Political Economy of Pension Reform: An Empirical Investigation

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Abstract

Why some countries fail to reform their pension systems in spite of the rapid population ageing? This paper sets to examine the effects of political institutions on the probability of introducing pension reforms. A new dataset is constructed which tracks the systematic development of pension legislation in 34 countries for the period 1970-2013 by focusing on mandatory PAYGO pension system reforms and supplementary pension reforms stimulating the transition from unfunded to funded pension schemes. The evidence highlights the fundamental importance of political institutions in shaping the probability of introducing pension reforms when the potentially confounding effects of demographic structure, life expectancy and macroeconomic fundamentals are controlled for. Countries with stronger constraints on the chief executive, greater political competition and fiscal federalism are significantly more likely to reform the old-age PAYGO law and initiate the transition to funded pension scheme while the effects of de jure electoral rules are weak. The beneficial effects of executive constraints, political competition and interjurisdictional federalism on pension reforms are robust across multiple sub-samples when the potential reform outliers are excluded from the core sample, and are not susceptible to country-level heterogeneity bias.

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1. Introduction

Why some countries manage to implement far-reaching pension reforms while others fail to do so? Many theories have been proposed, yet only few of them have been tested. Pension reforms can be decomposed into two major streams: (i) reforms of the basic old-age pension law, and (ii) supplementary institutional reforms. The former target the change in the existing benefit structure of the old-age earnings from publicly-funded PAYGO pension schemes whereas the latter aim to stimulate private savings and strengthen the third pillar of the pension system based on the policy model proposed by the World Bank.

Many developed and developing countries alike embarked on the path of pension reform over the last 25 years. Starting in 1980, Chile dramatically reformed its retirement system by replacing the insolvent PAYGO system with the funded defined contribution individual savings accounts (Arenas de Mesa et. al. 2006). Diamond (1994) reflects on the Chilean social security privatization experience and emphasizes the beneficial effects of privatization on the capital accumulation and functioning of the capital market but also goes further and suggests the privatization of the pension system adversely affected the provision of insurance and increased the administrative costs. The Chilean privatization of social security led to a multitude of aggregate effects such as the estimated 2 percent wage increase in the informal sector (Edwards and Cox Edwards 2002), a marked increase in administrative costs of the retirement provision (Mitchell and Zeldes 1996), and not higher return rate than under the PAYGO pension scheme (Genakoplos et. al. 1998).[3] Feldstein (1996) suggests such a transition from unfunded social security retirement program to funded program with benefit equivalence would raise economic is ought to meet three normative conditions: (i) marginal productivity of capital should exceed economic growth rate, (ii) capital intensity should be below the welfare-maximizing level, and (iii) the rate of economic growth should be positive (Kotlikoff et. al. 1998, Lindbeck and Persson 2003).

What exactly determines the probability of introducing either the mandatory or supplementary pension reforms? Societies adversely affected by population aging might exhibit greater tendency to support the pension reform process (Disney 2000, Fehr 2000, Barr 2002, Bongaarts 2004, Hinrichs 2006, Poterba 2006, Razin and Sadka 2007) whereas the macroeconomic environment may either hurt or help pension reforms (Corsetti and Hebbel 1995, Barrel and Davis 2005, Börsch-Supan et. al. 2003, Börsch-Supan 2005). But why some countries manage to reform the pension system whilst others don't? In this paper we examine the effects of political institutions and institutional constraints on the conditional likelihood of the mandatory and supplementary pension reforms in the political economy framework. To this end, we exploit the variation in the multitude of indicators of political institutions using the data from Beck et. al. (2001) to investigate the institutional mechanisms behind the pursuit of pension reforms. We first systematically document the dynamics of two types of pension reforms – mandatory and supplementary – for a group of 36 countries starting in 1970s and then examine the contribution of political institutions to the implementation of pension reforms in more detail whilst controlling for the usual confounding effects of economic and demographic covariates on the probability of reform.

Why some countries choose to opt out of the pension reform? One potential explanation might emphasize chronically low savings rate (Börsch-Supan et. al. 2006). Using the institutional variation in the retirement provision, Samwick (2000) examined the effects of social security to determine whether

[3] Arenas de Mesa and Mesa Lago (2006), Cottani and Demarco (1998) and Sales-Sarappy et. al. (1998) discuss the structural reform effects of privatizing social security system in Chile, Argentina and Mexico and suggests the reform costs outpaced the associated benefit. In Chilean case, fiscal costs of reform exceeded capital accumulation and led to declining savings rates. The reform also exacerbated high administrative costs of the reform, led to the declining capital returns, and expanded income inequality. On the advantageous side, the reform stimulated portfolio diversification, contributed to the development of capital markets, and rescheduled the contribution rates from the employers to the employees. In comparison with Chile, the privatization of the social security of December 1995 is associated with reduced administrative costs, portfolio diversification but the reform also conveyed three disadvantages, namely, prohibition of the multiple funds operation, sole provision of disability and life insurance on behalf of government's Social Security Institute, limits on the market share, low portability, and low return from housing subaccounts.

less reliance on the funded PAYGO system is associated with higher savings rate, and found little evidence that countries with defined-contribution reforms have higher savings rate after the reform although cross-sectionally countries with PAYGO systems tend to have lower savings rate whilst the effect tends to increase with the coverage rate of the system (Aarau and Schmidt-Hebbel 1995, Weaver 1999).

Structural reforms of the social security systems from unfunded to funded schemes were initially pioneered in Latin America and to a much greater extent in Western Europe which chose not to privatize the social security system. Mesa-Lago and Müller (2002) discuss the reform choices and suggest an inverse relationship between the degree of democratization and that of privatization – less democratic societies have been more likely to embark on the transition path towards funded social security schemes although the political regime alone cannot fully account for the variation in reform outcomes. Access to information might play an equally important role in the reform outcomes. Boeri and Tabellini (2012) used the opinion poll on a representative sample of Italians to examine whether access to information about the pension reform affects the propensity to accept the reform. Their evidence suggests individuals who are more informed about the costs and functioning of the pension system are substantially more likely to support pension reform, and that exposure to median coverage of pension issues significantly improves access to information.

The privatization of the social security in Latin America highlighted the potential reform options for the ageing societies of Western and Central Europe. Compared to Latin America, European countries were generally much less inclined to the privatization of the social security which leaves the question of what contributes to the heterogeneity of the reform choices largely unanswered (Börsch-Supan 2013). Attanasio and Rohwender (2003) used three major UK pension reform waves as natural experiments to investigate the relationship between pension saving and discretionary private saving. Using economic theory to identify behavioral responses of individual households to each set of reform, their evidence finds a negative impact of reform on private savings whereas the impact of flat-rate tier is not statistically different from zero. Some countries explicitly rejected the privatization of the social security. Müller (2002) examined the case studies of two Central European countries – Czech Republic and Slovenia – which decided to reject the idea of privatizing social security. Sharing high implicit pension debt and high income levels, the policymakers in both countries were concerned about fiscal costs of privatizing social security and the risks they may face in the context of nascent capital markets. Moreover, the composition of the government cabinets and the effective veto on privatization by trade union appear to have critically contributed to the preservation of Bismarckian PAYGO pension system.

Governments in Western and Central Europe clearly had different policy preferences for pension reform from those in Latin America and in the rest of the developing world. Constrained by low economic growth and rapidly ageing population, governments in OECD countries have pursued pension reform to relieve the fiscal pressure on public finances. Van Vliet et. al. (2012) examine the distributional effects of shifts from public to private pension provision in 15 European countries for the period 1995-2007 and find no evidence of redistributive effects of the shifts to private provision as the income inequality among the elderly remained flat. Their results appear to be robust across a multitude of econometric specifications. Compared to the evidence on the effects of pension reforms across OECD countries, Lora and Olivera (2004) examine the political economy of pension reform in Latin America and find strong support for the hypothesis that crises make reforms more viable whereas Rhodes (2001) suggests the decline of the European social model (Weyland 2005).

Which institutional constraints drive the mandatory and supplementary pension reforms might be a crucial question behind the political economy of social security reform. Galasso and Profeta (2002) survey the literature on the political economy of social security and suggest the redistributive programs of the welfare state are driven primarily by economic factors and political institutions. Such conclusion produced even more research questions rather than a convincing answer. Conceptually, the study of pension reforms relies primarily on comparative case studies rather than on the empirical approach to the political economy of reforms. Streeck and Trampush (2005) examined the German pension reforms of the last two decades and suggest that the central problem of the German economy have been high costs of labor chiefly driven up by the burden of funding an extensive Bismarckian welfare state through social insurance contributions operating as labor taxes. Drawing on the reform experience of the last decade, their study suggests the multiplicity of veto points in German political economy hampered the reform initiative and diminished the prospect for effective reform in the future.

Drawing on the substantial review of the pension reforms in the continental Europe, Levy (2002) emphasized the importance of the partisan politics and the intersection of the progressive-left and conservative-right political ideology. Furthermore, Cremer and Pestieau (2000) argue that political factors are far more important determinant of the old-age crisis and emphasize the pivotal role of majority voting, and entrenched retirees in overspending on social security. Conesa and Krüger (1999) analyze the quantitative role of idiosyncratic uncertainty in an economy where agents vote on hypothetical social security reform options and demonstrate that the role of PAYGO social security system significantly reduces the support for the transition to fully-funded system. Such bias in favor of the unfunded system appears to be stronger in the settings where agents of similar age differ markedly with respect to labor earnings and wealth (Sunden 2006).

In the recent attempt, Kangas et. al. (2010) analyze the pattern of pension reform in three Nordic countries (Denmark, Sweden, Finland) that apply different institutional solutions to the old-age social security programs and suggest important ramifications of the political processes for the future reform possibilities. Their analysis uncovers substantial heterogeneity in the pension reform process. The 1990 Swedish reform eliminated the old PAYGO system and replaced it with partially-funded defined-contribution system, Finland followed the set of piecemeal reforms gradually changing the whole system while Denmark embarked on the path of stability and continuous status quo where the policy drifts appear to have changed the key characteristics of the pension system. Their study critically highlights the non-negligible role of institutional framework and historical legacies in adopting the pension reform.

What exactly determines the probability of introducing either the mandatory or supplementary pension reforms? Societies adversely affected by population aging might exhibit greater tendency to support the pension reform process (Disney 2000, Fehr 2000, Barr 2002, Bongaarts 2004, Hinrichs 2006, Poterba 2006, Razin and Sadka 2007) whereas the macroeconomic environment may either hurt or help pension reforms (Corsetti and Hebbel 1995, Barrel and Davis 2005, Börsch-Supan et. al. 2003, Börsch-Supan 2005). We hypothesize the probability of introducing both types of reform measures is inherently linked to the structure of political institutions. The precedence of political institutions in influencing economic and policy outcomes has been discussed by Mulligan et. al. (2004) establishing the relevance of political institutions in shaping the economic and fiscal outcomes although there appears to be little difference between democracies and non-democracies in the provision and structure of public pension programs. Their evidence based on the variation in pension spending relative to GDP for 122 countries suggests the correlation between democracy and pension spending disappears once the effect of elderly share is controlled for. Two contrasting streams of literature contest the effects of democratic non-democratic regimes. While Cutright (1965), Jackman (1975), and Pampel and Williamson (1989) arguably suggest democracies are more likely to introduce pension and welfare programs, Lindert (1994) and Mulligan et. al. (2002) indicate an average democracy is similar to average non-democracy in terms of spending on public pension and welfare. On the other hand, Persson et. al. (2000) and Milesi-Ferretti et. al. (2002) highlight a substantial correlation between public spending and types of electoral rules while Acemoglu et. al. (2003) suggests the effect of distortionary economic policies on economic and fiscal outcomes is driven by institutional weakness since countries which inherited more extractive institutions without constraints on the power holders and political elites from their past endured greater macroeconomic volatility and slower economic growth.

If constraints on power holders and political elites matter for macroeconomic volatility, the relationship between the probability of undertaking a pension reform and the set of political institutions constraining the power holders is invoked immediately despite the salient equivalence of democracies and non-democracies in the pursuit of welfare and pension policies. Although the prior evidence tends to suggests political institutions matter for macroeconomic policy choices, the consensus on which set of political institutions triggers the pension reform process and which does not as well as the delimitation of the effects on pension reforms between de jure provisions and its de facto enforcement still remains out of sight.

This paper adds to the existing body of literature by focusing on three distinctive contributions. First, it constructs two novel measures of pension reforms for 34 countries starting in 1970 which are easy to track to observe the pension reform pathways across and within countries. Second, it tackles the effects of political institutions and institutional constraints on the probability of introducing pension reforms allowing for in-depth look into which layers of political institutions foster the reform process and which ones hinder it revealing the institutional strength and weaknesses. And third, this paper provides the direct effects of political institutions on the probability of introducing reforms without committing the omitted variable bias as we control for the critical macroeconomic and demographic covariates which influence both the reform likelihood and reform outcomes. Ignoring such covariates would have the evidence biased and inconsistent in spite of addressing the heterogeneity concerns across countries and over time. The rest of the paper is organized as follows. Section 2 presents our measurement of pension reforms. Section 3 discusses the data and methods used. Section 4 presents the results and robustness checks. Section 5 concludes.

2. Measuring Pension Reforms

We broadly classify the pension reforms into two major categories. The first category comprises the introduction of the new old-age and disability law which regulates the pension benefit through the defined contribution plan. Old-age law covers the unfunded PAYGO pension schemes and regulates an extensive menu of social security provisions where the current members pay the expenses for current participants. Most advanced countries are heavily reliant on the PAYGO pension schemes which are regulated through old-age and disability law. We classify such pension reforms as mandatory. The second category consists of the supplementary pension reforms. Such reforms aim for the full or partial transition from the funded to the unfunded pension scheme to stimulate the accumulation of contributions and strengthen the eligibility requirements. The menu of supplementary pension reforms is extensive. It includes but it is at the same time not limited to the policy measures to curtail early retirement, regulatory reforms of the social security investment funds to improve the diversification and risk management schemes, policy measures aimed at stimulating voluntary savings, the creation of mandatory private savings schemes, the introduction of tax exemptions and deductions aimed at stimulating private pension savings, measures intended to improve the regulatory supervision of pension service providers, asset management protection schemes, setup of equity investment limits to improve risk diversification, regulation of funding, and the alternation of fiduciary standards, vesting rules and reporting criteria. The key classifying criteria for the supplementary pension encompasses the measures aimed directly and indirectly at providing the institutional framework to support and sustain the full or partial transition from unfunded PAYGO scheme to the funded scheme. Our primary source of defining and measuring pension reforms is International Social Security Association (http://www.issa.int)

We systematically scan the development of the pension legislation across 34 high-income countries for the period 1970-2013 and code the periods of mandatory and supplementary pension reforms on country-to-country basis. The reform episodes are quantified by constructing a dummy variable indicating whether each country in a given year had introduced a new old-age and/or establish supplementary pension reforms to enhance private savings and hence facilitate the transition path from the unfunded PAYGO system to the funded pension scheme. In the Appendix, Table A1 provides the systematic details of pension reforms for each of the 34 countries alongside. In our sample, 118 mandatory reforms of the old-age social security legislation and 173 supplementary reform measures are identified.

The preliminary insight into the cross-sectional dynamics of both types of pension reforms unveils persistent cross-country differences. Table 1 presents the number of mandatory and supplementary pension reforms undertaken in the years between 1970 and 2013. The data clearly suggest the reforms of old-age social security legislation were undertaken most frequently by Italy (20 reforms of the old-age PAYGO pension scheme) followed by United Kingdom (10 reforms), Greece (8 reforms) and Portugal while Belgium, Japan, Netherlands, and the United States left the core old-age social security legislation intact in the respective period. On the other hand, supplementary pension reforms were most likely to be introduced by United Kingdom (16 reforms) followed by Ireland (15 reforms), Portugal (11 reforms) and New Zealand (10 reforms). Four comparative case studies on the path of pension reforms during the estimation period are discussed below.

2.1 United States

The U.S Congress approved The Social Security Act in 1934 which had been enacted in 1935 by the President Franklin Delano Roosevelt as the first social welfare legislative act concerning the provision of old age. The act encompassed one of the key elements of the Second New Deal legislation and provided benefits to retirees half directly as a payroll tax and half paid by the employer. In the 1930s, the Supreme Court struck down several pieces of New Deal legislation on the grounds of incompatibility with the U.S Constitution. The blockade of the social security legislation led to the *Judicial Procedures Reform Bill of 1937* which allowed the president to add more justices to the U.S Supreme Court to obtain the favorable vote margin to pass the social security legislation. In spite of the *Reform Bill*, the constitutionality of the social security legislation had been brought to the Supreme Court. In the landmark 1937 case *Helvering vs. Davis* (301 U.S. 619)[4], the U.S Supreme Court held that Social Security was constitutionally permissible in allowing the federal government to exercise the power to spend on the general welfare.[5] The U.S Social Security Act remained intact since its effect in 1935 and has not been changed in subsequent years. In spite of the continuity of the 1935 social security legislation based on PAYGO distributional scheme, U.S Congress continually developed and passed the legislation aimed at strengthening funded retirement schemes through defined-benefit plans rather than defined-contribution schemes. In 1974, the U.S Congress passed the Employee Retirement Income Security Act (ERISA) which provided for the protection of retirement participation rights through the stricter regulation of participation, vesting, funding, fiduciary standards and report, and through the establish of the Pension benefit Guarantee Corporation to pay the benefits in the case of financial failure of defined-benefit plan. The Revenue Act of 1978 established 401k retirement plans as a part of developing defined-contribution pension accounts in the Internal Revenue Code. In 1984, ERISA was amended by

[4] A shareholder of the Edison Electric Illuminating Company brought derivative action to restrain the company from making payments and deductions required by the Social Security Act of 1935 on the grounds of act's unconstitutionality as it presumably violated the 10th Amendment of the Constitution.

[5] The opinion of the Supreme Court was written by Justice Benjamin N. Cardozo, supporting the right of the Congress to interpret the general welfare clause of the U.S Constitution: *»Congress may spend money in aid of the general welfare. There have been great statesmen in our history who have stood for other views. The line must still be drawn between one welfare and another, between particular and general. Where this shall be placed cannot be known through a formula in advance of the event. The discretion belongs to to Congress, unless the choice is clearly wrong, a display of arbitrary power, not an exercise of judgment… The problem is plainly nation in area and dimensions. Moreover, laws of separate states cannot deal with it effectively… State and local governments are often lacking in the resources that are necessary to finance an adequate program of security for the aged… Apart from the failure of resources, states and local governments are at times reluctant to increase so heavily the burden of taxation to be borne by their residents for fear of placing themselves in a position of economic disadvantage compared with neighbors or competitors… Only power that is national can serve the interests pf all.«*

Retirement Equity Act which required the pension funds to provide survivorship pension upon retirement unless the spouse waives the right in writing to survivorship pension. The 1986 Tax Reform Act established faster minimum vesting rules and limited the effect of integration with social security scheme. The act also expanded coverage of non-highly compensated employees and imposed an excise tax on excess plan assets that revert to the employer upon the winding up of the pension plan. In 1994, Uruguay Round Tax Agreements Act required greater contributions to under-funded defined-benefit plans and limited the range of interest rate and mortality assumptions used to establish funding levels to curb the rise of unfunded liabilities. A further amendment to ERISA was imposed by the 2001 *Economic Growth and Tax Relief Reconciliation Act* (EGTRRA) which aimed to tackle the persistence of unfunded liabilities through three distinctive channels: (i) increasing the contribution and benefit limits, (ii) improving transferability between different type of accounts, and through (iii) faster regulation of vesting for employer-matched contribution to 401k plans. In 2006, Pension Protection Act required more rapid funding of under-funded defined-benefit plans and facilitated the automatic enrollment and investment advice in 401k plans and further clarified the legal status of cash balance plans.

2.2 United Kingdom

The first piece of social security legislation in the United Kingdom was the 1908 Old-Age Pensions Act. The Act provided for a non-contributory old-age pension for persons over the age of 70, paid a weekly pension of 5s to half a million who were eligible, and established PAYGO funding scheme for the state pensions. Compared to the United States, the original old-age legislation has been modified frequently. In 1995, Chapter 26 of the Pension Bill equalized the state pension age for men and women at the age of 65, reformed the legal framework for occupation pension schemes, and incorporated the rulings of the European Court of Justice in the domestic old-age legislation while the subsequent acts altered the pensionable age, benefit calculation rules and means-testing criteria.

United Kingdom experienced a substantial development of the supplementary pension reforms to tackle the underfunded pension schemes. In 1975, Social Security Pensions Act introduced state earnings-related pension scheme whilst the *1986 Finance Act* set limits on the surplus which may had been held tax-free within the approved pension scheme. This particular act also encourage schemes to increase benefits or reduce contributions to restrict the build-up of the surplus. The *1988 Income and Corporation Taxes Act* defined the rules regarding the tax qualification of company pension plans while in the subsequent year the Finance Act introduced further limits on the amount of earnings invested in tax-approved plans. The *1990 Social Security Act* established pension ombudsman while the *1992 Social Security Contributions and Benefits Act* and the *1993 Pension Schemes Act* consolidated earlier legislation on the distribution of benefits in state earnings-related schemes in the contracted-out occupational and personal pension plans.

Subsequent legislation laid out a comprehensive development of the supplementary pension legislation such as (i) the establishment of Occupational Pensions Regulatory Authority and the Pensions Compensation Board (*1995 Pensions Act*), (ii) removing the right of pension funds to recover Advanced Corporation Tax in respect of dividends and company share (*1997 Finance Act*), (iii) required employers to allow access to stakeholder pensions (*1999 Welfare Reform and Pensions Act*), (iv) introduction of S2P to replace earnings-related scheme (*2000 Child Support, Pensions, and Social Security Act*), (v) removing restrictions on defined-benefit and providing more flexible tax privileges on pension scheme up to lifetime allowance (*2004 Finance Act*), (vi) introduction of personal pension accounts, automatic enrollment rules and increasing payment levels to avoid under-funding of defined-contribution schemes (*2007 Pension Act* and *2008 Pensions Act*).

2.3 Germany

The first old-age law in Germany dates back to 1889 Law on Old Age and Disability Provisions (*Gesetz zur Alters- und Invaliditätsversicherung*) financed by a tax on workers and designed to provide a pension annuity for workers who reached the age of 70. The current old-age law was passed by German Bundestag in 2002 and comprises the Sixth Book of the Social Act – Obligatory Pension Insurance on old-age, disability, and survivors. The original 1889 old-age and disability law and its basic principles remained intact throughout our estimation period while numerous supplementary pension reforms were implemented. In 1974, the Bundestag passed Occupational Pensions Act (*Gesetz zur Verbesserung der betrieblichen Alterversorgung*) which permitted five different methods of implementing complementary occupational pension plans to tackle the potentially underfunded provisions. In 1992, Insurance Supervision Act (*Versicherungsaufsichtskeitgesetz*) established strict and comprehensive regulation of pension institutions and pension funds on risk management. In 2001, social security pension scheme was reformed by Old-Age Finance Act (*Altersvermögengesetz*) to prevent the underfunding of the old-age provisions. In 2002, Act on Federal Financial Supervisory Authority (*Finanzdienstleistungsgesetz*) was passed by the Bundestag by integrating several areas of the financial supervision of pension funds into a single institutions and regulating its operations, responsibilities and powers. In 2004, Retirement Income Act (*Alterseinkünftegesetz*) harmonized the taxation of employee retirement income with the income of the civil servants, and introduced deferred taxation for all kinds of retirement income. In 2008, the Bundestag approved Reform of the Insurance Contracts Act (*Versicherungsvertragsgesetz*) which regulated the duties and rights between the pension insurance policyholder and the insurer.

2.4 Italy

The initial old-age law in Italy was established in 1919. In a stark contrast to other advanced countries, Italian old-age legislation has been mandated mostly through the mandatory reforms of the old-age laws while the evidence from our sample indicates significantly fewer number of supplementary pension reforms. Between 1970 and 2013, Italian old-age and disability law has been replaced twenty times where the replacement was often conduct multiple times in a single years.[6] The changes of the basic old-age law were based almost exclusively on altering the pensionable age and the net replacement rate in the PAYGO pension scheme. The development of the supplementary pension reform legislation took a substantially slower route although a non-trivial number of reforms were introduced. In 1993, *Legislative Decree No. 124* strengthened the regulation of pension fund establishment and operation. The 1995 *Law No. 335* introduced the changes regarding the governance, custody of assets and tax treatment of pension funds. In the subsequent year, investment rules were strengthened and conflict of interest regulation were introduced by the 1996 *Decree of the Ministry of Treasury No. 703.* Tax treatment of private pensions were further adjusted in the 2000 Legislative Decree in addition to the introduction of personal pension plans realized through life insurance contracts. The *Law No. 243* defined the principles to reform the private pension system while the 2005 *Legislative Decree No. 252* provided that private-sector employees employed for the first time in the working life in the private sector have to choose whether to transfer their annual severance provisions into a pension plan or to keep it in their company. In addition, the *2007 Budget Law No. 296* decided these provisions will remain in the firm if the employee does not choose to transfer the pay provision, if the firm has fewer than 50 employees or the pay will be transferred to the National Social Security Institute if the firm has more than 50 employees. In the same year, two additional legislative acts were approved. First, *Legislative Decree No. 28* implemented various retirement provisions and, second, *Decree No. 62* required compliance of pre-existing pension funds with *Legislative Decree No. 252* passed in 2005.

[6] Cf. Table A1 in the Appendix for a more detailed overview of the pension legislation development.

Table 1: Brief Overview of Pension Reform Dynamics Across Countries

Country	Number of Mandatory Old-Age Pension Reforms	Number of Supplementary Pension Reforms
Argentina	5	2
Australia	2	8
Austria	3	5
Belgium	0	8
Brazil	4	3
Canada	0	8
Chile	3	2
Croatia	3	1
Czech Republic	2	4
Finland	2	6
France	5	0
Germany	1	6
Greece	8	0
Hungary	3	7
Iceland	3	2
Ireland	2	15
Italy	20	8
Japan	0	1
Korea, Rep.	3	5
Luxembourg	5	3
Mexico	3	3
Netherlands	0	2
New Zealand	1	10
Norway	3	2
Poland	5	4
Portugal	6	11
Slovakia	2	1
Slovenia	2	4
Spain	4	7
Sweden	4	5
Switzerland	1	2
Turkey	3	3
United Kingdom	10	16
United States	0	7
Uruguay	1	2

3. Data

3.1 Political Institutions

The data on the structure of the political institutions comes from Beck et. al. (2001). The data on the structure and characteristics of the political institutions covers the period 1975-2013 and captures five major aspects: (i) chief executive constraints, (ii) political competition, (iii) electoral rules, and (iv) fiscal federalism. Chief executive constraints emphasize the extent of institutionalized limits on the exercise of arbitrary power and allows us to examine whether the mandatory and supplementary pension reforms are more likely to be attained either under parliamentary or presidential democracy. Political competition denotes the concentration of vote shares won by the competing parties in the parliamentary elections and permits us to examine whether greater political competition is associated with the pension reform outcomes. Electoral rules essentially capture latent de jure characteristics of political representation in the executive and legislative government branches allowing for a closer look at the relationship between the type of electoral rules and pension reform outcomes. Federalism denote the degree of interjurisdictional regulatory and fiscal competition between the sub-national units and allows us to examine whether fiscal and regulatory federalism fosters or hinders the implementation of the necessary pension reforms.

3.1.1 Chief Executive Constraints

Eight different measures of chief executive constraints are considered throughout the paper. Most of these indicators capture the combined *de jure* and *de facto* latent constitutional constraints on the power holders. The first three measures are simple binary covariates indicating whether the country has had (i) a parliamentary system, (ii) presidential system, or (iii) assembly-based political system. The fourth measure is a binary covariates indicating whether the constitution provides for the finite office term of the chief executive. The fifth measure indicates if there are formal office terms, can the chief executive serve additional term following the current one. The sixth measures denote the number of years of chief executive in office. The seven measure of chief executive constraints is a binary covariate indicating whether the chief executive de facto controls the legislature. And lastly the eight variable is a binary covariate indicating whether the centrist political party is in power. The advantage of the respective measures of chief executive constraints is that these covariates combine the de jure constitutional limits on the exercise of the political power with its de facto enforcement which allows us to examine the contribution of executive constraints to the conditional reform probabilities in a balanced perspective by taking into account the formal restraints envisaged by the constitutional and the factual enforcement thereof.

3.1.2 Political Competition

In examining the effects of political competition on fiscal outcomes such as pension reform, the traditional approach would exploit the variation in the vote shares of political parties won in the parliamentary or presidential elections to estimate the contribution to the mandatory and supplementary reform probabilities. Such an approach is earmarked by two distinctive limitations. First, direct vote share are little informative about the concentration of the political power. Such power may be substantially concentrated despite the relatively even distribution of vote shares which is most likely to render the resulting effect of on the reform probabilities biased and inconsistent. Second, invoking the degree of political competition necessarily requires a single index which denotes its scale and allows for the comparison of political competition between countries and over time. Such an index permits more precise effect of competition on reform outcomes with a narrower margin of error which might appear as omitted variable bias at first sight. And third, it is not possible to tackle the differences in the political competition as a source of variation in pension reform outcomes without specifically delineating its degree between government parties and opposition parties which offers a more balanced variation both across and within countries. Four different measures of political competition are considered along two synthetic components. First, Hirschmann-Herfindahl index (HHI) of political competition among government parties and HHI of opposition parties. And second, government fractionalization index and opposition fractionalization index. HHI is computed as the squared sum of vote shares won by individual parties in the elections whereas the fractionalization index is denoted as the probability that two randomly chosen deputies from the governing and opposing parties will come from the same party. These two sets of indices allow us to simultaneously address the effects of the concentration of political power and political fractionalization on pension reform outcomes.

3.1.3 Electoral Rules

The implementation of far-reaching mandatory and supplementary pension reforms in one set of countries and the reform failure in others may be reflected by the rigidity of electoral rules permitting or hindering the reform process. Five different measures of electoral rules are considered based on the criteria proposed by Feree and Singh (2000). First, the executive index of electoral competition denotes the degree to which competing candidates and incumbents can effectively contest the chief executive in the election. This measure comprises a scaled index in the numeric range from 0 to 7. Countries at the lowest levels of executive electoral competition features no legislature or unelected legislature. The intermediate levels of executive electoral competition correspond either to the legislature with a single party and multiple candidates or the elected legislature with a single candidate only. Higher level of executive electoral competition corresponds to the multiple parties with multiple candidate but where the largest party won more than 75 percent of the total votes. The highest level of the executive-based electoral competition corresponds to the winning party getting less than 75 percent of the overall vote share.

3.1.4 Fiscal Federalism

Some countries may be able to implement extensive pension reforms due the enabling role of federalism in encouraging the interjurisdictional competition between subnational units. Higher labor and capital mobility in federal countries might simply prevent the government from shifting the burden of the generous welfare state on future generations and set the critical limit on the discretion of the government (Tiebout 1956, Riker 1964, Oates 1972, Weingast 1995). Four different measures of federalism are considered. First, regional autonomy covariate indicates whether there are autonomous regions. Autonomous regions are recorded if the constitution refers to the region or area that is self-governing where Federal Districts and Capital Districts do not count as autonomous regions whereas disputed autonomy is not recorded. Second, municipal government covariate captures the degree of political decentralization. It is an ordinal index taking the value 0 if neither local executive nor local legislature are elected, 1 if the executive is appointed but the legislature elected, and 2 if they are both local elected. Third, fiscal federalism covariate is a dichotomous variable indicative of whether states or provinces have the institutional authority over taxes, spending and legislation. And fourth, state constituency variable denotes whether the constituents of the senators in the upper houses of the parliament are the states/provinces which allows us to examine the potential effects of constituency on the reform outcomes.

3.2 Control Variables

3.2.1 Demographic Covariates

The existing literature indicates the pressure for pension reforms is susceptible to the fraction of the elderly population. Societies with a greater share of elderly population might be subject to continuous pressure to implement the mandatory and supplementary pension reforms to curb the rising pension expenditure and implicit liabilities as well as to facilitate the transition from unfunded PAYGO system into the funded system. The failure to control for the demographic pressure could render the effect of political institutions biased and inconsistent as a result of omitting the demographic covariates from the underlying model. Our measures of demographic pressure on the pension reform are two-fold: (i) the fraction of the population aged 65 and above, and (ii) life expectancy at birth. The first measure captures the share of elderly population that is expected to moderate the probability of introducing pension reform. The second measure additionally controls for the structural effects of longevity improvements on the likelihood of introducing reforms associated with the ageing of the population. Both measures are from *United Nations Demographic Yearbooks*.

3.2.2 Macroeconomic Covariates

The likelihood of introducing both types of reforms can be critically determined by the macroeconomic covariates. Societies with slow economic growth might alter the voting preferences to prevent pension reform from taking place and to protect the elderly benefits from the redistribution. Alternatively, slow economic growth could foster the likelihood of introducing the reforms to stimulate future growth. We control for the potentially confounding effects of macroeconomic fundamentals on the probability of introducing both types of reforms using two distinctive measures of economic performance: (i) the level of total factor productivity, and (ii) the share of labor-based compensation in the GDP. The first covariates allows us to examine the effects of macroeconomic efficiency on the probability of introducing the reforms while the second measure captures the effects of economic structure allowing for us to examine whether the compensation of production factors relative to the GDP matters for the likelihood of introducing the reforms. The data on the level of TFP and share of labor-based compensation is from Feenstra et. al. (2015). Table 2 presents some key descriptive statistics for our sample.

Table 2: Descriptive Statistics

			StD					
	Obs	Mean	Overall	Between	Within	Min	Median	Max
Panel A: Pension Reform Outcomes								
Introduction of New Mandatory Old-Age Law	1,584	.077	.267	.081	.255	0	0	1
Introduction of Voluntary Pension Law	1,584	.114	.319	.092	.305	0	0	1
Panel A1: Demographic Covariates								
Old-Age Dependency Ratio (% working-age population)	1,584	18.72	5.57	4.87	2.81	5.95	19.12	40.53
Life Expectancy (years)	1,584	74.67	4.58	3.15	3.36	52.26	75.00	83.19
Panel A2: Macroeconomic Covariates								
Total Factor Productivity (Solow residual, 2005 constant prices)	1,504	.841	.121	.080	-090	.595	.957	1.477
Share of Labor Compensation (relative to GDP)	1,524	.593	.090	.084	.033	.337	.612	.836
Panel A3: Political Economy Covariates								
Chief Executive Constraints								
Presidential Political System	1,579	.207	.405	.364	.187	0	0	1
Assembly-based Political System	1,579	.115	.319	.203	.248	0	0	1
Parliamentary Political System	1,579	.677	.467	.416	.224	0	1	1
Finite Office Term	1,579	.949	.218	.107	.190	0	1	1
Formal Term Restraints	1,579	.887	.316	.273	.164	0	1	1
Years in Office	1,579	9.743	12.037	7.921	9.147	1	5	71
Executive Control of Legislature	1,579	.331	.470	.321	.347	0	0	1
Centrist Political Party in Power	1,579	.115	.320	.204	.249	0	0	1
Political Competition								
Hirschmann-Herfindahl Index of Government Parties	1,537	.738	.281	.209	.189	.074	.836	1
Hirschmann-Herfindahl Index of Opposition Parties	1,579	.467	.279	.192	.205	0	.445	1
Government Fractionalization Index	1,579	.417	.271	.182	.202	0	.462	.941
Opposition Fractionalization Index	1,579	.259	.285	.207	.197	0	.139	2
Electoral Rules								
Legislative Index of Electoral Competition	1,579	6.53	1.318	.720	1.110	1	7	7
Executive Index of Electoral Competition	1,579	6.43	1.438	.804	1.199	2	7	7
Proportional Representation	1,579	.744	.436	.361	.251	0	1	1
Vote Threshold Representation	1,579	1.806	2.543	2.047	1.511	0	0	12.5
D'Hondt/Jefferson Seat Allocation System	1,579	.345	.475	.415	.242	0	0	1
Federalism								
Regional Autonomy	1,579	.240	.427	.376	.215	0	0	1
Municipal Electoral System	1,579	.690	.462	.363	.291	0	1	1
Fiscal Federalism	1,579	.409	.491	.427	.254	0	0	1
State/Provincial Constituency	1,579	.457	.498	.455	.215	0	0	1

3.3 Model

The basic fixed-effects logit relationship between the type of pension reform and the set of political institutions that takes place is:

$$\Pr\left(D_{it}=1 \mid INS,\mathbf{Z},\mathbf{X}\right)=\Lambda\left(\mu_i+INS_{it}^{'}\alpha_1+\mathbf{Z}_{i,t}^{'}\beta_1+\mathbf{X}_{i,t}^{'}\delta_1\right)=$$
$$=\frac{\exp\left(\mu_i+INS_{it}^{'}\alpha_1+\mathbf{Z}_{i,t}^{'}\beta_1+\mathbf{X}_{i,t}^{'}\delta_1\right)}{1+\exp\left(\mu_i+INS_{it}^{'}\alpha_1+\mathbf{Z}_{i,t}^{'}\beta_1+\mathbf{X}_{i,t}^{'}\delta_1\right)} \tag{1}$$

where $\Pr\left(D_{it}=1\right)$ is the probability of mandatory or supplementary pension reform denoted by a dummy variable D taking the value of 0 for the observations without reform and the value of 1 for the observations with the reform on the country-year basis. The variable INS denotes the set of political institutions, the vector $\mathbf{Z}$ captures the contribution of demographic covariates to the reform probability, and the vector $\mathbf{X}$ represents the set of macroeconomic covariates associated with the conditional reform probabilities. The term $\Lambda(\cdot)$ represents the corresponding logit estimator of the cumulative distribution function used to establish the reform probabilities. The key challenge posed by our estimation strategy concerns the reliability of the standard errors which critically affects the consistency and unbiasedness of the estimated reform probabilities based on the cross-country variation in the structure of political institutions whilst simultaneously controlling for the effects of demographic structure and economic performance. A major threat to the proposed empirical strategy in establishing reform probabilities is related the possibility of the serially correlated error terms both across and within countries. The failure to control for clustering can lead to massively underestimated standard errors implying that the null hypotheses on the effects of political institutions on the reform probabilities are under-rejected using standard hypothesis tests (Moulton 1986, 1990). In repeated cross section, such as our state-year reform panel, clustering of standard errors can persist even when the potentially unobserved effects are controlled which implies that valid standard errors require overcoming single-way clustering using multi-way clustering scheme to control for within-state serial correlation of the stochastic disturbances (Kezdi 2004, Bertrand et. al. 2004).

We use a non-nested multiway clustering estimator from Cameron et. al. (2011) and cluster the logistic standard errors at the state and year level based on the two-way error components model with i.i.d. errors similar to Moulton (1986), Pepper (2002), Davis (2002) compared to one-way clustering (White 1980, 1984, Pfefferman and Nathan 1981, Liang and Zeger 1986, Arellano 1987, Hansen 2007, Wooldridge 2002, 2003, Cameron and Trivedi 2005) which may lead to the over-rejection of the null hypotheses, hence, rendering the standard errors and parameter inference unreliable. This strategy allows us to estimate the model parameters from Eq. (1) both unbiasedly and consistently by allowing for arbitrary heteroskedasticity and serially correlated disturbances both across and within countries.

4. Results

4.1 Baseline Results

In Table 3, the baseline empirical estimates of the conditional likelihood of mandatory and voluntary pension reforms are presented. Columns (1) through (5) feature the estimated conditional likelihood of passing a new old-age law based on the obligatory pension insurance scheme whereas columns (6) through (10) present the estimated probabilities of passing supplementary pension reforms to boost private pension savings. The table reports the marginal effects of institutional, demographic and macroeconomic covariates on the probability of introducing (i) a new pension bill, and (ii) supplementary reform measures aimed at stimulating private savings.

Notwithstanding the contribution of political institutions to the probability of introducing a new reform, the evidence consistently suggests the pivotal importance of the underlying demographic structure and macroeconomic fundamentals in shaping the likelihood of introducing new pension reform measures.

The results across columns (1) through (5) uncover a persistent effect of aging on the probability of introducing a new basic old age law. The point estimates imply that each additional percentage increase in the fraction of elderly population boosts the odds of passing a new old-age pension bill in the range between 0.4 and 0.5 percentage points holding the effects of macroeconomic fundamentals and institutional covariates fixed. In contrast, the evidence across columns (6) through (10) consistently highlights a negative effect of age dependency ratio on the likelihood of introducing supplementary pension reforms. In particular, each additional percentage-based increase in the fraction of age-dependent population is primarily associated with a decline in the probability of voluntary pension reform in the range between 0.3 and 0.4 percentage points. The negative effect of age-dependency ratio on the probability of voluntary pension reform is statistically significant at either 5% or 1%, depending on the structural setup of our baseline model specification. Our estimates display no effects of longevity on the likelihood of introducing a new old-age law whilst societies with greater longevity are significantly more likely to introduce voluntary pension reforms to stimulate private savings. In columns (6), (8), and (10), each additional year of life expectancy at birth improves the probability of introducing supplementary pension reform measures between 1.1 and 1.2 percentage points, respectively, whereas the effect remains statistically significant at 5%. Hence, our results clearly imply that societies with more rapidly aging population are substantially more likely to introduce a new old-age pension law more frequently but are also more likely to avoid introducing the voluntary pension reforms.

Could a notable drop in the probability of introducing voluntary pension reforms be attributed to the differences in macroeconomic fundamentals? In columns (1) through (5), we test the effects of macroeconomic covariates on the likelihood of both types of pension reforms, using the variation in the share of labor force compensation and total factor productivity. Whilst the former captures the differences in the sectoral structure, the latter captures the aggregate efficiency improvements through the Solow residual. The evidence suggest a mixed effect of macroeconomic covariates on the probability of pension reforms. The introduction of a new old age pension bill is significantly less likely in countries with a larger share of labor-intensive industries in the total output. The marginal effect of the labor share on the introduction of a new old age pension law is in the range between 2.5 percentage points and 3.2 percentage points, and statistically significant at 1%. Such strong effects inevitably suggests that societies with larger shares of labor-intensive industries in the total output are much more likely to elect the political parties not advocating fiscal reforms to the old-age pension law. On the other hand, our evidence does not suggest the share of labor in the total compensation is systematically related to the probability of passing voluntary pension reforms to boost private savings. Furthermore, the evidence also advocates a marginal role of total factor productivity in facilitating the pension reforms. In columns (1), and (2), our estimates imply that each additional percentage point improvement in the TFP drives the probability of mandatory pension reform upward by 11.3 and 12.4 percentage points. In subsequent specifications, no discernable effects of TFP on the conditional probability of either voluntary or mandatory pension reform are found.

Do the underlying differences in the structure of political institutions matter for the passage of pension reforms in the national parliaments? In column (2), we test the impact of chief executive constraints on the probability of introducing a new old-age pension law. The evidence consistently suggests the underlying probability does not differ between presidential, and parliamentary systems. In spite of no such differences, the evidence strongly suggests that term limits on the presidential mandate push the conditional likelihood of mandatory pension reform upward by 3.8 percentage points, respectively. Holding the contribution of demographic covariates and macroeconomic fundamentals fixed, our evidence also suggests that centrist political parties in power are significantly more likely to push forward the introduction of new old-age pension law compared to the center-left and center-right parties, which consistently highlights non-trivial and persistent effects of political ideology on the pension reform outcomes.

Does the composition of the parliament and government matter for mandatory pension reform outcomes? In column (3), we examine the contribution of political competition in the national parliament on the probability of passing a new old-age pension bill, using the fractionalization index and the Hirschmann-Herfindahl index of political concentration in the government cabinet and among the opposition parties. The former captures the probability of that two randomly selected deputies from the government will disagree on the reform proposal whereas the latter captures the concentration of the political power among the government and the opposition parties. Our evidence highlights the underlying importance of fractionalization and power concentration in the government cabinet on the likelihood of introducing a new old-age pension reform. The estimates imply that each additional basis point increase the government cabinet fractionalization index decreases the odds of introducing a new pension bill by 13.7 percentage points, respectively, whilst the effect remains statistically significant at 5%. Moreover, widening concentration of the political power by individual parties in the government cabinet is associated with a marked reduction in the odds of passing a new old-age pension bill through the parliament. The negative effect of HHI of political power on the odds of beneficial reform outcome is proportional in its magnitude to the effect of government cabinet fractionalization index.

Our evidence consistently advocates a heterogeneous effect of political competition on the mandatory reform outcomes. When political parties in the government cabinet are significantly more likely to disagree on the reform proposal, perhaps owing to the interest group pressures embodied in the cabinet composition, the odds of introducing a new pension bill declines markedly. Hence, when the political power is to large degree concentrated among individual parties in the cabinet, such concentration of the political power stifles the probability of passing a new old-age pension law, perhaps owing to the absence of pressure from other political parties in the government and opposition.

Are the mandatory pension reform outcomes shaped by the peculiarity of the electoral rules? In column (4), the effects of executive and legislative electoral rules are examined in greater detail. Specifically, the evidence unveils a discernable effect of vote representation threshold in the national parliament on the likelihood of passing a new old-age pension. Hence, countries where constitutions and electoral rules require a certain vote share threshold won at the parliamentary election before parties are eligible for entry into the parliament, are substantially more likely to facilitate passage of new old-age pension laws. The marginal effect of vote representation threshold is estimated at 0.6 percentage points for a switch to the threshold and is statistically significant at 1%. No such effects are found for the rules regulating electoral and legislative competition, proportional representation, and seat allocation system that might potentially enhance or hinder the pension reform outcomes. In column (5), we examine whether political federalism is more conducive towards the new old-age pension bills, and find that countries with a strong degree of regional autonomy, such as the United States and Switzerland, are 7.3 percentage points more likely to introduce a new old-age pension bill than those with a centralized political system without the regional autonomy.

Does the structure of political institutions fundamentally shape the probability of introducing voluntary pension reforms aimed at stimulating private pension savings? In column (7), we test the effects of chief executive constraints on the voluntary pension reform likelihood. Compared to the marginal effects on mandatory reform outcomes, the evidence on the voluntary pension reforms confirms the importance of presidential term limits. Countries with constitutional limits on the presidential terms, are 5.9 percentage points more likely to pass voluntary pension reforms in the legislature whereas no such effects are found for the type of the political system, and for the presidential control of the legislature. In comparison with the estimates in column (2), no effects of the centrist political parties on the voluntary reform outcomes are found.

The effects of political competition on the voluntary reform outcomes are examined in column (8). Concurrent to the evidence from column (3), the results consistently suggest that government cabinets with a high probability of the disagreement between deputies on the reform proposals are systematically less likely to introduce voluntary pension reforms. Moreover, government cabinets with higher concentration of the political power among the governing party are substantially less likely to introduce reform proposals to stimulate private pension savings. In concrete terms, each additional basis point increase in HHI of government parties' power is associated with 12.2 percentage point decline in the probability of passing the supplementary pension reform bill, holding the effects of macroeconomic fundamentals and demographic covariates fixed.

Whilst the evidence suggest a surprising invariance of the electoral rules with respect to the probability of the pension reform, the evidence in column (9) suggests that countries with stronger electoral competition for the executive deputy posts, are 4.8 percentage points more likely to pass the supplementary pension reforms in the national parliament compared to those countries with less competitive polities. Finally, on column (10), we gauge the effects of federalism on the voluntary pension reform outcomes. In a stark contrast to the results displayed in column (5), the evidence suggests the political federalism might fundamentally shape the pension reform outcomes. The results suggest that three facets of political federalism determine the voluntary reform outcomes. First, countries where the legislative and presidential elections take place at the municipal level, are 3.4 percentage points more likely to pass supplementary pension reforms than those with weak or non-existent municipal electoral systems. Hence, the political decentralization of the electoral decision-making clearly facilitates the onset of the voluntary reform process. Second, countries that grant fiscal, regulatory and tax authorities from the central government to the regional, provincial or state level, are 5.8 percentage points more likely to pass pension reforms stimulating private savings. Such pattern clearly advocates further benefits of the decentralized fiscal policy on the reform outcomes, and confirms the general finding on the beneficial effects of sub-national intra-jurisdictional competition. And third, countries where states or provinces are the constituents of elected senators are 6 percentage points less likely to introduce voluntary pension reforms than countries where elected senators in the upper of lower house of the national parliament are not elected on the basis of state constituency. Henceforth, our evidence clearly suggests that whilst granting fiscal authorities to the states and provinces encourages inter-jurisdictional competition, tying senate elections to the state constituency might encourage the rise of vested interests and facilitate rent seeking to protect the constituents rather than inter-jurisdictional competition to encourage the reform process. Our results suggests such protection of vested interests through state constituency acts a blocking mechanism on the reform outcomes as the upper houses of the national parliament can effectively prevent the voluntary pension outcomes as a result of accountability to states or provinces rather than directly to the voters who might punish such behavior by not electing the senators blocking the reforms in the subsequent term.

Table 3: Logit Regression Estimates of the Conditional Likelihood of Pension Reforms

	Outcomes									
	Implementation of Mandatory Reforms (Introduction of New PAYGO Old-Age Law)					Implementation of Supplementary Reform Measures (Introduction of Private Savings Incentives)				
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
Panel A: Baseline Macroeconomic Covariates										
Old-Age	.005**	.005**	.005**	.004*	.004**					
Dependency Ratio	(.002)	(.002)	(.002)	(.002)	(.002)					
Age Dependency						-.003**	-.003**	-.004***	-.003**	-.004***
Ratio						(.001)	(.001)	(.001)	(.001)	(.001)
Life Expectancy at	.002	.002	.003**	.004**	.002	.012***	.009***	.012***	.009***	.011***
Birth	(.001)	(.001)	(.001)	(.001)	(.001)	(.004)	(.003)	(.003)	(.003)	(.003)
Panel B: Macroeconomic Covariates										
Total Factor	.113*	.124**	.108	.065	.102	.020	.039	.004	.030	.019
Productivity	(.066)	(.066)	(.071)	(.077)	(.064)	(.096)	(.099)	(.086)	(.097)	(.101)
Labor Share	-.300***	-.255**	-.293***	-.221**	-.324**	-.138	-.170	-.094	-.136	-.170
	(.107)	(.107)	(.115)	(.091)	(.103)	(.174)	(.176)	(.176)	(.168)	(.159)
Panel C: Political Institutions Covariates										
	Chief Executive Constraints									
Presidential System		.069					.115			
		(.090)					(.126)			
Parliamentary		.025					.069			
System		(.046)					(.058)			
Finite Office Term		-.017					.045			
		(.061)					(.058)			
Term Limits		.038**					.059***			
		(.016)					(.018)			
Party Years in		-.0002					-.0008			
Office		(.0006)					(.001)			
Centrist Party in		.047**					.035			
Power		(.019)					(.030)			
Executive Control		.026					.021			
of the Legislature		(.017)					(.036)			
	Political Competition									
Government			-.137**					-.140*		
Fractionalization			(.067)					(.083)		
Index										
Opposition			-.032					-.080		
Fractionalization			(.042)					(.052)		
Index										
Government Power			-.127***					-.122*		
Concentration			(.051)					(.073)		
Opposition Power			-.023					-.021		
Concentration			(.025)					(.055)		
	Electoral Rules									
Legislative Index of				.002					-.012	
Electoral				(.017)					(.022)	
Competition										
Executive Index of				-.007					.048*	
Electoral				(.017)					(.026)	
Competition										
Proportional				-.007					-.014	
Representation				(.036)					(.043)	
Vote				.006***					-.002	
Representation				(.002)					(.005)	
Threshold										
D'Hondt/Jefferson				.037					-.005	
Seat Allocation				(.024)					(.025)	
System										
	Federalism									
Regional Autonomy					.073**					-.005
					(.036)					(.029)
Municipal Electoral					-.002					.034*
System					(.020)					(.021)
Fiscal Federalism					.010					.058**
					(.026)					(.026)
State Constituency					-.016					-.060**
					(.027)					(.027)
Constant Term	-6.321***	-7.838***	-5.179**	-8.152***	-5.749**	-9.700***	-10.691***	-7.678**	-10.775***	-8.846**
	(2.400)	(2.317)	(2.155)	(2.247)	(3.027)	(3.507)	(4.007)	(3.227)	(3.595)	(3.717)
Country-Fixed Effects	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
Observations	1,504	1,499	1,450	1,499	1,499	1,504	1,499	1,450	1,499	1,499
Pseudo R2	0.05	0.07	0.06	0.08	0.08	0.06	0.07	0.06	0.07	0.07

Notes: the table reports the effects of political institutions on the likelihood of introducing mandatory and supplementary pension reforms using the logit estimator. The dependent variable is a dummy variable indicating whether the either type of pension reform is introduced in a given year. Standard errors are adjusted for heteroscedasticity and within-country serially correlated stochastic disturbances into 36 country-specific clusters and 44 year clusters using Cameron-Gelbach-Miller non-nested two-way clustering scheme for finite-sample adjustment of the empirical distribution function and cluster-robust parameter inference to remove the inconsistencies arising from biased OLS covariance matrix estimator and serially correlated intra-country residuals. Two-way cluster-robust standard errors are denoted in the parentheses for each empirical specification. Asterisk denote statistically significant marginal effects of covariates at 10% (*), 5% (**), and 1% (***), respectively.

4.2 Robustness Checks

Does the contribution of political institutions to the pension reform outcomes remain robust to alternative model specifications? The results so far are based on the whole-sample estimates and potentially neglect the unobserved heterogeneity in the reform outcomes over time in spite of controlling for the country fixed-effects. Individual countries might be focused on implementing a single set of reforms aimed at stimulating private pension savings through tax exemptions, and various allowance and savings schemes instead of focusing on the implementation of new old-age laws. Conversely, countries at lower levels of economic development are substantially more likely to focus on the implementation of basic social security schemes which are primarily targeted through the enforcement and design of new old age laws. Hence, a more rapidly aging population might exert a stronger pressure to focus on capping the benefits from public pension expenditure which implies that reforms and amendments of existing old-age laws might be more frequent than the implementation of supplementary insurance schemes based on occupational and individual savings for retirement.

In the sensitivity check of the baseline estimated probabilities of pension reform, we divide the countries in our sample in three key groups for the mandatory and voluntary set of pension reforms to examine whether the established institutional effects are plagued by sample selection. The first group comprises *outliers* – countries which implemented a disproportionately large number of reforms compared to the sample mean. For instance, Italy implemented twenty new basic old-age pension laws based on notional defined contribution in the period 1970-2013, merely six times the sample mean of 3.38, and can be easily classified as an outlier. In a similar fashion, New Zealand and Portugal introduced 10 and 11 supplementary pension reforms to encourage private savings during our sample period, compared to the sample mean of 4.91, and can also be classified as reform outliers. The second group comprises *never-takers*, countries which had simply introduced no reform measures. For instance, Japan and the Netherlands had not implemented a new old-age pension law which has been still in place from 1957 (*National Pensions Act*), and 1959 (*Algemene Ouderdomswet*), respectively. In a similar vein, Greece and France had not implemented a single supplementary pension reform to stimulate private savings in our sample period whereas the sample mean number of supplementary pension reforms is 4.91. Therefore, both countries can be classified as never-takers. The third group comprises *compliers* – countries which adopted new old-age pension laws but chose not to implement the voluntary pension reforms based on stimulating private pension savings. For instance, Canada has not implemented a new old-age pension law and relied upon the 1965 *Canada Pension Plan* in our sample period. But instead, Canada introduced eight complementary pension reform through the federal and provincial legislation. Hence, Canada is a complier with regards to the mandatory pension laws. The overall reform profile scheme used to examine whether the established reform probabilities are robust to the sample selection is summarized in Table 4 where the D^M and D^S denote the mandatory and supplementary reform outcomes, and μ represents the temporal sample mean reform count for each designated type.

Table 4: Sample Selection and Pension Reform Profiles

			Mandatory Pension Reforms		
			Introduction of New Old-Age PAYGO Law		
			$D^M_{i,\tau}=0$	$D^M_{i,\tau}>\mu^M$	$D^M_{i,\tau}=1$
Supplementary Pension Reforms	Private Pension Savings Incentives	$D^S_{i,\tau}=0$	Never-Taker	Never-Taker Outlier Complier	Complier
		$D^S_{i,\tau}>\mu^S$	Outlier Never-Taker Complier	Outlier	Outlier
		$D^S_{i,\tau}=1$	Complier	Outlier	

In Table 5, the robustness of the marginal effects of political institutions on the probability of mandatory pension reforms is examined. Each specification confers baseline demographic covariates and macroeconomic fundamentals to control for the potential omitted variable bias. Excluding outliers from the whole sample confirms the contribution of the centrist political party in power to the reform probability. The switch to the centrist political party in government is associated with 2.9 percentage point increase in the likelihood of introducing a new old-age pension bill – slightly lower than the estimated 4.7 percentage point probability from column 2 in Table 3. Excluding compliers from the base sample confirms the importance of presidential term limits for the introduction of the new old-age pension law whilst excluding never takers shows that countries with the executive control of the legislature are 3.4 percentage points more likely to introduce a new old-age law compared to those without the executive grip on the legislature. Hence, chief executive constraints matter for mandatory pension reform outcomes through three channels: (i) political ideology of the party in power, (ii) presidential term limits, and (iii) executive control of the legislature.

Table 5: Stability of Marginal Effects of Political Institutions on Mandatory Pension Reforms

	Outcome: Implementation of Mandatory Pension Reforms – Introduction of New Old-Age Law											
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Excluding Outliers				Excluding Never Takers				Excluding Compliers			
	Chief Executive Constraints											
Presidential System	.053				.120				.007			
	(.071)				(.111)				(.058)			
Parliamentary System	.017				.034				-.023			
	(.039)				(.049)				(.056)			
Finite Office Term	-.018				-.008				-.005			
	(.049)				(.064)				(.054)			
Term Limits	-.033				.057***				.037**			
	(.013)				(.013)				(.016)			
Party Years in Office	.0003				.00009				-.0005			
	(.0002)				(.0006)				(.0006)			
Centrist Party in Power	.029*				.034				.050***			
	(.017)				(.021)				(.018)			
Executive Control of the Legislature	.006				.034**				.027			
	(.015)				(.017)				(.021)			
	Political Competition											
Government Fractionalization Index		-.167				-.210***				-.124*		
		(.109)				(.064)				(.072)		
Opposition Fractionalization Index		.066				-.022				-.030		
		(.069)				(.044)				(.042)		
Government Power Concentration		-.174*				-.177**				-.119**		
		(.100)				(.052)				(.053)		
Opposition Power Concentration		.048				-.010				-.021		
		(.060)				(.022)				(.028)		
	Electoral Rules											
Legislative Index of Electoral Competition			-.001				.006				.001	
			(.012)				(.022)				(.017)	
Executive Index of Electoral Competition			-.005				-.007				-.003	
			(.013)				(.021)				(.017)	
Proportional Representation			.028**				-.027				-.022	
			(.013)				(.039)				(.053)	
Vote Representation Threshold			.007***				.004				.007**	
			(.002)				(.003)				(.003)	

D'Hondt/Jefferson Seat Allocation System			.011 (.015)				.024* (.024)				.034 (.024)	
Federalism												
Regional Autonomy				.023* (.013)				.066** (.034)				.093* (.052)
Municipal Electoral System				.0004 (.017)				-.0008 (.022)				-.003 (.019)
Fiscal Federalism				.007 (.022)				-.018 (.027)				.001 (.024)
State Constituency				-.023 (.022)				.031 (.034)				-.013 (.027)
Constant Term	-5.072*** (2.035)	-10.572*** (2.244)	-7.351*** (2.398)	-1.681 (2.361)	-5.578** (2.714)	-4.771** (2.153)	-6.671*** (2.203)	-9.336*** (2.482)	-7.958*** (2.345)	-4.884* (2.788)	-6.256** (2.921)	-4.801* (2.948)
Country-Fixed Effects	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Baseline Covariates	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Obs	1,279	1,279	1,411	1,279	1,246	1,362	1,328	1,279	1,411	1,328	1,279	1,411
Pseudo R2	0.03	0.08	0.06	0.07	0.07	0.05	0.05	0.08	0.07	0.03	0.08	0.08
Count R2	93.60	90.38	92.06	93.35	90.13	91.85	93.60	90.38	92.20	93.60	90.38	92.20
F-Test on Joint Covariate Significance (p-value)	0.279	0.007	0.000	0.000	0.000	0.026	0.004	0.118	0.280	0.211	0.091	0.109

Notes: the table reports the effects of political institutions on the likelihood of introducing mandatory pension reforms across sub-samples using the logit estimator. The dependent variable is a dummy variable indicating whether the either type of pension reform is introduced in a given year. Standard errors are adjusted for heteroscedasticity and within-country serially correlated stochastic disturbances into country-specific clusters and year clusters using Cameron-Gelbach-Miller non-nested two-way clustering scheme for finite-sample adjustment of the empirical distribution function and cluster-robust parameter inference to remove the inconsistencies arising from biased OLS covariance matrix estimator and serially correlated intra-country residuals. Two-way cluster-robust standard errors are denoted in the parentheses for each empirical specification. Asterisk denote statistically significant marginal effects of covariates at 10% (*), 5% (**), and 1% (***), respectively.

In columns (2), (6), and (8), the robustness of the political competition to the mandatory pension reforms is examined by piecewise exclusion of each subset from the whole sample. Excluding outliers confirms the negative effect of rising government parties' HHI on the probability of introducing a new old-age law whereas excluding never-takers (column 5), and compliers (column 8), furthermore confirms the negative impact of government cabinet fractionalization on the mandatory reform outcomes. The estimated reform probabilities are broadly aligned with those originally obtained in column (3) of Table 2. The contribution of the electoral rules to the reform probabilities is reexamined in columns (3), (6), and (9). The evidence confirms the importance of vote representation threshold in the parliamentary elections for the reform outcomes, and also suggest excluding outliers from the whole samples unveils non-trivial contribution of proportional party representation to the reform outcomes. The parameter estimate in column (3) advocates the switch from majoritarian to proportional party representation in the parliament is associated with 2.8 percentage points rise the mandatory reform probability. In column (6), excluding the never-takers from the whole sample shows the base sample estimate might undermine the contribution of seat allocation system to the reform outcomes. Switching to d'Hondt-Jefferson seat allocation system, which is less favorable to smaller political parties, is associated with a 2.4 percentage point increase in the probability of passing a new old-age pension bill.

In checking the robustness of federalism in explaining mandatory pension reform outcomes in columns (4), (7), and (10), stable marginal effects are confirmed for the contribution of regional autonomy to the probability of introducing a new old-age law. The estimated probability of introducing a new law following the switch to regional autonomy is in the range between 2.3 percentage points and 9.3 percentage points, respectively. Our cross-country logit reform regression correctly predict between 90 and 93 percent of the reform outcomes which testifies both to the robustness of the underlying estimates to alternative model specifications and across various sub-samples.

In Table 6, we replicate the cross-country reform regressions switching to the supplementary pension reforms as the outcome of interest to check the robustness of the political institutions in explaining the complementary reform outcomes across and within countries. In columns (1), (4), and (8), the robustness of chief executive constraints in explaining the reform outcomes is assessed. Excluding outliers, never-takers, and compliers confirms the strong marginal effects of presidential term limits on the likelihood of introducing complementary reform outcomes in the range between 4.7 percentage points and 6.4 percentage points which remains broadly in line with the marginal effects in column (7) of Table 3.

The robustness checks also confirm the fundamental importance of political competition on the likelihood of introducing complementary pension reforms. In columns (2), (5), and (8), the probability of reforms declines with government cabinet fractionalization, increases with the HHI vote share of the opposition parties, and again declines with the rising HHI vote share of the government parties. The results are not only consistent with the prior evidence in Table 2 but also comparable to the probabilities of mandatory pension reforms in Table 3 (columns 2, 5, and 8). In columns (3), and (6), the beneficial effects of executive electoral competition on the complementary pension reform is confirmed whilst the effects of proportional parliamentary representation, vote threshold, and seat allocation system are not.

The sensitivity of the estimated complementary reform probabilities with respect to the federalism are displayed in columns (4), (8), and (12). The evidence on the sub-samples supports the general notion on the multiple advantages of federalism in facilitating the complementary reform outcomes. Excluding outliers in column (4) confirms the estimated marginal effect of fiscal federalism on the reform outcome. Countries with a strong federalist political structure that grant authority over taxes, spending, and regulation to its states and/or provinces are 7.3 percentage points more likely to introduce complementary pension reforms to stimulate private pension savings. When never-takers are excluded from the whole sample in column (8), the evidence again suggests the probability of complementary pension reform increases with the municipal electoral system, interjurisdictional competition and fiscal decentralization, and declines if the elected senators are state constituents. Finally, excluding the compliers furthermore highlight the importance of electoral decentralization on the complementary pension reforms.

Table 6: Stability of Marginal Effects of Political Institutions on Supplementary Pension Reforms

	Outcome: Implementation of Supplementary Pension Reform (Introduction of Private Pension Savings Incentives)											
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)
	Excluding Outliers				Excluding Never Takers				Excluding Compliers			
	Chief Executive Constraints											
Presidential System	.090				.035				.096			
	(.102)				(.100)				(.130)			
Parliamentary System	.034				.032				.074			
	(.054)				(.078)				(.061)			
Finite Office Term	.030				.057				.028			
	(.053)				(.054)				(.070)			
Term Limits	.047***				.064***				.053***			
	(.015)				(.020)				(.018)			
Party Years in Office	-.0005				-.001				-.0001			
	(.001)				(.001)				(.001)			
Centrist Party in Power	.014				.032				.020			
	(.026)				(.032)				(.029)			
Executive Control of the Legislature	-.013				.049				.025			
	(.022)				(.038)				(.041)			
	Political Competition											
Government Fractionalization Index		-.410***				-.164**				-.196*		
		(.139)				(.084)				(.106)		
Opposition Fractionalization Index		.145				-.070				-.069		
		(.104)				(.054)				(.043)		
Government Power Concentration		-.418***				-.126*				-.145*		
		(.138)				(.074)				(.079)		
Opposition Power Concentration		.210**				-.010				-.026		
		(.098)				(.056)				(.050)		
	Electoral Rules											
Legislative Index of Electoral Competition			-.014				-.018				-.010	
			(.018)				(.023)				(.019)	
Executive Index of Electoral Competition			.037*				.057**				.040	
			(.021)				(.026)				(.028)	
Proportional Representation			.007				-.054				-.006	
			(.032)				(.053)				(.062)	
Vote Representation Threshold			.001				.005				-.004	
			(.003)				(.005)				(.005)	
D'Hondt/Jefferson Seat Allocation System			.004				.002				-.012	
			(.020)				(.024)				(.023)	
	Federalism											
Regional Autonomy				-.010				.031				-.015
				(.019)				(.028)				(.029)
Municipal Electoral System				.010				.037*				.043**
				(.018)				(.022)				(.020)
Fiscal Federalism				.073***				.054*				.025
				(.019)				(.028)				(.024)
State Constituency				-.016				-.062**				-.036*
				(.018)				(.028)				(.020)
Constant Term	-9.515**	-3.482	-9.452***	-4.859	-11.514***	-8.719***	-13.857***	-9.229***	-10.466**	-8.159**	-10.792***	-9.424**
	(4.336)	(3.882)	(3.601)	(3.838)	(3.945)	(3.176)	(3.552)	(3.535)	(4.568)	(3.386)	(3.699)	(3.975)
Country-Fixed Effects	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Baseline Covariates	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Obs	1,323	1,296	1,323	1,323	1,411	1,362	1,411	1,411	1,279	1,246	1,279	1,279
Pseudo R2	0.05	0.06	0.05	0.07	0.08	0.07	0.08	0.08	0.10	0.09	0.09	0.09
Count R2	90.17	89.97	90.17	90.17	87.10	87.00	87.10	87.03	87.80	87.80	87.80	87.80
F-Test on Joint Covariate Significance	0.014	0.001	0.473	0.014	0.001	0.022	0.360	0.065	0.010	0.023	0.349	0.164

(p-value)		

Notes: the table reports the effects of political institutions on the likelihood of introducing supplementary pension reforms across sub-samples. using the logit estimator. The dependent variable is a dummy variable indicating whether the either type of pension reform is introduced in a given year. Standard errors are adjusted for heteroscedasticity and within-country serially correlated stochastic disturbances into 36 country-specific clusters and 44 year clustered using Cameron-Gelbach-Miller non-nested two-way clustering scheme for finite-sample adjustment of the empirical distribution function and cluster-robust parameter inference to remove the inconsistencies arising from biased OLS covariance matrix estimator and serially correlated intra-country residuals. Two-way cluster-robust standard errors are denoted in the parentheses for each empirical specification. Asterisk denote statistically significant marginal effects of covariates at 10% (*), 5% (**), and 1% (***), respectively.

5. Conclusion

Although the transition from unfunded to funded pension system is the centerpiece of institutional reforms in ageing societies, it remains much less clear why the critical reforms never take place. The absence of such reforms is associated with the inability to curb rising pension expenditure leading to the rapid rise of both explicit and implicit pension liabilities. In this paper, we quantify the transitional dynamics of mandatory and supplementary pension reforms for a panel of 36 countries for the period 1970-2013 and examine the effects of political institutions on the probability of pension reforms taking place to tackle the institutional sources of the successes and failures of pension reforms using the data from Beck et. al. (2001). Four classes of measures of political institutions are considered: (i) chief executive constraints, (ii) political competition, (iii) electoral rules, and (iv) federalism both of which capture the institutions on the books (de jure) and the institutions in action (de facto). Our definition of pension reforms is based on the two-fold classification. Mandatory pension reforms are defined as the passage of new old-age law dealing with the change in the existing PAYGO rules regarding retirement age and net replacement rates. Supplementary pension reforms are those that stimulate private pension savings through the third pillar of the system and facilitate the transition from unfunded to funded pension system. We analyze the patterns of both types of pension reform on case-by-case basis across countries using the legislative sources of reforms from International Social Security Association (http://www.issa.int).[7]

Our results suggest the fundamental importance of political institutions in shaping the path of pension reforms over time even after controlling for the potentially confounding effects of demographic structure and economic performance on the probability of reform implementation. The evidence suggests the effects of political institutions on the probability of pension reforms are not created equal. The introduction of the new old-age law is significantly more likely (i) when the chief executives are bound by term limits, and when the party in power is centrist whereas no discernable differences in the reform probabilities are found between countries with presidential and parliamentary system. Our evidence clearly suggests the pivotal importance of political competition in affecting the conditional likelihood of introducing the new old-age law. New old-age law is more likely to be introduced when the government cabinet is not excessively fractionalized, and when the concentration of government parties power is not too strong as captured by Hirschmann-Herfindahl Index of vote shares' concentration. Moreover, a new old-age law is substantially more likely to be introduced in countries where constitutions establish regional autonomy along the premises of federalism and when electoral rules establish parliamentary vote threshold to prevent excessive legislative rent-seeking.

The results also highlight distinctive disparities in the effects of different sets of political institutions on the probability of supplementary pension reforms. Such reforms are more likely when the chief executive is bounded by term limits and when political competition between parties prevents either (i) substantial fractionalization of the government cabinet or (ii) excessive concentration of the governing parties' power in the cabinet both of which stifle the reform process. Moreover, supplementary pension reforms are more likely to gain foothold alongside greater electoral competition among chief executives

[7] See Table A1 in the Appendix for a more detailed overview of pension reforms across and within countries.

although de jure rules regarding vote representation threshold, proportional versus majoritarian representation or seat allocation system advocate little or no effect on the reform probabilities. Compared to the mandatory reforms, the evidence underlines powerful effects of federalism and political decentralization on the reform probabilities. Supplementary pension reforms are substantially more like to be introduced in decentralized electoral systems, when the states have the authority over taxes, spending, and regulation, and less likely to be introduced if the states are the constituents of the senators. The evidence thus clearly suggests the fiscal federalism is substantially more conducive to pension reforms than a centralized system although state constituency clearly prevents the reforms from taking place. Our results hold after controlling for the potential effects of demographic structure and economic performance on the reform probability and remain robust to alternative model specifications and across a number of sub-samples when we check whether the particular subset of countries drives the aggregate effects of political institutions on the likelihood of pension reforms. This paper emphasizes the distinctive importance of political institutions in determining the probability of pension reforms. Political institutions capture the set of constraints on the executive and rules regarding the political competition and participation. A sizeable part of the variation in reform outcomes remains unexplained as it remains less clear how economic, legal, social, and civil institutions affect the probability of reforms. Assessing the effects of economic institutions, legal framework, social and civil institutions on the probability of both types of pension reforms is a good research area to pursue in the future.

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Appendix - Table A1: Overview of Mandatory Old-Age and Disability Laws and Voluntary Pension Laws by Country, 1970-2013

Country	*First Old-Age and Disability Law* (Year)	*Subsequent Old-Age Laws* (Year)	*Supplementary Pension Laws* (Year)
Argentina	1904 to 1958 (on various occupational categories)	**1971** (Law No. 18910 on old-age and disability pensions), **1998** (Law No. 24977 on small contributors scheme), **2000** (Law No. 25239 on household workers), **2005** (Law No. 25994 on early retirement), **2009** (Law No. 26425 on Integrated Retirement and Pension System of Argentina)	**1993** (Law No. 24241 introducing the system of private pensions combined with PAYG scheme and asset management regulation), **2007** (Law No. 26222 introducing the possibility of transferring from funded to PAYG scheme, fee regulation and modifying the financing of disability benefits)
Australia	1908	**1991** (Social Security Act No. 46), **1992** (Superannuation Guarantee [Administration] Act No. 111)	**1987** (Occupational Superannuation Standards Act), **1992** (Superannuation Guarantee Act), **1993** (Superannuation Industry Act [Administration]), **1993** (Superannuation Industry Act [Supervision]) and Super Annuation Act [Resolution of Complaints]), **1997** (Retirement Savings Accounts Act), **1998** (Australian Prudential Regulation Authority Act and Retirement Savings Account Providers Supervisory Levy Imposition Act), **2001** (Financial Sector Act [Collection of Data] and Family Law Legislation Amendment Superannuation Act), **2004** (Superannuation Safety Amendment Act), **2005** (Superannuation Legislation [Choice of Funds]), **2007** (Simplified Superannuation Act), **2008** (Review of Prudential Decisions Act), **2010** (Superannuation Industry Supervision Amendment Act), **2011** (Early Release of Superannuation Act), **2012** (Stronger, Fairer, Simpler and Other Measures Act and Superannuation Guarantee Amendment Act).
Austria	1906	**1978** (Federal Act Respecting the Social Insurance of Members of the Liberal Professions, Farmers' Social Insurance Act, Federal Law Respecting the Social Insurance of Self-Employed Professional Persons), **2004** (Pension Harmonization Law – General Pension Law)	**1978** (Insurance Supervision Act), **1988** (Income Tax Act), **1990** (Pension Fund Act and Company Pension Fund Act), **2005** (Company Pensions Act).
Belgium	1900	**1994** (Coordinating Law of 14 July), **2001** (Law of 22 March)	**1975** (Law on the Supervision of Insurance Companies Established in Belgium), **1992** (Income Tax Code and Stamp Duty Code), **2003** (General law of Complementary Pensions applicable to workers in Belgium), **2006** (Law on the Supervision of Institutions for Occupation Retirement Provision), **2010** (Early Retirement Law), **2011** (Royal Decree on the Evolution of Supervisory Architecture of the Financial Sector)
Brazil	1923, 1934, 1936	**1991** (Law No. 8212 of 24 July on social security and Law No. 8213 of 24 July on social insurance), **1993** (Law No. 8742 of 7 December on social assistance), **1999** (Decree No. 3048 of 6 May on social insurance regulations), **2013** (Complementary Law No. 142 of 8 May on special disability pensions)	**2001** (Law No. 108 on regulation of closed pension plans established by public institutions and Law No. 109 on the provision for the establishment of closed and open pension plans), **2004** (Law No. 11053 on the regulation of pension plans' taxation), **2007** (Law No. 1992 on the introduction of the pension regime for civil servants)
Canada	1927	Subsequent Old-Age and Disability legislation based on 1952 Old Age	**1972** (Income Tax Act), **1976** (Pension Benefits Act, Manitoba), **1977** Pension

		Security Act (Revised Statues of Canada), 1965 Canada Pension Plan and Lois ur le régime de rentes du Québec and 1967 Act to Amend the Old Age Security Act.	Benefits Act, Nova Scotia), **1985** (Pension Benefits Act, Newfoundland), **1991** (Pension Benefits Act, New Brunswick), **1993** (Pension Benefits Standards Act, British Columbia), **2011** (Voluntary Savings Retirement Plan), **2012** (Voluntary Retirement Savings Plan, Quebec).
Chile	1924	**1975** (Decree No. 869 of 15 January on social assistance), **1980** (Decree No. 3500 of 4 November on Individual Account Scheme, Decree No. 3501 of 4 November on contributory scheme, Decree No. 3502 of 4 November on Institute of Normalization), **2008** (Law No. 20255 of 17 March on Social Security Reform)	**1980** (DFL 101 of the Ministry of Labour and Social Security creating the Superintendence of AFP [Administradoras de Fondos de Pensiones] and DFL 3500 creating the mandatory private pension scheme and regulating the creation and operation of AFPSs, asset management and protection of rights), **2004** (Law No. 19.934 modifying the pay-our rules and introducing a new methodology for calculating life annuities and Regulation of DL 3500 regulation asset management, operation of AFPSs, the collection of contributions, its enforcement and the transfer of individual accounts from one AFP to another), **2008** (Law No. 20255 strengthening the non-contributory pillar introducing new benefits for the elderly poor and an auction mechanism of new members based on management fees to increase competition between AFPs and establishing a more flexible investment regime for AFPs)
Croatia	1922	**1998** (Maximum Pension Act; Act on the List of Physical Injuries; Act on the List of Occupational Diseases; Decree on the Scope and Content of Medical Reports), **1999** ((Act on Insurance Periods in Counted in Privileged Duration), **2008** (Act on Contributions), **2009** (Rules on Contribtions), 2013 (Pension Insurance Act and Decree on Medical Assessment in the Pension Insurance Scheme; Act on Compulsory Pension Funds; Act on Collection, Processing and Exchange of Data on Wages; Contributions and Taxes, Decree on the Compulsory Insurance Contribution Bases; Act on Occupational Rehabilitation)	**1999** (Act on Mandatory and Voluntary Pension Funds; Act on Societies for Pension Insurance and Payment of Pensions on the Basis of Individual Capitalization)
Czech Republic	1906, 1924	1995 (Pension Insurance Act No. 155), 2003 (Act No 424 and Act No. 425).	**1992** (Act No. 586 on the Collection of Income Taxes), **1994** (Act No. 42 on the collection of state-contributory supplementary pension insurance), **2011** (Act No. 427 on supplementary pension savings)
Denmark	1891	**2009** (Act No. 942 of 2 October), **2010** (Act No. 1005 of 19 August), **2013** (Act No. 1116 of 23 September and Act No. 1232 of 29 October)	**2001** (Consolidated Unisex Act), **2006** (Insurance Contract Act; Taxation of Pension Plans Act; Taxation of Pension Investment Returns Act), **2007** (Consolidation Supervision of Company Pension Funds Act), **2012** (Consolidation Financial Business Act)
Finland	1937	2006 (Employees' Pension Act), 2007 (National Pensions Act No. 568; Act No. 1362 of 21 December)	**1992** (Insurance Funds Act No. 1164 regulating the establishment and operation of industry-wide pension schemes), **1995** (Pension Foundations Act No. 1774 regulation establishment and operation of company pension schemes), **1997** (Act on Pension Insurance Companies No. 354), **2003** (Local Government Pensions Act specify mandatory insurance for local government employees and regulating benefit provisions), **2006** (State Employees Pensions Act No. 1295; Seafarer's Pension Act No.

			1290; Farmers' Pension Act No. 1280; Self-Employed Persons' Pensions Act No. 1272)
France	1928	**1975** (Law No. 75-354 of 30 June on social security scheme for non-agricultural professions), **1996** (Ordinance No. 96-344 of 24 April on social security organization), **2001** (Law No. 2011-647 of 20 July on dependency benefits), **2003** (Law No. 2003-775 of 21 August on pension reform), **2006** (Law No. 2006-1640 of 21 December on retirement reform), **2010** (Law No. 2010-1330 of 9 November on retirement reform)	None
Germany	1889	**2002** (Sixth Book of the Social Act – Obligatory Pension Insurance)	**1974** (Occupational Pensions Act – *Gesetz zur Verbesserung der betrieblichen Altersversorgung*, allowing five different methods of implementing complementary occupational pension plans), **1992** (Insurance Supervision Act – *Versicherungsaufsichtsgesetz*, regulating the establishment and operation of insurance companies, pension institutions and pension funds), **2001** (*Altervermögensgesetz* – Act on the reform of the social security pension scheme and the encouragement of funded old-age pension provision), 2002 (*Finanzdiensleistungsaufsichtsgesetz* – Act on the Federal Financial Supervisory Authority integrating several areas of financial supervision into a single institutions and regulating its operations, responsibilities and powers), **2004** (Retirement Income Act – *Alterseinkünftegesetz* harmonizing the taxation of retirement income of employees with and without civil servant status, introducing deferred taxation for all kinds of retirement income), **2008** (Reform of the Insurance Contracts Act – Versicherungsvertragsgesetz regulating the duties and rights between policyholder and the insurer)
Greece	1934	**1988** (Law No. 1759 on social security for non-insured persons), **1990** (Law No. 1902 of 11 October on pension regulation), **1991** (Law No. 1976 on pensions provisions), **1992** (Law on Social Security Reform No. 2084 of 1 October); **1997** (Law No. 2556 on contribution payment), **2002** (Law Np. 3029 of 11 July on the social security system), **2004** (Law No. 3232 on social security), **2008** (Law No. 3655 on social security reform), **2011** (Law No. 4002 on social security reform; Law No. 3996 on social security reform), **2012** (Law No. 4051 on pension regulation; Law No. 4093 on fiscal strategy).	None
Hungary	1928	**1997** (Act No. 80 of 15 July on Persons Entitled to Social Security Benefits and Private Pensions; Act No. 81 of 15 July on the Social Insurance Pension; Act No. 82 of 15 July on Mandatory Private Pension and Private Pension Funds), **2007** (Act No. LXXXVI on the rehabilitation annuity), **2011** (Act No. CLXVII on the termination of early retirement pension;	**1995** (Act CXVII on regulating tax treatment of contributions and benefits), **1997** (Government Decree 169 regulating the organization and operation of the Guarantee Fund; Government Decree 170 regulating actuarial and financial planning related to the private pension funds; Government Decree 172 regulating the central registration by pension funds and the obligations of funds and employers on data provision; Act LXXX

		Act No. CXCI of 2011 on the benefits of persons with changed working capacity).	regulating coverage and entitlements under the publicly managed social security system; Act LXXXII regulation the institutional framework of mandatory private pension schemes), 2000 (Government Decree 217 establishing specific requirements concerning annual reporting of the Guarantee Fund; Government Decree 222 establishing specific requirements concerning annual reporting of pension funds) **2001** (Government Decree 282 on the rules of economic activities on behalf of pension funds and asset management), **2003** (Act LX on the regulation of insurance institutions), **2007** (Act CXXXV on the Financial Supervisory Authority), **2010** (Act CLIV on the transfer from mandatory pension funds to clear social security system), **2011** (Act CLIV on establishing two-pillar pension system)
Iceland	1909	**1980** (Old Age Act)**, 1992** (Disability Act No. 59 of June), **1997** (Pension Rights Insurance and Pension Funds Act No. 129 of 23 December), **2007** (Social Security Act No. 100 of 11 May; Social Assistance Act No. 99 of 11 May)	**1991** (Act No. 27 on the Annual Accounts and Audit of Pension Funds), **1997** (Act No. 129 on Pension Rights Insurance and the Operation of Pension Funds
Ireland	1908	**2005** (Social Welfare Consolidation Act), **2011** (The Social Welfare and Pensions Act)	**1984** (Protection of Employees' Act making provisions for the payment of unpaid contributions), **1990** (Pensions Act containing provisions on the proper administration of pension plans and protection of pension rights), **1996** (Pensions Act adding provisions for compulsory and voluntary reporting to Pensions Board), **1997** (Taxes Consolidation Act regulating tax treatment of complementary occupational pension plans), 2001 (Protection of Employees Act providing equal treatment for part-time workers), **2002** (Pensions Act introducing a framework for Personal Retirement Savings Account), **2003** (Protection of Employees Act providing **equal** treatment for fixed-**term** workers), 2004 (Social Welfare Act), 2005 (Social Welfare and Pensions Act), **2006** (Social Welfare Law Reform), **2007** (Social Welfare and Pensions Act), **2008** (Social Welfare and Pensions Act), **2009** (Social Welfare and Pensions Act), **2010** (Civil Partnership and Certain Rights and Obligations of Cohabitants Act), **2012** (Social Welfare and Pensions Act).
Italy	1919	**1981** (Law No. 155), **1982** (Law No. 297), **1983** (Law No. 638), **1984** (Law No. 222), **1985** (Law No. 140), **1989** (Law No.88), **1992** (Decree-Law No. 503), **1995** (Law No. 335 on pension reform), **1997** (Law No. 449), **1999** (Law No. 448), **2000** (Law No. 388), **2001** (Law No. 448), **2002** (Law No. 289), 2003 (Decree-Law No. 276), **2007** (Decree-Law 247), **2008** (Law No. 133), **2009** (Law No. 2; Law No. 102), **2010** (Law No. 122; Law No. 220); **2011** (Law No. 111; Law No. 148; Law No. 214), **2012** (Law No. 228), 2013 (Law No. 98; Law No. 124; Law No. 125), **2013** (Law No. 147)	**1993** (Legislative Decree No. 124 regulating the establishment and operation of new pension funds), **1995** (Law No. 335 introducing changes regarding the governance, custody of assets and tax treatment of pension funds), **1996** (Decree of the Ministry of the Treasury No. 703 introducing investment rules and conflict of interest rules for pension funds), **2000** (Legislative Decree No. 47 reforming the tax treatment of private pensions and introducing personal pension plans realized through life insurance contracts), **2004** (Law No. 243 introducing several changes in the public pension system and defining the principles to reform the private pension system), **2005** (Legislative Decree No. 252 providing that private employees employed for the first time

			in the working life in the private sector have to choose whether to transfer their annual severance provision in a pension plan or to keep it in their company), **2006** (2007 Budget Law No. 296 providing that annual severance pay provision will remain in the firm if the employee does not choose to transfer the pay provision, if the firm has fewer than 50 workers, or the pay will go to the National Social Security Institute if the firm has 50 or more workers), **2007** (Legislative Decree No. 28 implementing various retirement provisions; Decree No. 62 requiring the compliance of pre-existing pension funds with Legislative Decree No. 252 of 2005).
Japan	1941	Pre-1970 Pension Legislation based on 1954 Employees' Pension Insurance Act No. 115 and 1959 National Pension Act No. 141.	**2001** (Defined Contribution Pensions Act introducing the possibility to establish defined contribution plans and providing for the establishment of occupational and personal defined contribution plans; Defined Benefit Occupational Pensions Act providing for the establishment of two new types of plans, namely fund-type and contract-type defined benefit plans)
Korea	1973	**1986** (National Pensions Act No. 3902), **2007** (Basic Old-Age Pension Act No. 8385).	**1977** (Introduction of employee pension insurance), **1999** (Introduction of retirement insurance), **2000** (Introduction of retirement trust), **2005** (Employee Retirement Benefit Security Act introducing occupational pension plans) **2012** (Amended Employee Retirement Benefit Security Act expanding the application scope of Individual Retirement Pension plans, introducing penalty interest on unpaid employer contributions and strengthened the government's supervision of pension service provider; Amended Regulations on Supervision of Retirement Pension Plan improving the regulation of asset management and strengthened disclosures of pension service providers)
Luxembourg	1911	**1987** (Law of 27 July on the unified pension insurance scheme), **1989** (Law of 22 December on pension scheme coordination), **1998** (Law of 3 August on special schemes), **2000** (Law of 28 July on pension scheme coordination), **2012** (Law of 21 December on pension scheme reform)	**1991** (Insurance Sector Act providing for authorization and supervision of insurance companies), **1999** (Complementary Pensions Act authorizing three types of complementary occupation pension plans and determining tax treatment of contributions, investment income and benefits) **2000** (Regulations providing for the establishment of pension funds other than pension savings companies with variable capital and pension savings associations, and imposing asset management restrictions), **2005** (Act on Pension Savings Companies with Variable Capital and Pension Savings Associations).
Mexico	1943	**1973** (Social Security Law of 22 February), **1995** (Individual Accounts Law of 19 December), **2004** (General Law on Social Development of 20 January)	1996 (Rules of the Retirement Savings System Law), 1999 (Law for the Protection and Defence of Users of Financial Services), 2007 (Law of the Institute for Security and Social Service for State Workers setting the mandatory pension system for federal employees and providing parametric reforms to the old system to regulate the provision of defined benefit pensions from the old system.
Netherlands	1901	Pre-1970 Old-Age legislation based on 1957 National Old-Age Pensions Act and 1959 National Survivor Benefits Act. Post-	Pre-1970 voluntary pension reforms based on 1964 Wage Tax Act holding the tax criteria for the contributions by employees and

		1970 legislation based on **1998** Disablement Assistance Act for Handicapped Young Persons, **2009** Supplementary Income Support for Elderly People and **2011** Top-Up for Senior Taxpayers Act	employers. Post-1970 legilsation based on **2005** Mandatory Pensions for Professions Act (*Wet verplichte beropespensioenregeling*) and **2007** Pensions Act.
New Zealand	1898	**2001** (New Zealand Superannuation and Retirement Income, Public Act No. 84)	**1978** (*Securities Act* governing the promoting, issuing and selling of securities to the public), **1989** (*Superannuation Schemes Act* providing for the registration of both occupation and public superannuation schemes aimed at protecting the rights of scheme members and requiring actuarial examinations for defined benefit schemes), **1993** (*Human Rights Act* defining exemptions for superannuation schemes in respect of age and gender if actuarially justified; Financial Reporting Act providing a framework for mandatory accounting standards for superannuation schemes), **2006** (*KiwiSaver Act* establishing a scheme to facilitate individuals' savings, principally through the workplace and providing superannuation treatment), **2007** (*Income Tax Act* regulating tax treatment of contributions, investment income and benefits).
Norway	1936	**1997** (Nation Insurance Act No. 19 of 28 February), **2011** (Notional Defined Contribution Universal and Social Insurance System)	**1988** (*Act on Insurance Activity* regulating the authorization and operation of life insurance companies with certain paragraphs applicable to pension funds), **2000** (*Act on Defined Contribution Occupational Pensions – Lov om innskuddspensjon* regulating defined contribution savings plans and containing minimum rules concerning coverage, qualifying conditions, vesting and protection of rights; *Company Pension Scheme Act – Lov om foretakspensjon*, reglating defined benefit and defined contribution insurance plans).
Poland	1927	**1990** (Law of 20 December), **1997** (Law of 28 August), **1998** (Law of 13 October; Law of 17 December), **2003** (Law of 27 June), **2004** (Act No. 1205 of 20 April), **2008** (Law of 21 November)	**1998** (Act on Pensions from the Social Insurance Fund regulating the calculation of pensions under the publicly managed notional defined contribution schemes and the administration of notional accounts; Act on the Social Insurance System reforming the social security pension system to provide mandatory private pension schemes), **1999** (Act on Organization and Operation of Pension Funds requiring open pension funds to be authorized and managed by a pension fund society), **2003** (Amendment to the Act on Organization and Operation of Pension Funds modifying several aspects of the mandatory private pension scheme), **2011** (Amendment to the Act on organization and Operation of Pension Funds reducing contribution to open pension funds from 7.3% to 3.5%, introducing a ban on canvassing and increasing investment limit in equities, and introducing new tax treatment for voluntary savings).
Portugal	1935	**1980** (Decree-Law No. 160 on non-contributory scheme; Decree-Law No.464 on social pension), **1990** (Decree-Law No. 322 on survivor pension), **1994** (Regulative Decree No. 1 on old-age protection), **2007** (Decree-Law No. 187 on the general scheme; Law No.4 on social	**1990** (*Decree-Law 322* defining and regulating protection in case of death of the beneficiaries of general social security regime), **1997** (*Decree-Law 307* imposing equal treatment of men and women under occupational pension plans), **1998** (*Decree-Law 94-B* governing the establishment and

		security system), **2009** (Decree-Law No. 90 on invalidity in case of uncertain diseases, Law No. 110 code of contributory schemes of the insurance system of social security), **2010** (Law No. 55-A on contributory schemes), 2011 (Regulative Decree No. 1-A on contributory schemes).	supervision of insurance companies), **1999** (*Decree-Law 428* regulating the safeguarding of rights under occupational pension plans), 2001 (*Decree-Law 289* defining the role and powers of the ISP), **2002** (*Decree-Law 195* amending article 9 of ISP Charter; *ISP Regulation 21* defining requirements for the diversification of pension fund assets), **2006** (*Decree-Law 12* introducing a general revision of the legal regime applicable to pension funds), **2007** (*Law 4* defining general principles for occupational pension plans; *Decree-Law 180*; *Decree-Law 187*; *ISP Regulation 7; ISP Regulation 9; Decree-Law 357-A* establishing the conduct of business rules related to individual adhesions to open pension funds*; CMVM Regulation 8* defining the rules on marketing of individual adhesions to open pension funds), **2008** (*CMVM** Regulation 1* on the information and advertising of complex financial products) **2009** (*ISP Regulation 8* establishing the principles and rules on the risk management), **2010** (*ISP Regulation 3* on the principles of advertising; *ISP Regulation 7* on the financial reporting of pension funds; ISP Regulation 12 on the funding of health benefits plan through pension funds); **2011** (*ISP* Circular 1 – Technical Guideline* on the operational principles of pension fund risk management)
Slovakia	1906	**2003** (*Act on Social Insurance* No. 461 of 30 October; *Act on Employment Services* No. 5 of 4 December), **2004** (*Act on Old-Age Pension Saving* No. 43 of 20 January)	**2004** (*Act No. 650* on supplementary pension savings transforming the complementary pension insurance scheme into the supplementary pension savings scheme and regulating the establishment of supplementary pension plans).
Slovenia	1922	**1991 (***Pension Insurance Act*)**, 2012** (*Pension and Invalidity Insurance Act* of 4 December)	**2004** (Insurance Act regulating the establishment, operation, and supervision of insurance companies), **2006** (Banking Act regulation the establishment, operation, and supervision of banks), **2011** (Investment Trusts and Management Companies providing conditions under which investment funds and management companies are established), **2013** (Pension and Disability Insurance Act regulating the establishment, operation and supervision of the supplementary insurance scheme, complementing the basic public social insurance scheme)
Spain	1919	**1991** (*Royal Legal Decree No. 357* on social assistance), **1994** (*Royal Legal Decree No.1 of 20 June* on social security), **2009** (Order Pre 3113 on social assistance) and **2011** Update (on the adaptation of the social security system)	**1999** (*Royal Decree* on the implementation of employers' pension agreements with employees and beneficiaries), **2002** (*Act 1* consolidating the Pension Plan and Pension Funds Law of 1987 and all its modifications, regulating the establishment of pension plans, funds and management entities), **2004** (*Royal Decree 304* on the approval of pension plans and funds regulation), **2006** (*Act 11* regulating cross-border activity of pension plans and funds), **2007** (*Royal Decree 1684 of 14 December*; *Royal Decree 439 of 30 March*), **2009** (*Royal Decree 1299*), 2011 (*Act 2 of 4 March*).
Sweden	1913	**1998** (*Law No. 702* of 11 June governing the guarantee pension; Law No. 674 of 11 June governing the income-based old-age	**1972** (*Mutual Benefit Societies Act* regulating the establishment, licensing and operation of mutual benefit societies, in particular those

		pension), **2000** (*Law No. 461* of 8 June governing survivor pensions and surviving children's allowance), **2008** (*Law No. 480* on sickness benefits), **2010** (*Social Insurance Code*).	providing pension plans), **1982** (*Insurance Business Act* regulating the establishment, licensing and operation of insurance companies), **1990** (*Pension Assets Yield Tax Act* providing for tax to be payable on the average long-term yield on pension fund assets), **1998** (*Act on Foreign Insurance Business in Sweden* regulating the establishment, licensing and operation of insurers), **1999** *(Income Tax Act, Chapter 28* on employers' pension costs and Chapter 58 on pension insurance).
Switzerland	1946	**2000** (*Federal Law of 6 October* on social assistance)	**1982** (*Federal Law on Occupational Benefit Plans* concerning old age, survivors, and invalidity, defining the minimum requirements that occupational pension plans must fulfill and providing members with a minimum of protection and requiring pension institutions to provide minimum benefits established by law, and authorizing the provision of more generous benefits), **1993** (*Federal Law on the Encouragement of Home Ownership* through Occupational Benefit Plans allowing plan members to use their rights in order to finance the purchase of a principal residence for their own use; *Federal Law on Vested Benefits* in Occupational Benefit Plans aiming at avoiding gaps in insurance cover by ensuring the continuation of coverage upon transfer from one pension institution to another).
Turkey	1949	**1983** (*Agricultural Employee Social Insurance Law No. 2925*), **2006** (*Social Security Institution Law No. 5502 of 20 May*; *Social Security and General Health Insurance Law No. 5510 of 31 May*), **2008** (*Regulations of August 2008* concerning the proceedings on Social Security)	**2001** (*The Law on Amendment to Some Tax Law*, regulating the tax aspect of the pension system, providing tax advantages for the contributions paid by employers and tax-payers; *The Individual Pension Savings and Investment Law No. 4632* setting legal and operational framework of the individual pension system and regulating the establishment and licensing of the pension companies), **2007** (*Insurance Law* introducing changes to the *2001 Individual Pension Savings and Investment Law*), **2012** (*Law on the Amendment to the Individual Pension Savings and Investment Law*)
United Kingdom	1908	**1992** (Social Security Contributions and Benefits Act, Chapter 4), **1995** (Pensions Act, Chapter 26), **1999** (Welfare Reform and Pensions Act, Chapter 30), **2000** (Child Support, Pensions, and Social Security, Chapter 19), **2002** (State Pension Credit Act, Chapter 16), **2004** (Pensions Act, Chapter 35), **2007** (Pensions Act, Chapter 22), **2009** (Welfare Reform Act, Chapter 24), **2011** (Pensions Act, Chapter 19), **2013** (Welfare Benefits Up-Rating Act, Chapter 16).	**1975** (*Social Security Pensions Act*, introducing state earnings-related pension scheme), **1986** (*Finance Act* introducing limits on the surplus which may be held tax-free within approved pension schemes and encouraging scheme sponsors to increase benefits or reduce contribution to restrict the build-up of surplus), **1988** (*Income and Corporation Taxes Act* defining the rules regarding the tax qualification of company pension plans), **1989** (*Finance Act* introducing limits on the amount of earnings on which benefits and contributions of subsequent members of tax-approved plans may be based), **1990** (*Social Security Act* establishing pensions ombudsman), **1992** (*Social Security Contributions and Benefits Act* consolidating earlier law setting out benefits in state earnings-related pension scheme to be given up by members of contracted-out occupational and personal pension plans), **1993** (*Pension Schemes Act*

			consolidating earlier law on occupational and personal pension plans), **1995** (*Pensions Act* establishing the Occupational Pensions Regulatory Authority and the Pensions Compensation Board setting requirements for certification of contracted-out plans), **1997** *(Finance Act* removing the right of pension funds to recover Advanced Corporation Tax in respect of dividends on company shares in which they are invested), **1999** (*Welfare Reform and Pensions Act* defining stakeholder pensions and requiring that employers must provide access to them, specifying rules for pensions sharing on divorce), **2000** (*Child Support, Pensions, and Social Security Act* introducing State Second Pension [S2P], to replace the earnings-related scheme, altering contracting-out rules, and winding up occupational pension plans), **2004** (*Finance Act* changing the regime for tax approval of pension schemes to remove restrictions on benefit design of defined-benefit schemes and providing tax privileges more flexibly on all pension schemes benefits up to the lifetime allowance with an upper limit also on contributions that can be made on a tax-efficient basis in each fiscal year; Pensions Act establishing Pensions Regulator to replace the Occupational Pensions Regulatory Authority with extensive new powers to monitor and regulate trust-based pension arrangements), **2005** (*Finance Act* further amending the new tax approval regime introduced by 2004 Finance Act), **2007** (*Pensions Act* establishing Personal Accounts Delivery Authority in initial start-up form and abolishing contracting-out of S2P for defined-contribution pension scheme, and increasing the level of payment from the Financial Assistance Scheme), **2008** (*Pensions Act* further developing requirements for personal accounts, placing responsibilities on employers to enroll employees automatically in a personal account arrangement, or in a qualifying occupational pension scheme), **2011** (*Pensions Act* amending legislation around the timing of the increase in State Pension age to 66, automatic enrolment into workplace pensions such as earning threshold for eligibility, timing, simplification and waiting periods, and the use of consumer price index for the general measure of inflation for up-rating of social security benefits, state pensions and public sector pensions).
United States	1935	**1935** (*Social Security Act*, Public Law 74-271).	**1974** (*Employee Retirement Income Security Act* [ERISA] providing for protection of rights through regulation of participation, vesting, funding, fiduciary standards and reporting, and through the establishment of the Pension Benefit Guarantee Corporation [PBGC] which pays benefits in the case of financial failure of defined-benefit plans), **1978** (*Revenue Act* establishing 401k plans), 1984 (Retirement Equity Act amending ERISA and requiring that when a plan provides pensions at retirement, survivorship pensions must be provided unless the spouse waives the right in

			writing to survivorship pension), **1986** (*Tax Reform Act* establishing faster minimum vesting rules, limiting the effect of integration with the social security scheme, expanding coverage of non-highly compensated employees and imposing an excise tax on excess plan assets that revert to an employer upon winding up of a pension plan), **1994** (*Uruguay Round Tax Agreements Act* requiring greater contributions to under-funded defined-benefit plans and limiting the range of interest rate and mortality assumptions used to establish funding levels), **2001** (*Economic Growth and Tax Relief Reconciliation Act* [EGTRRA] amending ERISA, increasing contribution and benefit limits, improving transferability between different types of defined-contribution plans and regulating faster vesting for employer-matching contributions to 401k plans), **2006** (*Pension Protection Act* [PPA] amending ERISA, requiring more rapid funding of under-funded defined-benefit plans, facilitating automatic enrolment and investment advice in 401k plans and clarifying the legal status of cash balance plans).
Uruguay	1829 to 1954	**1995** (*Law No. 16713* of 9 March on social insurance and individual accounts), **2009** (*Law No. 18325* on flexibility in retirement benefits)	**1995** (*Decree No. 359* regulating the provision of survivorship benefits; *Law No. 16713* reforming the social security system, creating a mixed system of old-age protection consisting of publicly-managed social security scheme and a mandatory private pension scheme, and regulating the establishment and operation of Pension Fund Administrators [*Administradoras de Fondos de Ahorro Previsional – AFAP*].