit for high income* female dummy	-.0003	
State pension benefit for high income* private pension	.0003	
Poverty rate among the elderly*income group 1	-.01(2.7)	
Poverty rate among the elderly *income group 2	-.033(2.5)	
Poverty rate among the elderly *income group 3	.015(2.2)	
Poverty rate among the elderly *income group 4	.016(2.44)	
Poverty rate among the elderly *age group 1	-.006(2.41)	
Poverty rate among the elderly * age group 2	-.017(2.4)	
Poverty rate among the elderly * age group 3	.009(2.31)	
Poverty rate among the elderly * age group 4	-.003(2.26)	
Poverty rate among the elderly * female dummy	-.06(1.46)	
Poverty rate among the elderly * private pension	-.09(1.18)	
Retirement age*income group 1	.22(.12)*	

Retirement age *income group 2	.04(.098)
Retirement age *income group 3	-.05(.099)
Retirement age *income group 4**	.23(.093)
Retirement age *age group 1	.17(.12)
Retirement age * age group 2	.16(.11)
Retirement age * age group 3	.06(.10)
Retirement age * age group 4	.021(.10)
Retirement age * female dummy	-.047(.07)
Retirement age * private pension	.009(.05)
AIC	4785.35
BIC	5093.94
Psudeo R squared	.247
Log Likelihood	-2338.68

The mean coefficients show that respondents prefer higher pension levels (or a higher weekly pension) for both lower and higher income groups. Furthermore, utility increases with lower poverty levels among retirees and the mean coefficient associated with retirement age is not significant.

However, our RPL model demonstrates that there is a high degree of preference heterogeneity for the non-cost attributes as signified by the significant standard deviations for all the attributes except the poverty attribute (which are each specified with a Normal distribution[5]). Therefore, there is variation in terms of preferences in relation to pension amounts for both low and high income people. With respect to the retirement age variable, the insignificant mean coefficient coupled with the significant standard deviation tells us that there is a diversity of preferences surrounding this attribute- whereby approximately half of respondents prefer a lower retirement age while the rest do not.

A key focus of our analysis is to understand the socio-economic factors that may explain differences in individual preferences. To examine this, we explored whether factors such as income group, age, gender and whether ownership of a private pension are able to explain the heterogeneity surrounding the random coefficients. The income groups and

[5] Normal distributions were assumed to allow flexibility with regard to the direction of possible unobserved individual heterogeneity of the independent variables.

age groups are as defined previously in table 3 while the female and private pension variables take the form of dummy variables indicating male/female divide (1 = female, 0= male) and ownership/non ownership respectively.

Our results show that the demographic information can explain some of the heterogeneity associated with the attributes. For instance, we note that individuals who do not have a private pension prefer higher pension amounts for low income people. Gender also influences preferences for this attribute with women more likely to show a preference for more generous pension benefits for low income groups.

Somewhat surprisingly, those in the lowest three income groups (relative to the highest income group) do not have statistically significant differential preferences for higher pension amounts for low income groups; albeit there is an overall preference for an improved distribution of benefits. This may suggest that these individuals are not acting in a self-interested manner with regard to pension provision, which may be a function of their knowledge of the system. We also note that those from lower income groups suffer a reduction in welfare when higher pension amounts are awarded to those from higher incomes. Therefore, our results suggest that while lower income groups do not act in self-interest as regards their own pension provision, they do not favour higher income groups receiving better pensions.

With regard to possible age related heterogeneity, the results show that those sampled from younger age groups (Up to 34 years old relative to those aged 65 or older) show a significant preference for higher pension amounts for low income individuals. Similar preferences are found for these age groups with respect to pension amounts for high income individuals. This may suggest that these age groups have a preference that everybody should receive a higher pension amount.

6 Selected Substitutability between attributes

The estimates from table 5 can also inform us about how individuals trade-off certain attributes of pension systems. This is achieved by investigating the ratio of coefficients between two attributes (Train, 2003). Table 5 below presents a summary of selected ratios from RPL model.[6]

Table 5 *Substitutability between Attributes RPL Model*

	RPL (€)
State pension benefit for low income/ State pension benefit for high income	4.01
Retirement Age/ Cost for an average worker	.24

The interpretation of these ratios is based upon the assumption that an individual's willingness to substitute between attributes is, for instance, the increase in the State pension for a low income person that keeps the individual's utility constant given a reduction in the state pension for a high income person. The ratio of these two coefficients from our model provides a monetary estimate of such willingness. From table 5, we find that on average, people are willing to forgo around €4 on weekly basis to a high income person for a low income person to receive €1.00 extra per week, implying quite a significant preference for pension redistribution. Using the same methodology, the results from table 5 do not show such strong evidence of substitutability with regard to retirement age. We see that people would only be willing to contribute an extra 24 cent per week to prevent the retirement age rising from 65 years to 68 years.

7 Conclusion

This paper has analyzed preferences of the Irish public for alternatively designed pension schemes. Each alternative has different implications for the extent of intra-

[6] These particular trade off were chosen due to their specific policy relevance.

generational and inter-generational redistribution. In general, within the political economy literature on the demand for redistribution though social security, it is assumed that individuals' utility is determined by their self-interest. In this respect, we found that individuals' own characteristics such as income and age play a significant role in explaining their preferences. Nevertheless, other forces, such as altruism and social preferences, may also explain people's demand for redistribution. In this respect, estimation results have shown that poverty and inequality aversion do affect individuals' utility and their demand for redistribution. All individuals, regardless of age and income, are poverty averse and a higher poverty rate among the elderly decreases utility quite substantially. While the evaluation of the levels of pension benefits depends on the age and income of respondents, preferences for cost and poverty are independent of these factors.

To sum up the key results from the study, we found that overall respondents were in favour of reforming the pension system. In general, the current system was not preferred among respondents. The results point towards support for a system that provides improved benefits for both low and high income groups. Quite surprisingly, we found mixed results in terms of increasing the retirement age from 65 to 68. There was substantial heterogeneity surrounding this attribute suggesting that there are people who both oppose and favour this change. Higher income was the only explanatory variable that was significant and appeared to be in favour of increasing the retirement age. We also observed a strong redistributive motive among respondents, with improved benefits for low income groups being more highly preferred. Linked to this, we found that there was a strong aversion to any system that would not address poverty among the elderly. Having a higher poverty rate among the elderly was the attribute that had the largest impact on choices. The coefficient representing this attribute was significant and highly negative. Furthermore, we found that there was little heterogeneity in preferences surrounding the poverty rate, which had a non-significant standard deviation.

These findings suggest that on the whole, Irish residents were strongly adverse to poverty among the elderly and that consideration of this should be at the forefront of any proposed pension reform changes. These preferences have to some degree been borne out in terms of the policy changes made during the period of the economic crisis in Ireland since 2007. While working age state benefit payments have been reduced in nominal terms, pension age benefits and tax reliefs have been insulated from reductions. Prior to the crisis in response to rising pensioner poverty rates, state pension benefits were increased at a rate higher than earnings inflation. As a result, pensioner relative poverty has fallen substantially over the past number of years.

Overall therefore, we can say that a system that had a large redistributive element in terms of improving benefits to low income pensioners and that was targeted at reducing poverty among the elderly would be much preferred by the Irish public. To build on these results and to inform policy, in terms of future directions of this research, we plan to aggregate preferences through a majority voting mechanism that handles multidimensional policy issue space (probabilistic voting model) in order to determine the pension policy that would be implemented at the national level, based on preferences of Irish residents. We will also use micro simulation methods to determine the impact of population ageing on any potential policy reform.

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