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PENSION SYSTEM DESIGN

Cultural determinants of civil-service pension scheme separation from the general scheme

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PREFACE AND ACKNOWLEDGEMENTS

ABSTRACT

Separate pension schemes for civil servants is present in roughly half of the countries worldwide, while these schemes are often more costly than the social security pension schemes covering private sector beneficiaries, due to its generous character.

Economic and demographic recent trends have brought along pressures for pension systems' reforms. While implementing these reforms, countries can learn from international experiences. It is relevant for these countries to consider contextual boundaries, such as economic, demographic and fiscal, prior to selecting the elements applied in pension reforms internationally.

Besides contextual boundaries, national culture elements which may impose restrictions to the transferability of pension systems' elements across nations must be addressed. This Master Thesis searches for empirical evidence on the influence of national culture on pension system design, in particular on the level of integration of civil-service schemes to the general social security scheme.

Two factors based on the literature, namely trade-union density, and totalitarian regime, and two of Hofstede's cultural dimensions, namely Power Distance, and Long-Term Orientation, were used in a non-linear regression framework. Evidence was found that authoritarian regimes have a higher odd relative to non-totalitarian regimes to have separate pension schemes to the civil-service.

Keywords: pensions, civil servants, special retirement, national culture, logistic regression

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CHAPTER 1 Introduction

Fiscal unsustainability and projected further population ageing have markedly changed the outlook for pension systems worldwide over time. This environment draws public debate attention to the special pension schemes that persisted after national schemes were established. Arguments against this dual pension system are based on opportunities for economies of scale, mobility and portability, equity and transparency (Whitehouse, 2008).

Roughly fifty per cent of countries in the world have separate pension schemes for the civil-service (Palacios & Whitehouse, 2006). Despite variations among countries, there is a general upward trend in spending on civil-service pension (Palacios & Whitehouse, 2006).

Furthermore, macro developments in demographics worldwide (i.e. higher average life expectancy, mortality and fertility rates) also put in jeopardy the financial sustainability of generous civil-service pension schemes. The research topic of this Master Thesis is in the areas of pension system design and culture. In particular this research examines the potential link between national culture and arrangements for civil-service retirement.

Pensions operate in an international environment; therefore, best practices for the provision of pensions could be shared among nations. However, national culture (i.e. collective mental models, comprising practices and values, as defined in Hofstede et al., 2010) might not always be supportive of specific pension system elements. Hence, given the peculiarities and boundaries dictated by national cultures, it is of added value for countries considering options for pension reform to understand the cross-country transferability of pension system characteristics.

National culture is expected to be a significant determinant in how civil-service pension schemes are organized, among others (i.e. demographics, economic, region and political orientation).

Chapter 2 topic focuses on the civil-service pension provision, where it is crucial to analyse the condition of the state as an employer. Origin and current issues in the provision of civil-service pensions are also elaborated in chapter 2. Moreover, this chapter shows empirical evidence of civil-service pension schemes' generosity. It further draws a cross country analysis the degree of integration of teh civil-service pension scheme to the general social scheme. Chapter 3 deals with the culture literature, first defining culture, and then elaborating on national cultures and the Hofstede's dimensions. Further in chapter 3, the impact of national culture on several business and economics related topics is examined. This chapter also elaborates the theoretical hypothesis on how culture impacts the degree of integration of the civil-service pension scheme, which is empirically tested in chapter 4. Chapter 5 presents the concluding remarks.

CHAPTER 2 Civil-service pension provision

Civil servants were one of the first groups of workers to be covered by government-sponsored pension schemes, and civil servants were not migrated to the new national pension schemes when pension coverage expanded also to the private sector. Among the reasons for non-migration was the fact that the new national arrangements did not fulfil the demands from government's human resource management objectives, and also the fact that civil servants had no incentive to shift to this less generous national pension schemes (Pallares-Miralles, Romero and Whitehouse, 2012).

Currently, roughly half of the countries for which data is available have separate pension schemes for civil servants. The trend, however, is of further integration in pension arrangements.

In recent years, the conditions and parameters for the provision of retirement pensions to civil-servants have increasingly become a controversial topic in many countries. The public debate focus has been directed towards the generous character of civil-service pension schemes as compared to general social insurance pension schemes.

2.1 The state as an employer

The provision of public pensions has at least two distinct general objectives. First, governments' may provide social security systems to alleviate poorness among elderly citizens. Second, governments also provide old age pension due to its role as an employer.

The focus of this thesis is in the second type of public pension provision aforementioned. As a result of being an employer, governments' must implement human resource management policies in an attempt to attract the best employees available in the labour market. The package to attract the best comprises also an offer for retirement income, or a pension plan.

This sub-section is relevant to the civil-service pension provision topic since the role of the state as an employer directly impacts the substantiality of the expenditures with pension provision to civil servants.

The state has a fundamental role in the provision of certain goods and services to the public. These goods and services may be not economically attractive to the private sector due to capital investment barriers or to the impossibility to internalize profits. Furthermore, states often classify the provision of certain goods and services as essential to satisfy the collective needs (i.e. provision of law and order through police force). These core competencies differ among nations. For example, provision of education is considered a state responsibility in some countries, while in others the state delegates this function and only takes care of a national curriculum and examinations to secure a minimum quality standard. This rationale can be extended to the provision of many other goods and services, such as child and health care.

In order to illustrate how nations address differently the provision of certain goods and services (i.e. education and health care) it is interesting to compare some countries. In Sweden, childcare and elderly care are provided by the state and funded through general taxation, while in other countries

these activities are provided by the private sector or in informal settings (i.e. through social networks). In the United Kingdom health care is provided by the state via the National Health Service, also financed via general taxation, while in other countries the state is limited to a regulatory role and the actual provision of health care services lies within the private sector. Different from the United Kingdom, Americans rely on the private sector for the provision and funding of health care; the latter as part of employment package. In the United States, the role of the state is limited to caring for the low income (i.e. Medicaid) and elderly (Medicare) population, Eich (2009).

Furthermore, besides varying among countries, the role of the state can also vary over time. In the 1980's, a trend initiated in developed countries whereby the provision of many public goods and services were privatized. Particularly, this was the case in industries requiring substantial investments in infrastructure, such as utilities (i.e. water, electricity and telecommunications), due to technological progress and ideological changes (i.e. ideological commitment to neo-conservative agendas which demanded public deficit reduction, individualism, and shrinking government involvement) the role of the state shifted towards merely regulatory and provision of those services and goods which retained a natural monopoly character (i.e. Network Rail in United Kingdom), Eich (2009).

The variations in the role of the state in the provision of goods and services affect the number of public employees across nations and over time. In addition, the military ambitions of a nation will also determine the public wage bill.

2.2 Origin and current issues in the provision of civil-service pensions

First it is important to make clear that civil-service pensions are occupational in nature, given the role of the state as an employer, despite being financed out of governments' budgets. These pensions are related with a particular status demarcation, instead of originating from legislative rights (Andersen, E., 1990).

Historically, working for the state has always represented a special status in the society, as "military personnel or civil servants represented the will of the Crown" (Eich, 2009).Therefore, certain privileges always followed along, such as job for life conditions, flexible and reduced working hours, and generous pensions.

For instance, the first group to receive pensions were soldiers, whereby these comprised disability payments rather than retirement. Eventually, this group of pensioners was extended to include also civil servants. The reasons for the state to extend eligibility to civil servants included (Eich, 2009):

1. "Secure independence of public servants (minimise corruption and bribery);
2. Make a career in public service attractive (attract and retain skilled staff);
3. Shift the cost of remunerating public servants into the future; and
4. Retire older civil servants in a politically and socially acceptable way."

In addition, it is likely that pensions were also offered in order to gain the goodwill of public staff and enhance the chances of successful policies' implementation (Eich, 2009).

While in the past individuals decided early on in their careers whether to follow public or private sector careers, this distinction is less clear nowadays, since, in general, recruitment across these two sectors have become more porous. This trend can be argued to have contributed to the state becoming less of a special employer in many countries.

When examining the peculiar characteristics of civil-service pension provision, the polemic starts. These schemes are perceived as being too generous compared to the general social insurance scheme, leading to pressures in national budgets. Since budget constraints became an evident issue for many countries after the recent financial crisis, there is a trend towards the harmonization of pension policies for private and public sector workers. Such harmonization is expected to relieve the fiscal burden imposed by the generosity of civil-service pension schemes, while enhancing equity, and financial sustainability of pension systems. Furthermore, a harmonized system enables labour mobility and flexibility by allowing the portability of pension funds and conditions between the special schemes and the general scheme; hence, avoiding sub-optimal human resource allocation between public and private sectors.

In addition to the generosity issue, these special pension schemes are exposed to particular risks related to the role of the state as regulator and sponsor. Eventually, taxpayers are called to share the responsibilities of the sponsor through tax increases, issuance of public debt, or reduction in public expenditures, from which resources are made available to finance pension liabilities (Pinheiro, 2004).

Moreover, maintenance of a dual system increases the administrative burden, since operating multiple pension institutions reduces economies of scale and scope. All these facts contrast with the objectives which might be pursued by governments when offering pensions to its employees, namely efficiency, equity, and sustainability.

Efficiency regards the allocation of available resources in the economy in such a way to optimize productive capacity. Since in practice most societies try to reach economic efficiency in balance with other desirable objectives, there is a risk that the provision of generous civil-service pensions could cause distortions in labour markets. Furthermore, the ability to shift labour costs into the future can arguably create a lack of productivity in the public sector by reducing the pressure for achieving competitive and efficient ways of operating (Eich, 2009).

Moreover, the government's human resource policy regarding pension provision should not cause adverse effects on the mobility of employees between private and public sectors. Therefore, the segregation of conditions between these sectors creates a barrier for the portability of pension funds among the different pension plans provided by public and private employers, which leads to the lack of employee permeability among these sectors, and ultimately contributes to inflexible labour markets.

As stated in Eich (2009), another desirable objective of a pension system in any society is that it should be fair and perceived as such (i.e. equity objective) at the intergenerational (i.e. between generations) and intra-generational (i.e. within the same generation) levels. However, the matter of comparing pension benefits between public and private sectors may become more complex in case the

income differentials are present between these sectors, since the "pension promise ought to be seen in the context of the overall pay package offered to the employee" (Eich, 2009). Hence, fairness of pension arrangements will ultimately also depend on career and earnings opportunities in these two sectors in relation to each other. However, Palacios and Whitehouse (2006) refers in the literature to statistical comparisons across public and private sectors' remunerations, and found that there is no need for additional benefits (i.e. generous pension schemes) to address disparities in remuneration among these sectors. Instead, evidence in the literature shows that in developing countries, comparable employees earn more in the public sector than their counterparts in the private sector.

When addressing intergenerational equity, pensions should account for the fact that, in general, life expectancy is increasing, and individuals should be expected to spend at least a fraction of their life expectancy extension at work, instead of only at retirement. In an equitable pension system, the increase in life expectancy should affect equally the retirement age of civil-service employees and any other category of employees in order to secure intra-generational equity.

The third desirable characteristic of pension systems is sustainability over the longer term, both in financial and social terms. The perception of intra- and inter-generational equity by the individuals in a society will determine the social sustainability of a pension system. The adequacy (or perceived adequacy) depends on what the society aims with its pension system. While an inadequate system creates pressures for reforms, assessing sustainability of a pension system requires also an analysis on its constraints (i.e. financial costs must be taken into account). There is clearly a trade-off between aims and constraints, the latter creating pressure for cuts in pension generosity in costly systems (Grech, 2010).

In respect to financial sustainability, governments need to ensure control of public accounts. Ultimately, the public debt burden should not reach a level where servicing costs would require higher taxes which could jeopardize the governments' ability to promote discretionary fiscal policies. In most countries it is not common that public finances and macroeconomic developments depend solely on a single public spending component such as the pension scheme for public workers. However, the macro global trend of population ageing has been identified as a risk factor to governments' primary balances (i.e. public revenues minus spending), since it increases the economic dependency ratio (i.e. people not employed relative to those employed), which further puts pressure on fiscal balance through lower tax revenues and higher pension spending.

Moreover, civil-service pension schemes have different demography from the overall population. Past recruitment policy, whereby civil services expanded rapidly in the 1960s and 1970's, and slowed or even stopped in the 1980's and 1990's, will lead to ageing affecting civil-service pension schemes earlier than the general social security scheme (Whitehouse, 2008). The earlier maturing of the civil-service pension schemes (i.e. increase in proportion of pensioners to workers) further imposes financial challenges to the sustainability of separate civil-service schemes.

A strategy was set forth during the Stockholm European Summit in 2001 to address the challenges of an ageing population. It aimed to tackle this issue in three ways: increasing employment rates, reducing the public debt burden and establishing social security systems. Increasing the employment rate of older employees relieves fiscal pressure by directly addressing the projected increase in the economic dependency ratio (Eich, 2009). Furthermore, keeping workers employed for longer alleviates fiscal pressure by increasing economic production and tax revenues, while also generating lower pension liabilities since the retirement period is shortened (Eich, 2009).

In order to assess the sustainability of public sector pensions, economists most often express public sector pension spending as a percentage of future GDP. However, it is also possible to use different measures, such as the present discounted value of unfunded pension liabilities accrued today (i.e. net present value of futures liabilities minus futures revenues). International Accounting Standards (IAS) does not require these public sector pensions' liabilities to be included in the net public debt equation. Despite the many required assumptions used in the calculation of present discounted value of unfunded pension liabilities (i.e. discount rate to be used), including these liabilities in governments' national debt would provide a more comprehensive view on governments' obligations, and reflect a more realistic view on potential fiscal gaps (Eich, 2009).

2.3 Empirical evidence of civil-service pension schemes' generosity

Palacios and Whitehouse (2006) compares the parameters of civil-service pension schemes and general social security pension schemes across 158 countries. The parameters included in the analysis which are relevant for the analysis here are eligibility criteria, and defined-benefit formula.

The eligibility criteria address pension age, and length of service requirements. The mean normal pension age for men was found to be 58.6 years. Civil-service pension schemes are more advantageous in regard of pension age, since normal retirement age is found to be the same or lower for civil servants in most countries. Moreover, evidence suggests that in developing countries civil servants have a higher life expectancy than the overall population, which further adds to a longer duration of the retirement life of civil servants compared with other beneficiaries of the general social security scheme.

Moreover, often eligibility is only tied to length of service (i.e. no retirement age condition), although this situation is decreasing. In an extremely generous case, in the Maldives, civil servants can accumulate a different public pension each time they fulfil the 20 years length of service condition (Palacios and Whitehouse, 2006).

Most of the countries in the sample operate in a lifetime employment condition. Furthermore, the condition of a maximum age for entry into the public sector will guarantee that typically the years of service, which is 21 years or less for roughly two thirds of the countries in the sample, is fulfilled once the retirement age is reached.

Civil-service pension schemes are in majority based on defined-benefit regimes, which comprise accrual and replacement rates in their calculation formulae. In OECD countries, maximum replacement rates for full-career worker are in the vast majority higher in the civil-service than in the general social security scheme. However, in these countries private employers offer occupational plans that close the gap in replacement rates relative to those applied in civil-service pension schemes.

Palacios and Whitehouse (2006) further found that civil-service pension schemes have more favourable indexation conditions than those applied in the general social security scheme, in particular in contexts where real wages are increasing; since in the latter, indexation is based on prices, while in the former the basis for indexation is the civil-service earnings.

However, the authors point to the fact that comparison on the effect of indexation conditions between the two types of pension schemes is complicated due to discretionary adjustments in both pension schemes. While ad-hoc adjustments in benefit levels tend to reflect the financial condition of each pension scheme, and in case of civil-servants it is dependent on the national budget situation.

In middle and low income countries (sample of 32 countries), Palacios and Whitehouse (2006) also found more advantageous conditions for civil-service pension schemes relative to the general social security scheme. Accrual rates were found to be 20% higher for civil servants than for private workers in the general social security scheme.

In conclusion, Palacios and Whitehouse (2006) found empirical evidence that civil-service pensions are more generous than the general social security schemes. This finding is supportive of the explanation provided by Pallares-Miralles, Romero and Whitehouse (2012) mentioned in the introduction of chapter 2 in this thesis, which refers to the lack of incentives for civil servants to shift to the less generous general social security schemes as one of the reasons for the legacy of separate civil-service pension schemes.

2.4 Pension system design: international comparison on the degree of integration of civil-service pension schemes

In order to compare pension systems across countries, the World Bank focus on three broad types of measures. The first, namely environment, addresses the contextual factors, such as demographic (i.e. ageing), labour markets, and fiscal. Next, the second set of measures addresses the pension system design parameters, which focus on the overall architecture of the system (i.e. pillars, and special schemes) and on the operating parameters of the system, which focus on the qualifying conditions (i.e. pension eligibility ages, and contribution history) and on contribution rates, defined-benefit/contribution schemes, and indexation. The third broad type of measures addresses performance, or the "ability to effectively deliver the promised benefits in an efficient and secure manner over multiple generations", which is captured by six key criteria: coverage, adequacy, financial sustainability, economic efficiency (i.e. minimize influence on individuals' behaviour, such

as in the labour market and savings), administrative efficiency and security of benefits given risks and uncertainties (Pallares-Miralles, Romero and Whitehouse, 2012).

The scope of this thesis is strict to one of the pension system design indicators within the overall pension system architecture. More specifically, this thesis is interested in identifying cultural factors which influence the pension system design, in particular which factors determine the degree of integration of the special pension scheme for civil-service into the general national pension scheme.

This sub-section provides an overview on pension system design worldwide, specifically in regard to the civil-service pension scheme (i.e. is the civil-service pension scheme special / separated, or integrated to the general social security scheme?).

Based on Palacios and Whitehouse (2006), Eich (2009) group the arrangements for civil-service pensions into three categories:

1. No significant distinction between civil-service and private sector pension provision in terms of contribution rates or funding arrangements, although administration of the funds may be separate. Since everyone participates in the social security pension scheme, this is the highest level of integration between private and civil-service pensions.

2. In addition to participation in the social security pension scheme, civil servants also participate in occupational pensions sponsored by the state; while in the private sector this additional occupational pension is not mandatory (i.e. quasi-mandatory).

3. Civil servants have a separate pension arrangement which is independent from the social security pension scheme, and are not required to contribute to the latter. This closed scheme for the civil servants follows different rules to those applicable to the social security pension scheme; hence, this category comprises the highest level of separation between private and civil-service schemes (i.e. dual system).

The first category is represented by the case of Finland, where the government determines the benefit structure and funding arrangements, which are equal to all employees. The government offers a statutory unfunded (i.e. Pay-as-You-Go) minimum pension, and a statutory earnings-related (i.e. defined-benefit) pension scheme. The latter has a decentralized administration, which means that the tasks of handling the contributions and payments of benefits of private sector employees are under the responsibility of private sector companies (i.e. insurance companies), while the public sector has its own administration. Further, the defined-benefit scheme is funded for one quarter of the liabilities, in order to secure for the risk of fluctuations in contributions due to the economic cycle. Another relevant characteristic of the Finnish pension system is that the government is the ultimate guarantor of the pension schemes' liabilities.

The Finnish pension system has a high degree of fairness, since pension benefits are calculated on a career-average earnings base, which guarantees that those employees changing jobs frequently are treated with same conditions as employees which do not switch employers. Further, fairness is also secured by the fact that arrangements are uniform across public and private sectors. All these features

also foster labour market flexibility, since the pensions system does not impose a financial disincentive for employees to dynamically switch among employers in pursue of the best fit.

Also in this first category, The Netherlands pension system consists of three pillars. The first pillar comprises a flat-rate pension for all residents above a certain age threshold (i.e. 65 years and older), and guarantees a certain percentage of the net national minimum wage. The second pillar comprises non-statutory supplementary occupational pensions, which are bounded by the same basic rules across private and public sectors, and are required to be fully funded. Despite being non-statutory in form, these second pillar schemes are best defined as quasi-mandatory since it covers more than 90% of employees. The third pillar consists of compulsory private savings for retirement.

In the second category, the United Kingdom offers the same basic state pensions to both public and private sectors. These pensions have the intention of avoiding poverty for men over the age of 65 and women over 60. Statutory earnings-related additional pension schemes are offered to supplement the basic scheme, but these supplementary schemes can be contracted-out (i.e. voluntary) to employees who have contracted alternative occupational or private pension schemes. However, these contracting out options have already started to be phased out. Further shifting towards a higher degree of fairness, harmonization in minimum retirement age among genders also started to be phased out as from 2010. Furthermore, these additional pension schemes are foreseen to be changed in the coming years from earnings-related to flat-rate, which further nurtures fairness in the pension system.

Public sector occupational pensions are generally of a defined-benefit nature, which takes into account length of service and final pay. These schemes are unfunded, and represent legally binding contracts between the employer (i.e. government) and the employee; hence, public sector pensions are non-discretionary, similar to debt interest payments (Eich, 2009). In the private sector, since the employer is required by law to fully fund the pension liabilities, the resulting risk of defined-benefit schemes have caused a shift towards defined-contribution pensions in the private sector. This shift most often came along with lower employer contributions, since there is no legal requirement on minimum employer contribution rate. These diverging developments can be partly explained by the higher degree of unionization in the public sector compared to the private sector.

In the United States, the pension system also falls in the second category. Federal employees are covered by a three-tier system. The first tier comprises a social security, which is the same for private sector employees, and is funded via employees contributing through payroll taxes. The second tier consists of an earnings-related defined-benefit pension, while the third tier is a defined-contribution savings plan funded by the federal employer, which is equivalent to the private sector's 401k schemes. On the state level, particular schemes based on years of service, age at retirement and earnings cover the pensions of civil servants. Both employees and employers contribute to the fund in order to balance contributions and payments over the long term.

Australia falls in the second category, and its pension system comprises three pillars. The first pillar is a means-tested old-age government pension, which is funded through general taxation. The

second pillar comprises a mandatory saving program, whereby the employer contributes 9% of earnings to individual tax-advantaged retirement plans, and the employee chooses how to invest, building up a defined-contribution pension. Public sector employees since 2005 are also offered a similar defined-contribution regime sponsored by the employer (Eich, 2009). Public employees hired prior to 2005 follow different rules, and their pension scheme is unfunded and of a defined-benefit nature. The third pillar is a voluntary scheme, which is only used by 20% of eligible employees, and comprises additional contributions to a superannuation fund.

Agnew (2013) states that "compared to other industrial nations, Australia has low public spending on old-age pensions. It also has high individual saving rates and rapidly growing retirement savings".

The third category is represented by Germany, where civil servants do not participate in the national social security pension system, but instead, benefit from a special status through a separate pension scheme. Labour conditions (i.e. salary, pensions, and working hours) for civil servants are determined by law, reflecting changing political and budgetary contexts, instead of following competitive labour market negotiations. As a result, the civil-service pension liabilities do not have the same legally-binding character as in the United Kingdom.

German civil servants do not contribute into the statutory social security pension scheme, but instead they accrue defined-benefit pensions, based on years of service, seniority and pay. This unfunded scheme is financed by government through general tax. Private employees are covered by the earnings-related statutory social security pension scheme and by occupational pensions.

Another country in the third category is France, where civil servants are members of a separate pension plan. The pension value depends on a number of criteria such as nature of job, age at retirement, marital status, years of service, and pay at retirement. Similar to Germany, the value of the future pension entitlement is not secured by a legal contract between employer and employee, but instead depends on future governments' policies.

As seen from above examples, in some countries the private sector employees benefit from similar pension arrangements as public sector employees, while in other countries the pension arrangements are distinct across these sectors. Furthermore, in some countries the public sector pension liability is deemed as non-discretionary (i.e. legally binding) spending, while in other countries it can be amended by law, depending on future political and budgetary contexts.

Pallares-Miralles, Romero and Whitehouse (2012) uses a similar criterion as Eich (2009), described just above, for classifying pension systems in regard to the degree of integration of civil-service pension schemes.

The authors find that while in roughly half of the countries in the world there are separate pension schemes for civil servants, in a few countries civil servants' schemes are the only or main scheme (i.e. Cambodia, Lebanon, West Bank and Gaza, Ethiopia, and Bhutan). Currently, more than 20 countries worldwide have partially integrated this type of special pension scheme with the national scheme (i.e. Bahrain, Brazil, Cape Verde, Djibouti, Iraq, Jordan, and Mexico). The trend of integration is

increasing, since there are many arguments for further integration, "particularly in smaller, and/or low income countries, and the goal in the long-term seems to be a single national system for reasons of equity, administrative efficiency, and labour-market flexibility"

While in most of the recently integrated countries only new civil servants were affected, in some countries an option was granted to all civil servants to choose between the old special scheme and the new integrated one.

Table 4 below summarizes the current level of integration of civil servants' schemes with the national scheme across countries per region of the world.

Table 1: Pension system design per region – National and civil-service schemes

Region	Number of countries	National scheme and civil servants scheme		
		Separated	Integrated	Partially Integrated
East Asia & the Pacific	28	9	7	2
Eastern Europe & Central Asia	30	1	29	0
Latin America & Caribean	37	3	22	5
Middle East & North Africa	20	7	8	3
South Asia	8	6	1	0
Sub-Saharan Africa	46	24	11	1
High-income OECD	24	10	11	2
World	193	60	89	13

Source: Pallares-Miralles, Romero and Whitehouse (2012)

In East Asia & Pacific, roughly half of the countries have separate schemes for civil servants (9 countries) and other special schemes (10 countries). While in Micronesia, and Singapore the schemes are partially integrated, Cambodia has only a mandatory pension scheme for civil servants and the military.

In Europe & Central Asia region, over the past two decades countries have been adjusting their pension systems to conform to the transition to market economies. All countries have integrated the schemes of civil servants, with the exception of Albania, Armenia, Belarus, Kazakhstan, and Kyrgyzstan. Most of these countries, however, have special schemes for other occupations (i.e. military, and police).

In Latin America & the Caribbean region most of the countries have integrated systems. In Latin America, structural reforms in the pension systems started in Chile in 1981, and spread to other countries in the region. A few countries are exceptions to this trend of creation of and unified pension system. Across the region, however, like in most of other regions in the world, the military is still not integrated to the national pension system.

In Middle East & North Africa eight countries have integrated schemes, and seven countries have still separated elements, while in two countries (i.e. Lebanon, and West Bank and Gaza) pension schemes only cover civil servants and the military. Jordan has made parametric changes and

importantly has integrated private sector and civil servant schemes. In countries like Morocco, and Tunisia there is still a high fragmentation of the pension systems.

South Asia pension systems' design was influenced by the close historical link with the United Kingdom. Civil servants are covered by a separate special scheme in all countries in the region, while in Bhutan it is the main scheme.

In Sub-Saharan Africa, after independence, civil-service pension schemes were established in most countries. Most countries have separate schemes for civil servants, while in a few countries (i.e. Ethiopia, and Malawi) the pension scheme for civil servants is the main or only scheme. However, a few countries have been contemplating or even already began implementation of integration laws.

In High Income OECD countries roughly half of the countries still have a separate pension scheme for civil servants, despite the tendency of integration of these schemes to the national scheme. Australia and the United Kingdom are gradually moving towards a unified national system.

Furthermore, as follows from sub-section 2.1, the relevance of public sector employment varies largely among countries as a reflection of how the provision of public goods and services is organized. There is also a wide range of arrangements for civil-service pensions, depending to a large extent on countries' history; hence, these arrangements are not necessarily easily replicable across countries.

Figure 1 below illustrates the proportion of civil-service pension spending as a percentage of government revenues, in the OECD (left) and developing countries. This ratio indicates the pressure on fiscal budget originated from civil-service pensions. Particularly in low-and middle-income countries, public expenditure with civil-service pension schemes often are larger than expenditures in national schemes, and crowds out important social programmes (Whitehouse, 2008).

Figure 1 Civil-service pension spending, % of government revenues
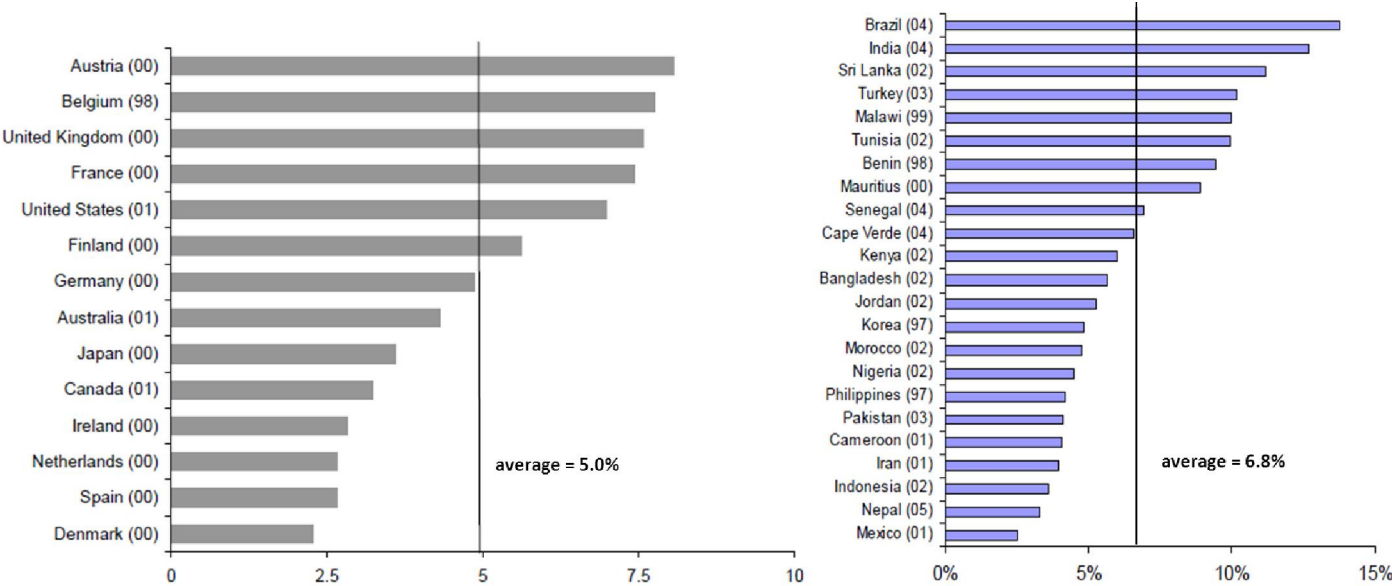
Source: Palacios and Whitehouse, 2006

Figure 1 further shows that Brazil is in the leading position of countries with higher civil-service pension spending as percentage of government revenues, which is a reflect of the imbalances in the Brazilian pension system, whereby the general social security pension scheme for private employees covers 24 million people at a cost of 6.8% of GDP, while public sector pensions accumulate a cost of 2.1% of GDP covering fewer than 3 million people (Najberg, S. & Ikeda, M., 2009). This huge public expenditure is pointed by analysts as one of the reasons preventing Brazil to achieve higher GDP growth rates.

When these countries are classified into groups (i.e. 0-5%, 5%-10%, and 10%-15%) according to the level of civil-service pension spending as a percentage of government revenues, it is possible to note some interesting trends. Figure 2 reflects this analysis (data details are available in Appendix A).

Figure 2 Proportion of Separated versus Integrated schemes per spend category
(Civil-service pension spending, % of government revenues)
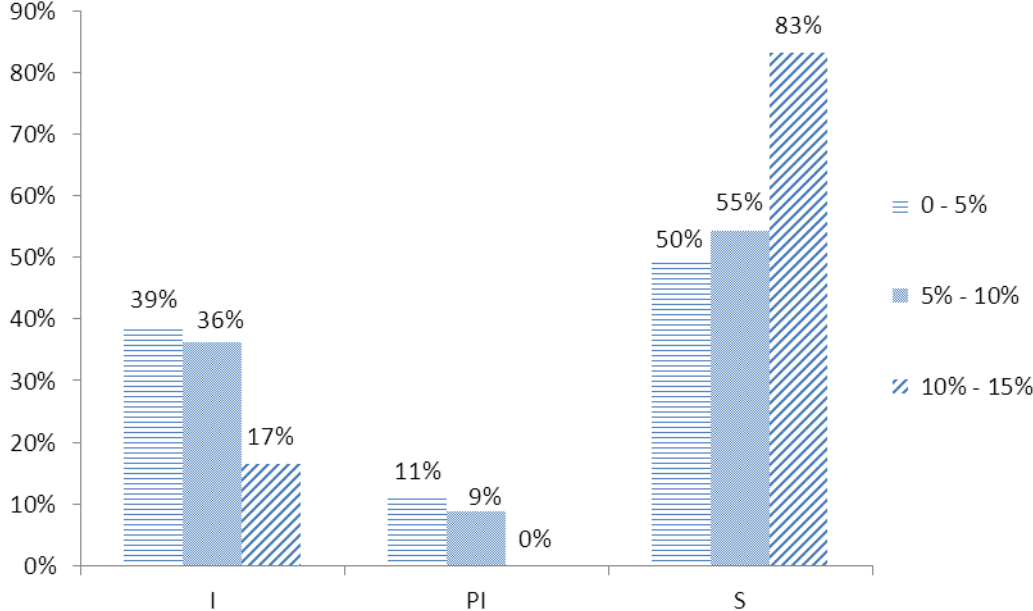
Source: Author's own calculations, based on data in Palacios and Whitehouse (2006).

There are 37 countries in original sample from Palacios and Whitehouse (2006), from which information on the pension system design is available for 35 countries. From these 35 countries, 20 have a separate pension scheme for the civil-service, while 12 countries have integrated schemes, and 3 have partially integrated schemes. The larger number of countries with separate schemes in the sample analysed explains the higher level in the bars of the separated group for all spend categories.

In the 0-5% spend category, 39% of countries have an integrated scheme, and 50% have a separate pension scheme. In the 5%-10% spend category, the proportion of integrated countries drop to 36%, while the proportion of separate countries increase to 55%. This trend is confirmed in the 10%-15% spend category, whereby the proportion of integrated countries decreases further to 17%, and the

separated category increases to 83%. This trend shows that as spending in civil-service pension (as percentage of government revenues) increases, the proportion of countries with separate schemes increase as well; hence, there is a positive correlation in spending in civil-service pension (as percentage of government revenues) and separate pension schemes for civil servants.

The topic of civil-service pension provision is directly related to the role of the state, as seen earlier in sub-section 2.1. Given this fact, the political economy approach of Andersen, E. (1990) is of added value for the cross country comparison in civil-service pension provision.

Based on the power resource theory, Andersen, E. (1990) proposes the idea that the "balance of power in a society is decisive for what a welfare state will look like". Therefore, power structuration is relevant, whereby power is seen as a relationship instead of something meaningful in isolation.

The author defines three welfare-state regimes. In the socialist regime ('social democratic), "universalism and equality are leading principles of welfare-state solidarity". The degree of 'socialism' is dependent on the strength of left-party mobilization, while absolutism (absolutist and authoritarian statehoods) is a counter influence. The liberal regime presents predominant private market reliance. Left-party mobilization is a strong negatively correlated factor. The conservative welfare-state regime is characterized by pronounced corporatist organization and etatism. "Absolutist and authoritarian statehood are principal forces, while left power should have a negative effect".

In a comprehensive analysis of pension provision, the author takes into account four types of pension plans, namely civil-service, individual private, collective occupational private, and social security. The pension regime is composed by one of these pension plans, or a combination of them.

Andersen, E. (1990) defines three types of pension regimes that reflect the welfare-state regimes. One of these pension regimes comprises the "corporative state-dominated insurance systems, in which status is a key element in the pension-program structure. In this regime, the private market is generally marginal and social security tends to be highly occupationally segregated with particularly pronounced civil servants' privileges". Second, in the residualist pension regime, the market tends to prevail at the expense of either social security or civil-service privilege, or both. The third pension regime identified by Andersen, E. (1990) comprises the "universalistic state-dominated systems, in which population-wide rights eradicate both status privilege and markets".

Taking into account the political variables left-party strength, Catholic-party strength (since "Catholic workers' movements naturally strive for a familial model in which corporatism and the Church figure more prominently than broad class solidarity"), and absolutism, the author hypothesises the balance of power among these factors to be found in each of the welfare-state regimes aforementioned. Using linear regression analysis, the author tests his hypotheses.

The determinants of liberal welfare-state, represented by the level of expenditures on private-sector pensions (individual plans and collective occupational plans) as a percentage of total pension expenditures (public and private), are examined. In addition to the aforementioned power-based

variables (i.e. political factors), the author controls for two non-power based theoretical causes of welfare-state development, namely GDP per capita (since the level of economic growth summarizes overall industrial maturation and social modernization) and GDP growth (since economic growth allows resource distribution). Moreover, based on the fact that population ageing is a driving force behind aggregate pension spending, the author also controls for the demographic variable proportion of elderly (65 years and over) in the total population.

For reasons of solidarity and unity, left-party power was expected to be negatively correlated with private sector pensions, and left-parties were further expected to try to supplant this type of pension plan through legislated social rights. Similar effect was expected for Catholic parties' strength and absolutist and authoritarian state features.

While private individual pension plans adhere to market-based individualism, collective occupational private plans may emerge in a context of substantial labour unionism, and weak labour-party; hence, these occupational plans could constitute an alternative to the parliamentary route. The author therefore tested in a separate regression the effect of labour unionism on the proportion of private occupational pensions as a share of total private pensions. The findings indicate that private occupational plans do not constitute a major labour-union alternative (Andersen, E., 1990).

Although not statistically significant, coefficients for absolutism, left-party strength, and Catholic-party strength were negative, as expected. GDP growth coefficient was not significant either, while GDP per capita was significant and positive, but difficult to interpret. The demographic variable was also statistically significant, and had a strong negative coefficient, indicating that the elderly pose a negative preference for private-market pensions, and do not behave equally towards all kind of pensions, since the regression on aggregate pension spending level showed a significant and positive coefficient for the elderly variable. Furthermore, unexpectedly the negative coefficient of the variable left-party power is weak and not significant. The author attributes this to the methodological weakness of linear regression methods in examining bi-modal distributions, such as the private-pension expenditure variable (i.e. nations cluster in very high or very low ratios).

The conservative welfare-state regime is associated with both etatism, which leads to propensity to grant special privileges to civil servants, and corporatism (i.e. association of people in corporate groups on the basis of common interests.

The level of etatism privilege is measured as civil-service pension expenditures as percentage of GDP. The non-power variables (i.e. demographic and economic) are not expected to have any genuine theoretical relation with state's special treatment to civil servants, hence these variables which were used as controls in the liberal regime regression are not included in the regression of the conservative regime. Only the power-based explanatory variables Catholic-party strength, left-party strength, and absolutism were included in the regression model.

Corporatism is defined and measured as the number of separate, occupationally defined public-sector pension programs. In the regression equation only the power-based explanatory variables were included, due to lack of theoretical reason for the demographic and economic variables.

Following the social democratization theory, left-party mobilization was expected should impact etatism negatively, while Catholicism and absolutism were expected to be positively and strongly related to high levels of etatism. Social democratization theory leads to the expectation that labour parties would work to dismantle status differentiation, so a negative coefficient was expected; while Catholic-party strength and absolutism were expected to be factors impacting positively corporatism. The left-party coefficient was expected to be negative. Absolutism is found to be the main factor explaining the etatist bias.

Catholic-party strength and absolutism were expected to have a positive effect in corporatism, while left-party impact was expected to be negative.

The regression model output shows that absolutism is the decisive variable (i.e. significant and strong positive coefficient) explaining corporatism in pension regimes.

The social security bias is measured as social security pensions as percentage of total pensions (i.e. private, public, and civil-service). This bias is associated with the social democratization of the welfare-state, and high scores in the dependent variable aforementioned naturally also "mean a crowding-out of private plans, although not necessarily of corporatism.

In addition to the economic and demographic control variables included in the regression model for to explain the liberal welfare-state regime, the three power-based explanatory variables are also included. Moreover, the bureaucracy explanatory variable is included, which is expected to have a negative coefficient, since once bureaucracies are established, they will "crystallize egoistic organizational interests in their own perpetuation and growth" (Andersen, E., 1990).

The only outcome of the regression leads the author to conclude that "the only identifiable force behind the social security bias is labour parties in power" (Andersen, E., 1990).

CHAPTER 3 Culture

The previous chapters have illustrated the disparities in pension systems' designs across nations. Environment or contextual factors, such as demographics, labour market, and fiscal indicators influence the national choices for the architecture of pension systems. However, there may be other factors, specific to each nationality, which may also determine the possible designs for pension systems, such as cultural factors. Therefore, chapter 3 will address the topic of culture, in particular national culture.

In the context of social interaction or meaningful communication, culture is a relevant aspect since it influences the ability of the actors interacting to process information.

These actors "constitute a connected system of meanings" (Trompenaars and Turner, 1997); further, a meaningful interaction depends on mutual beliefs and expectations. However, cross cultural interaction presupposes non-mutual beliefs.

As societies interact more among each other, the need to align expectations become more salient. This leads researchers in the business and economics field to growing interest for cultural aspects.

3.1 Definition of culture

National cultures are expressed in values, or in other words, in "broad tendencies to prefer certain states of affairs over others" (Hofstede, 2011). These values are deeply rooted in the human mind and often unconscious; while, organizational cultures reside in visible and conscious practices and are more easily exchangeable (Hofstede, 2011). This is due to the fact that the values which express national cultures are acquired unconsciously as from the moment people are born through the first years of life, while organizational cultures start to be acquired only from the moment people enter adulthood and professional life. Hence, the latter cultural acquisition follows a conscious process. The divergence in how culture is acquired leads to different problems being analyzed in national cultures' studies compared to organizational cultures' studies, which are then addressed by different disciplines. While the former is addressed by anthropology (i.e. study of ethnic groups, societies); the management field addresses organizational cultures.

Despite the study area, culture is always measured on the basis of collective phenomena. Furthermore, within a culture individuals vary in characteristics. As illustrated in Hofstede (2011), the variation of individuals' characteristics within a single culture may be represented by some bell curve; while the shift of the bell curve represents the shift between cultures. National cultures might show similarities. Graphically, this can be represented by two bell curves with different averages, or most expected behaviors, with an overlapping area between the curves representing their similarities.

Several researchers have attempted to create dimensions and analyze ways of looking at the world at different levels of aggregation (i.e. individual, group and culture). Neglecting the fact that different variables may operate at these different levels has been a severe methodological weakness among these researchers (Hofstede, 2011).

Geert Hofstede, a Dutch professor internationally recognized for having developed the first empirical model on national culture dimensions, which established a new paradigm for including cultural variables in international economics' research, defined culture as follows in Hofstede (2011): "Culture is the collective programming of the mind that distinguishes the members of one group or category of people from others". Programming of the mind is a metaphor which leads to the idea of how culture is acquired. This metaphor pictures humans as being born with an operating system which still needs programming in order to function.

Partially aligned to Hofstede's definition of culture, Trompenaars and Turner (1997) defines culture as "the way in which a group of people solves problems and reconciles dilemmas". This view is in accordance with Hofstede's definition when it states that it is about how a group deals with problems. The divergence lies in the fact that Hofstede maps national cultures statically in a "dual axis", whereby categorizing a national culture in respect to a dimension is a mutually exclusive exercise (i.e. the choice for a category of a dimension automatically excludes its opposite category); while, Trompenaars and Turner (1997) believe that one cultural category seeks to 'manage' its opposite. In the latter view, the authors solve the paradox in a way which integrates and reconcile values. The outcome is a synthesis instead of a choice for seemingly opposing values. However, for the purpose of the research in this thesis, the opposing feature of Hofstede's view is preferable, since it contrasts national cultures and puts cultural factors in evidence.

3.2 National cultures and the Hofstede dimensions

Cultural aspects have been used to explain differences across nations in a wide scope of areas. These areas range from institutional design (i.e. financial and pension systems), investment strategies, compensation system design, life insurance consumption, just to cite a few.

Hofstede work focus on comparing national and organizational cultures. There is however a methodological difference between these two areas of research. When the aggregation level of the analysis is the nation, similar people, situations and organizations are being compared, while in the study of organizational cultures the focus is on different organizations within the same national boundary. The focus in this thesis is exclusive in the national aggregation level.

Geert Hofstede conducted a large research study while in charge of the IBM Europe research department during the period 1967 until 1973. This study captured the differences in national values and related sentiments across subsidiaries of IBM spread over 50 countries.

The enormous resulting database (i.e. more than 100.000 questionnaires) was not meaningful on an individual level, but started to provide insights when the focus shifted to correlations between mean score of survey items on a country level.

The perception that IBM data implications were beyond that specific organization came only after Hofstede administered the same set of questions in about 30 countries to around 400 management trainees unrelated to IBM and found that country mean scores correlated significantly with the IBM

scores. Hence, it led to the conclusion that the IBM data set was representative of national value systems' differences. This was the case because these employees presented similarities in all aspects (i.e. perfectly matched samples) except nationality, which resulted in national differences outstanding in the questionnaires' outcome (Hofstede, 2011).

Subsequently, Hofstede applied ecological (i.e. at higher level of aggregation) factor analysis on country level; more specifically, using countries' mean scores. On a country level, these values clustered differently from the individual level. The factors which resulted from this national aggregation revealed common matters to be addressed in all these societies, but which presented a different set of solutions per society.

In Hofstede (2011), these problems were:

1. "Dependency on superiors;
2. Need for rules and predictability, also associated with nervous stress;
3. The balance between individual goals and dependence of the company;
4. The balance between ego values (like the need for money and careers) and social values (like cooperation and a good living environment); the former were more frequently chosen by men, the latter by women, but there were also country differences."

These problems, or factors, represent dimensions, since they are an "aspect of culture that can be measured relative to other cultures (Hofstede, 2011).

In the 1980's a fifth dimension was added, namely 'Long-Term versus Short-Term Orientation"; while in the 2000's, the calculation of this dimension was updated and the sixth "Indulgence versus Restraint" dimension was included.

The six Hofstede's dimensions are named and defined as follows:

1. *Power Distance:* this dimension captures the extent to which the less powerful members of organizations and institutions accept and expect power to be distributed unequally (Hofstede, 2011). According to Hempel (1998), this dimension measures the level of hierarchism (high score) or egalitarianism (low score). In societies with high Power Distance, privileges and status differentials are present, while these are minimized in low Power Distance societies;
2. *Uncertainty Avoidance:* measures how tolerant to ambiguity a society is. Despite the label, this dimension does not capture the risk appetite of a society. High score societies feel uncomfortable in unstructured, unknown situations; hence, they tend to produce strict behavioral codes and to disapprove non-compliant behavior. These societies believe to possess an absolute truth.
3. *Individualism (versus Collectivism):* measures the degree that individuals integrate into groups in a society. In high score societies, the ties between individuals are loose. In these societies individuals interaction is grounded on their role as individuals, while in low score societies the identity of the individual is defined by his role in the group.

4. *Masculinity (versus Femininity):* Hofstede found that in low score countries the position of men and women differ less in a dimensional axis measuring in one pole the level of assertiveness and competitiveness (i.e. masculine dimensions) and in the other pole the level of modesty and careness. In high score countries men's values tend to be positioned in the extreme of the masculine pole, therefore maximizing the gap between men and women. Hempel (1998) states that in an employment context, feminine societies tend to value quality of life, while in the masculine pole individuals' self-identity is grounded on the work, hence the latter tend to value competition and work success.

5. *Long-Term Orientation (versus Short-Term Orientation):* in Hofstede (2011), societies with high score in this dimension value "perseverance, thrift, ordering relationships by status, and having a sense of shame; values at the opposite, short term pole were reciprocating social obligations, respect for tradition, protecting one's 'face', and personal steadiness and stability". Further, high scores in this dimension are strongly associated with hard work and recent economic growth, and the respective aforementioned values are found in the teachings of Confucius; hence, the higher scores are found in East Asian countries.

6. *Indulgence (versus Restraint):* based on recent World Values Survey databank, this dimension captures aspects derived from the literature on 'happiness research'. In an indulgent society, "gratification of basic and natural human desires related to enjoying life and having fun" are allowed (Hofstede, 2011), while restrained societies "control gratification of needs and regulates it by means of strict social norms" (Hofstede, 2011).

Hofstede's dimensions are general, in the sense that they are common to all cultures and therefore allow a universal examination. However, as stated in Hempel (1998), this general character is also a weakness of Hofstede's dimensions since cultures' specific aspects are not taken into account. In fact, this point does not represent a weakness for the purpose of this thesis, since the object of analysis here is common to all cultures (i.e. choice of pension system design).

One obvious argument by critics of Hofstede's country scores based on IBM subsidiaries from the 1970's was the data set obsolescence. However, studies correlating the old Hofstede's variables with related variables available on a year-by-year basis found no weakening in the correlations. A reason for this corroboration is that the country scores on the dimensions are relative values (i.e. their meaning lies on the relative position of a country relative to the other countries in the set) values, instead of absolute country positions. Furthermore, influences on culture, such as technology, tend to affect all countries without necessarily changing their ranking position, since they tend to simultaneously change (Hofstede, 2011).

Some authors predict that technology will homogenize countries' cultures. Technology is an important factor influencing culture change, and leads to partly similar developments in different societies; however, there is no proof that it wipes out variety on other dimensions. Instead, it "may

increase differences, as on the basis of pre-existing value systems societies cope with technological modernization in different ways" (Hofstede, 2011).

While societies might be classified in terms of their economic evolution degree, the fact that societies are economically evolving does not necessarily mean that other cultural variety should be suppressed, since there are cultural dimensions unrelated to economic evolution (Hofstede, 2011).

Hofstede's dimensions are further validated by the fact that it presents strong correlation with conceptually related dimensions found in the literature. As example, Hofstede's Individualism dimension significantly correlates with Minkov's dimension Exclusionism versus Universalism. Michael Minkov, a Bulgarian linguist and sociologist, published in 2007 three cross-national dimensions based on the World Value Survey databank. Another dimension publicized by Minkov, namely Monumentalism versus Flexumility also significantly correlates with Hofstede's Long-term Orientation dimension.

Correlation between Hofstede's dimensions and scores on personality tests has been empirically found in the research literature. Survey data on five personality dimensions, namely Neuroticism, Extraversion, Openness to experience, Agreeableness and Conscientiousness, were gathered across over 30 countries, and norms on a country level were found to significantly correlate with Hofstede's cultural dimensions. It is crucial tough to note that the link between culture and personality is a statistical one; individual personalities within nations have a wide range of variety; hence, national scores on cultural dimensions are definitely not indicative of individuals' stereotypes (Hofstede, 2011).

3.3 The role of national culture in business & economics: empirical evidences

The influence of cultural factors is present in any area where different societies interact. This type of interaction grows as companies become more multinational, or when potential cross-country synergies are pursued.

The former case can be illustrated by multinational companies expanding operations. These companies must design employee benefits systems which comply with national laws, while also being attractive in the local labour market in order to attract the best professionals.

Employee benefits are one of the human resource tools used to shape corporate culture, which is also bounded by political and economic factors. However, national culture is what defines how easy it is to bring together employees and the prospective corporate culture. In fact, "national culture has a strong role in influencing the political factors and regulations that dictate many of the differences in benefits across countries" (Hempel, 1998).

Hempel (1998) used the cultural dimensions of Hofstede to examine how social values influence social and workplace benefits. One of these benefits analysed by the author is the pension plan. Two main characteristics are compared across countries: generosity and income redistribution. Both can be measured by the income replacement ratio, which is the proportion of income replaced during pension.

When pensions are funded from current revenues (i.e. Pay-as-you-Go schemes) a generous social pension will result in income redistribution across generations (i.e. intergenerational). Income redistribution can also take place within the generation (i.e. intra-generational). This is the case when social pension is a function of wages, whereby lower wage earners receive more generous pensions.

High Power Distance societies "tend to reserve many privileges for high status or ranking individuals, while low Power Distance societies tend to try to minimize status differentials" (Hempel, 1998). Hence, the author hypothesises that low Power Distance societies use social pensions to minimize income differences for retirees, in the form of both inter and intra-generational income redistribution. In order to analyse whether this relationship holds, a simple ranking of the countries according to Power Distance scores and income replacement ratios (the latter categorized by income level) is used. This cross country analysis corroborates the author's hypothesis that lower Power Distance countries tend to have more generous social pensions on average, and to redistribute income within the generation (i.e. higher social pensions to low income earners).

Another category of benefits analysed by Hempel (1998) relates to income security for individuals at working age, namely job and income protection. While the former protects the source of income (i.e. layoff or severance notices), the latter replaces lost income (i.e. sick pay and unemployment insurance). The author hypothesises that in high Uncertainty Avoidance countries it is expected that there are "more laws governing job and income protections, and these protections would likely be more generous". Hempel (1998) further hypothesises that Hofstede's Maculinity dimension can explain the preference for job or income protection by a society. In a masculine society, the job is a component of self-identity, while in a feminine society the concern is with quality of life; hence, societies with high Masculinity scores are expected to be associated with low levels of income protection (i.e. unemployment insurance), since depending on this kind of insurance is perceived as an stigma. This is opposed to the expectation for Feminine societies, where the concern is greater with income, since it guarantees a certain standard of living.

Using again a ranking framework, Hempel (1998) corroborates his hypothesis that countries with high Uncertainty Avoidance provides higher levels of protection, both in job and income forms; while among these countries, the ones with higher masculinity scores shows preference for job protections, instead of income protection.

Hempel (1998) finalizes by making some recommendations for the design of pensions systems in different countries. In high Uncertainty Avoidance countries pension plans should offer a higher level of perceived security by having extensive rules and bureaucratic controls. Further, defining the amount to be paid at retirement (i.e. defined-benefit plan) secures that the financial risk does not lie with the employee and is therefore recommended over defined-contribution plans for countries with high Uncertainty Avoidance. Furthermore, while in low Power Distance countries, separate pension schemes according to the employee category is not well perceived, since this would further widen the gap among classes of employees and reinforce status differentials.

The role of national culture goes beyond the design of pension systems in different countries. It is also a determinant of how financial systems are organized in societies. Kwok and Tadesse (2006) establish a link between the culture and the finance literatures to conjecture that societies with higher uncertainty Avoidance, based on Hofstede's cultural dimension, are expected to be associated with a bank based system.

Kwok and Tadesse (2006) cite Hofstdede (2001), who states that cultural changes derive mainly from natural, external forces (i.e. forces of nature and forces of man, like trade and scientific discovery). These influences operate in societal norms indirectly, always via changing ecological conditions (i.e. technology and economy). Once societal norms are affected by ecological factors, as a consequence the structure and functioning of institutions is adapted. This process is expected to be gradual, unless external factors are abrupt. Further, this is a self-reinforcing mechanism, whereby the consequences (i.e. changes in institutions) retro-feed societal norms and ecological factors.

Kwok and Tadesse (2006) further mentions the rules orientation character of societies with high Uncertainty Avoidance. The authors further compare bank-based with market-based financial system architectures, and states that banks present a more safe profile, due to its investment payoffs being based on fixed return and often guaranteed by deposit insurance. Further, by relying on banks, the decision-making burden, as perceived by high Uncertainty Avoidance societies, can be delegated. In societies where laws and contract enforcement are weak, banks emerge to play a monitoring role by internalizing transactions, since they can extra judicially enforce contracts due to its market powers. In market-based societies, individuals are involved in a constant and volatile decision making process and payoffs from investments have an inherent riskier profile. The authors hence hypothesise that countries with higher Uncertainty Avoidance are expected to be associated with bank-based financial system.

In order to validate the raised hypothesis, the authors use multivariate regression analysis, whereby the dependent variable is an index which reflects size of stock market relative to banks (i.e. market capitalization as percentage of GDP and banking sector claims as percentage of GDP), activity of stock market (i.e. value of traded stocks to value of bank claims, both as percentage of GDP) and efficiency of banks and market (i.e. value of traded stocks as percentage of GDP and banking overhead costs as proportion of banking assets). The explanatory variable is the Uncertainty Avoidance country index from Hofstede and a set of control variables is also used to account for the impact of the legal system (i.e. legal origin and investor protection variables), level of economic development, the macroeconomic, political, and institutional environments. The authors find that the average Uncertainty Avoidance score for bank-based systems is 72.6, while for market-based this figure is 53.7, significant at 1% level. For robustness, the authors also construct a logistic model and find that Uncertainty Avoidance "as a sole explanatory variable can correctly classify 71% of the countries into the bank and market categories". After including control for "legal, macroeconomic, political, and institutional environments, the relation between the likelihood of market orientation and

Uncertainty Avoidance remains the same"; countries with high Uncertainty Avoidance scores are likely to be bank-oriented.

The impact of national culture was found also in the life insurance market. Chui and Kwok (2008) point to the uncertainty in the life insurance product. The authors use regression analysis to explain the level of life insurance consumption across countries. The explanatory variables are the Hofstede's cultural dimensions and they further use a set of control variables. Since these control variables are correlated, a severe multicolinearity problem would arise if they would be included in the same regression model. This methodological weakness is solved by the authors by using principal component method to condense the economic, institutional and demographic variables into respective components.

When hypothesising over the Individualism dimension, the authors discern the aspects of availability and desirability of social network security. The former refers to the fact that in an individualistic society there is no focus on others' needs, and the social group of relevant others is confined to members of the nuclear family. As this pattern is reproduced throughout the society, the outcome is that no one can count on relatives' help; hence social network security is unavailable. The second aspect, desirability refers to the fact individuals with an independent construal of self tend to show a self-enhancement biases and "draw satisfaction from the belief that they can exercise inner attributes to overcome the environment". For them, reliance on others is perceived as a sign of weakness; hence, social network security is less desirable.

The authors hypothesise that life insurance density (i.e. per capita life insurance premiums in US dollars) is positively correlated with Individualism and Uncertainty Avoidance, and negatively correlated with Power Distance.

Using regression analysis, after controlling for the aforementioned variables, they find that the cultural dimensions of Hofstede explain 14% of the variation of life insurance density across countries with an R squared of 0.84. The most significant cultural dimension is Individualism, followed by Power Distance and Masculinity. In individualistic societies there is no availability of social network security, and these societies prefer to rely on market-based life insurance. In high Power Distance societies individuals surrender authority to their superiors, while also expecting in exchange to be taken care of by them in case of emergency, which leads to less need for market insurance. Similarly, in Masculine societies, individuals buy more insurance to secure their independence and be able to rely on better planning, while in Feminine societies the emotional linkage to the needs of dependants leads to the reliance on social network security instead of market insurance.

When it comes to the role of national cultures on pension plans, Cravens and Oliver (2000) describe two dimensions through which the effect of culture on pension plans may be apparent:

1. Micro-level: "human resource management strategy for multinational firms";
2. Macro-level: "cultural effects as manifested in the regulation and standard setting environments for a country and how this translates to pension plan norms".

The authors point to a trend in developed countries, where the private employer is becoming the primary provider of pension plans. Ageing of population and the decreasing size of the workforce are leading countries (i.e. Canada, France, Italy and Japan) to face pension debts in the state system which are unsustainable in the long term.

The authors state that the "funding status of the plan and employer contributions are critical barometers of the ability of the pension plan to provide for the needs of employees". Further, they expect that cultural aspects will manifest in these two primary areas of pension plans, and hypothesise that culture is a determinant of funding level, and that it also determines the flow of cash from employer to the pension plan. Since, laws which determine pension plan funding differ across countries, and IAS (International Accounting Standards) does not require disclosure of pension funding levels, the sample used by the authors is restricted to firms operating in the US that differ on home country of ownership. These are subject to same laws and are required to disclose pension plan funding level information via the Internal Revenue service Form 5500. These companies are then grouped in culture areas, based on Hofstede (1980), and these groups are used as a categorical variable to represent the influence of culture. The authors further restrict the analysis to defined benefit plans, since these are more susceptible to management discretion, due to the fact that the minimum funding level is based on law, but ultimately it is the responsibility of the employer to secure the pension fund can cover its liabilities.

Using regression analysis the authors explain the funding level percentage (i.e. fund's assets minus liabilities divided by liabilities) in a model with two independent variables, namely group and rate. The former variable indicates the country group for the firm sponsoring the plan, and it represents culture; while the latter variable represents the degree of management generosity in terms of funding level and cash amounts to be transferred to the fund. The explanation for this lies in the fact that the discount rate used in the actuary's calculations is at the discretion of management, and of course this decision impacts the present value of the plans' liabilities, which will subsequently determine the amount of cash the employer must transfer to the fund. The authors find significant support for the hypothesis that culture is a determinant of funding level, or in other words, the culture of the managers will impact the degree to which the firm funds the plan. Their second hypothesis that culture is a determinant of the flow of cash from employer to the pension plan is also validated by using another statistical test, namely Kruskal-Wallis, which tests "which country groups are different from each other through the use of multiple comparisons".

Rivera Rozo et al. (2012) finds that supervisory and regulatory activities seem to have the same relationship with cultural dimensions. Using Hofstede's cultural dimensions, he finds that higher Individualism is "strongly related to higher limits on the investments in equities that pension funds are allowed to make", while "lower scores on Individualism are associated with stricter reporting requirements that pension funds have to fulfil. Furthermore, Uncertainty Avoidance and Power Distance are found to have a positive relationship with strictness of reporting.

3.4 Hypotheses

In order to search for factors in national cultures which can explain international differences in the degree of integration of pension systems' elements, particularly regarding civil servants' pension schemes level of integration to the national pension scheme; it is possible to use the cultural dimensions from Hofstede.

As stated by Hempel (1998), high Power Distance societies "tend to reserve many privileges for high status or ranking individuals", which is a behavioural pattern that goes along with the features of a separate civil-servant pension scheme, since these separate schemes have more generous conditions and grant privileges to their participants. Therefore, countries with high Power Distance are expected to accept the dualism of separate civil-service pensions.

Hempel (1998) found that low Power Distance societies use pensions to redistribute income, and therefore they tend to have more generous pensions, which are addressed to lower income level individuals. In first instance, this finding denies the premise that high Power Distance correlate with separate schemes for civil servants; however, the particular feature to be noted in Hempel (1998) analysis is that it is based specifically on the international comparison of the general social security pension scheme, which has generally the aim of reducing poverty among the elderly and reducing intra-generational inequalities. However, the scope of the analysis in Hempel (1998) is particularly on the general social security schemes.

When broadening the spectrum of the analysis to compare the special scheme of civil servants to the general social scheme, it is expected that the generosity inherent to separate civil servants' pensions is more likely to be found in high Power Distance countries. This expectation and the finding in Hempel (1998) are not mutually exclusive, due to the different scopes in the analyses.

Furthermore, empirical evidence in Andersen, E. (1990) shows that corporatism in pension provision is strongly explained by absolutist and authoritarian statehoods. The degree to which society accepts unequal distribution of power will determine the adequacy of authoritarian statehoods. Therefore, it is expected that authoritarian states are positively correlated with high Power Distance scores. Following this line of argumentation, countries with high scores in Power Distance index are expected to adhere to corporatism in pension provision, expressed in the form of occupational pension schemes strongly present in the pension system, such as separate civil-service pension schemes.

Historically, unions have been major advocates for welfare state expansion. Brugiavini, A. et al. (2001) shows empirical evidence of a positive relationship between union density and social expenditure with data covering the period from 1915 to 1980.

However, in the 1990's occupational pension schemes started to grow, along with governments' interest to shift pension provision from public Pay-as-You-Go to private funded schemes.

In mixed pension systems (i.e. private and public), occupational pensions are often a supplement to the general social security scheme, whereby unions and employers play a relevant role in filling the

gap left by public policy. Hence, "cuts in public welfare benefits, for example, might be compensated by improvements in collectively negotiated occupational schemes" (Brugiavini, A. et al., 2001).

In cases where a large share of pension spending is internalized by employers and employees cost awareness is created on the side of the unions, while in cases where there is a high proportion of public schemes, unions are expected to demand higher state subsidy. Rent seeking behaviour is expected to be pronounced in cases where pension schemes cover only a small segment of employees and are financed through general taxation. This is the case for civil-service pensions. Therefore, rent seeking, which ultimately reflects on status-differentiated privileges is expected to be more adequate and prominent in countries which score high on Power Distance index.

It follows that trade unions' demands seem to adjust according to the context, according to the range of employee's segments covered, and mix of private and public pension schemes. The Power resource theory asserts that more egalitarian working class power is achieved through labour union mobilization or left parties; hence, it would be expected that higher trade union density would be negatively correlated with status-differentiated separate pension schemes for civil servants. However, this generalization is incomplete, given the context dependency of trade unions' demands regarding pension plans.

The arguments of rent seeking behavior (positive sign) and Power Resource theory (negative sign), as elaborated above, cause ambiguous expectation on the sign of the coefficient.

Empirical evidence in Andersen, E. (1990) shows that absolutist and authoritarian regimes are positively related with status-differentiated pension schemes for civil servants. This separate civil-service pension schemes cover only a small segment of employees, while being financed by general taxation; hence, as aforementioned, in this context trade-unions are expected to present rent seeking behavior. Following this reasoning, a logical consequence is that high trade-union density in absolutist and authoritarian regimes will be positively correlated with separate pension schemes for civil servants, since trade-unions will lobby for the maintenance of the status quo.

The arguments so far in this hypotheses formulation sub-section leads to the first and second hypotheses to be tested.

H1: Power Distance (high score) countries are more likely to have separate pension schemes for the civil-service.

H2: Authoritarian regimes are more likely to have separate pension schemes for the civil-service.

As elaborated in sub-section 3.4, trade-union density is expected to influence the level of integration of civil-service pension schemes integration to the general scheme. Despite ambiguity in expectation on the coefficient's sign, the third hypothesis is set as fourth:

H3: Trade-union density is correlated with separate pension schemes for the civil-service.

Examining further the national culture dimensions from Hofstede, the Long-Term Orientation (LTO) index is also expected to have a relationship with the way that pension schemes for the civil-service are structured within the pension system design. Civil-service pensions have either been regarded as extended earnings, to be paid for out of the national budget, similar to salaries for active civil servants (i.e. financed on a Pay-as-You-Go basis). Alternatively, pensions have been regarded as deferred earnings, and pension funds are set up to pay beneficiaries during retirement. In both cases, it secures that income status is sustained during retirement, which is a long-term event.

According to the definition of the LTO dimension, societies which are short-term oriented tend to have relatively small propensity to save for the future, which indicates lack of concern with financial issues which might emerge in the future; while long-term oriented societies would be expected to be concerned with the sustainability issues related to the civil-service pension schemes, which were elaborated in sub-section 2.1. In these societies the financial sustainability of special pension schemes to civil servants would be expected to be an important topic in the public debate agenda.

It is logical to expect that societies which score high in LTO would address this unsustainability issue in the short term and avoid the risk of concerns in the future; therefore, these countries would most likely not have special pension arrangements for civil servants.

However, examining the influence of the LTO dimension on the level of integration of civil-service pension schemes from a perspective which takes into account the desirability and availability of this type of pension schemes leads to an opposite expectation.

As elaborated in sub-section 2.1, the perception of intra- and inter-generational equity by individuals in a society will determine the social sustainability of a pension system. The adequacy (or perceived adequacy) depends on what the society aims with its pension system. If an influential class of employees in society, such as civil servants often are (as earlier elaborated in this thesis), demands special conditions for their pension plans, this type of special arrangements will most likely be perceived as adequate.

In a Long-Term oriented society, the desirability for the special pension scheme may be expressed by the employees (i.e. civil servants), who set their terms and conditions in the labour market. Given that pensions are part of the income package, it is expected that in societies with high scores in LTO, there is a high demand for arrangements which guarantee financial stability through securing the level of income in the long term (i.e. securing an income after retirement which is close to the income during work life).

The availability of separate pensions for civil-services is dependent on the employer's actions (i.e. government). As aforementioned, pensions are part of the income package offered by employers, and for the governments as an employer it is not different. Governments can apply generous pension arrangements as a HR policy to attract the most talented, especially in countries where the government has an important role in providing goods and services.

In addition, since civil servants may have direct impact in the execution of political agendas, governments may use attractive long term financial arrangements (i.e. generous pensions), which are very valuable in a high LTO society, to please these civil servants.

In countries which score high on the LTO cultural dimension, both the desirability and availability aforementioned are expected to be present; therefore, separate pension schemes for civil servants are most likely to be found in these countries.

To elucidate on the ambiguity on the expected relationship between LTO and civil-service pension schemes level of integration, the fourth hypothesis is set as fourth.

H4: Long-Term Orientation (high score) countries are more likely to have separate pension schemes for the civil-services.

CHAPTER 4 Research method

Instead of comparing civil-service pension provision with the general social security scheme on the level of individual parameters, as performed by Palacios and Whitehouse (2006), analysis on cross country differences in civil-service versus general schemes can be made on a system design level.

In this higher level analysis compare the level of integration of the civil-service pension scheme to the national scheme across countries is compared, taking into consideration the empirical observation that the parameters of separate schemes are more generous to civil servants than integrated schemes.

The previous chapters elaborated on the problem statement, related theory, and background literature, while also presenting the benefits of bringing forward research in the topic of cultural determinants of pension system design. The current chapter makes the bridge towards a quantitative research method. Historical numerical data is collected from already existent reliable databases and analysed using statistical methods. The aim in this chapter is to test and validate the hypotheses raised in the previous chapter of this thesis, which are derived from existing theory, and from extrapolation of findings in the literature review.

4.1 Method

The four hypotheses from sub-section 3.4 are tested here through regression analysis. More specifically, a multinomial logistic regression (Logit) will be used. This type of regression is used to determine factors that affect the outcome, when three or more outcomes are possible.

The multinomial Logit regression shows the odds ratio of the explanatory variables in each of the possible outcomes in reference to the odds ratio of a reference outcome. A dummy dependent variable is used, and refers to the levels of integration of civil-service pension schemes to the general scheme, namely separated, integrated, and partially integrated, based on Palacios and Whitehouse (2006).

A Logit model is necessary because the dependent variable is discrete, instead of continuous. Since the best fit line to describe the relationship between X and Y is not linear, but instead an S-shape, using a linear model would incur in three problems:

1. The variance of the dependent variable is different with different values for the independent variables (i.e. heteroskedastic error terms), so the lineat regression assumption that error terms do not depend on the explanatory variables is violated;
2. Error terms are not normally distributed, which violates another linear regression assumption;
3. The predicted probabilities can be greater than one and smaller than zero, which causes a problem to interpret the outcomes.

The logistic regression consists of a mathematical transformation, whereby a Logit function is used, in order to allow that the odds are estimated as a continuous variable. This approach solves the three aforementioned problems. Multinomial logistic regression does not make assumptions on normality, linearity, and homogeneity of variance for the independent variables.

Alternatively, a binary logit model is also used. In this case, the 14 partially integrated countries in the sample are considered as integrated schemes; hence, they are seen as a non-case, and coded as 0 in the regression model, as the integrated outcome.

Therefore, the dichotomous categorical variable to be explained by the regression analysis can have only the following outcomes: separated or integrated. Based on the values of the explanatory variables, the logistic regression predicts the odds of the dependent variable being a case. It means that by running a logit regression, it will be possible to state the odds ratio, which is the probability that a particular outcome is a case, divided by the probability that it is a non-case.

The logit coefficients estimated (i.e. Beta) is interpreted as the rate of change in log odds as the independent variables change, instead of being the rate of change in the dependent variable as the independent variables change. However, a more intuitive interpretation is the odds ratio.

The statistical software SPSS is used to compute the regression analysis.

4.2 Data

Hofstede (2011) points out that potential dimensions to be included in any model are restricted by the fact that dimensions are constructs, in the sense that they are not directly observable variables, but instead they aggregate multiple observable variables to express a concept. Human mind is limited in its capacity to process information; hence, complex dimensional models present diminishing returns in helping to deal with the complexities of the reality. In addition, new dimensions are only meaningful if "conceptually and statistically independent from those already available". This restriction adds to the difficulty of introducing new dimensions in the model. Furthermore, new dimensions must be "validated by significant correlations with conceptually related external measures" (Hofstede, 2011).

The dependent variable design is a dummy with three possible outcomes which represent the three levels of integration of civil-service pension schemes to the general scheme, based on Palacios and Whitehouse (2006), and elaborated in sub-section 2.3: integrated, partially integrated and separated.

The explanatory variables comprise two national culture dimensions from Hofstede's database, namely Power Distance (PDI), and Long-Term Orientation (LTO).

According to Hofstede (2011), national wealth should be taken into account in any analysis correlating cultural dimensions with other data, since two of his cultural dimensions, namely Individualism and small Power Distance significantly correlate with wealth. Including the wealth variable in the regression model avoids those wealth-related phenomena to bias the coefficient of the cultural dimensions.

GDP per capita based on purchasing power parity is included in the model as a control variable. It is retrieved from the World Bank online database, and is measured as gross domestic product converted to international dollars using purchasing power parity rates. The international dollar purchasing power over GDP is the same as the US$ in the United States.

Furthermore, based on the elaborations in the sub-section 3.4, trade-union density is also used in the regression analysis, and is defined and measured as the ratio of wage and salary earners that are trade union members, divided by the total number of wage and salary earners. The data source is the OECD online database. This variable is expected to influence the level of integration of civil-service pension schemes integration to the general scheme, as elaborated in sub-section 3.4. Moreover, a strong correlation with PDI is expected, although of the sign of the coefficient is not defined.

The explanatory totalitarian regime dummy variable is based on Andersen, E. (1990) evidence that absolutist and authoritarian regimes are positively related with status-differentiated pension schemes for civil servants, as elaborated in sub-section 3.4. Based on the democracy index from the Economist Intelligence Unit (EIU) online database, which measures the state of democracy in 167 countries, two groups were created: totalitarian regimes (as classified by the EIU), and the rest (non-totalitarian).

Table 2 below shows the descriptive statistics for the complete sample. Information on the degree of integration of the civil-service pension scheme with the general scheme is available for 167 countries in the database of the World Bank online database on pensions.

Table 2 Descriptive statistics

	N	Minimum	Maximum	Mean	Std. Deviation
totalitarian regime	167	0	1	-	-
design	167	0	2	-	-
Long-term orientation	74	4	88	45	22
Trade-union density	32	8	91	30	21
Power distance	57	11	104	58	21
gdpCap	148	422	88.318	14.620	15.670
Valid N (listwise)	27				

In the sample, 54% (91) of the countries have a separate civil-service pension scheme, while 37% (62) have integrated, and 8% 14) partially integrated schemes.

The Pearson correlation matrix in Appendix A shows that the totalitarian regime, and design variables are correlated (+.168) at the 0.05 level; although positive as expected, the correlation coefficient is low. Totalitarian regime has a significant correlation also with GDP per capita, although a negative medium correlation (-.276).

GDP per capita has a high negative correlation with PDI (-.606), which is significant at the 0.01 level. The sign of the coefficient is as expected, based on Hofstede (2011) findings. Also significant at the 0.01 level is the negative correlation of GDP per capita with totalitarian regimes, although with a low coefficient. These coefficients show evidence that GDP per capita is lower at the higher scores of PDI, and in totalitarian regimes.

GDP per capita is positively correlated also with LTO (+.279), and trade-union density (+.353), both at the 0.05 significance level. These coefficients indicate that wealthy countries tend to show higher scores in LTO and higher levels of trade-union density.

Another significant correlation is trade–union density and PDI (-.453), at the 0.05 level. The high negative coefficient confirms the expectation elaborated in sub-section 3.4, that trade-union density levels are expected to be high at countries with low scores in PDI.

4.3 Empirical results

Multinomial logit regression (I) includes PDI cultural dimension as explanatory variable, and gdpCap as control variable. Inclusion of this control variable follows the recommendation in Hofstede (2011) to include a wealth related variable in regressions with the cultural dimension PDI. Since low PDI is highly correlated with wealth, including this control variable avoids bias in the PDI coefficient.

As shown in table 6 in Appendix A, from the 167 countries in the sample, 54 have available information on both independent variables, from which 59% (32) is integrated, 35% (19) is separated, and 5% (3) is partially integrated.

Table 3 Parameter estimates of the set of regression models

		(I)	(II)	(III)	(IV)
design	independent	Exp(B)	Exp(B)	Exp(B)	Exp(B)
separated	PDI	1,021 (.25)	x	x	x
	gdpCap	1,000 (.39)			
partially integrated	PDI	1,073 (.07)	x	x	x
	gdpCap	1,00 (.04)			
LTO	LTO	x	1,002 (.846)	x	x
partially integrated	LTO	x	0,974 (.335)	x	x
separated	[Totalitarian=0]	x	x	0,522 (0.12)	x
partially integrated	[Totalitarian=0]	x	x	0,300 (0.05)*	x
separated	TUD	x	x	x	1,006 (0.20)
partially integrated	TUD	x	x	x	0,983 (0.18)

Source: Author calculations using SPSS statistical software.

Notes: The reference category is 'integrated; Significant at the 0.05 level.*

Table 3above presents the results of the multinomial logit regressions. Odds ratio is the top number, while the t-statistics is shown in parenthesis.

Countries with high PDI were expected to accept the dualism of separate civil-service pensions. The outcome in the multinomial logistic regression (I) indicates that if PDI would increase by one unit score in the scale, the odds ratio of the civil-service pension scheme being separated over integrated (i.e. reference category) is expected to increase by 2.1%. Furthermore, in regression (I) the odds ratio for partially integrated over integrated is expected to increase by 7.3% if GDP per capita would increase by one unit score, ceteris paribus. The direction of the relationship is as expected. The results, however, are not statistically significant at the 0.05 level.

This finding, combined with the positive correlation coefficient between PDI and design variables shown in table 5 in Appendix A, indicate that a positive relationship exists between high PDI scores and separate pension schemes for the civil-service, as theorized in sub-section 3.4. This is an indication, but not a validation of hypothesis 1 in sub-section 3.4, since the correlation coefficient, and the results in the multinomial logit regression are not significant at the 0.05 level.

The results of regression (II), shown in table 7 in Appendix A, show that there are 74 counties for which LTO index information is available, from which 58% (43) is integrated, 36% (27) separated, and 5% (4) is partially integrated.

If LTO would increase by one unit score, the odds ratio of partially integrated relative to integrated would be expected to decrease by 2.6%. These results are not significant at the 0.05 level; hence there is no supportive empirical evidence for hypothesis 4 in outcome from the multinomial regression.

In regression (III) the totalitarian regime is examined. As shown in table 8 in Appendix A, information on the political regime is available for 167 countries in the sample, from which 54% (91) is integrated, 37% (62) is separated, and 8% (14) is partially integrated. Moreover, 80% (134) of the countries are non-totalitarian, while 20% (33) have a totalitarian regime.

Given the odds ratio in regression (III), the odd of non-totalitarian is 48% lower than the odd of totalitarian regimes having separated over integrated pension scheme for the civil-service. The result is not significant at the 5% level, though.

Moreover, given the odds ratio in regression (III) outcome, the odd of a non-totalitarian regime having partially integrated over integrated scheme for the civil-service is 70% lower than the odd of a totalitarian regime having a partially integrated scheme over integrated. From another angle, the odd of a totalitarian regime having a partially integrated over an integrated scheme is 30% higher than the odd of a non-totalitarian regime having a partially integrated over an integrated scheme. Result is significant at the 0.05 level.

Considering that partially integrated is a level closer to separate than the integrated category is, this finding is in line with the significant positive correlation found between totalitarian regime and separate schemes for the civil-service (as seen in the correlation matrix in table 5 in Appendix A), and corroborates the theory and hypothesis 2elaborated in sub-section 3.4.

The findings in Andersen, E. (1990) that authoritarian states are expected to be positively correlated with high PDI scores, elaborated in sub-section 3.4, are corroborated by the evidence from

regression (III) that absolutist and authoritarian regimes are positively related with status-differentiated pension schemes for civil servants.

The 30% higher odd of a totalitarian regime having a partially integrated over an integrated scheme than the odd of a non-totalitarian regime having a partially integrated over an integrated scheme is supporting evidence for hypothesis 2 that authoritarian regimes are more likely to have separate pension schemes for the civil-service.

Moreover, the significant positive correlation coefficient between design and totalitarian regime variable is further empirical evidence in support of hypothesis 2.

Based on elaborations in sub-section 3.4, trade-union density is included as the explanatory variable in regression (IV). In Appendix A, table 9 shows that trade-union density information is available for 32 countries in the sample, from which 62% (20) is integrated, 31% (10) is separated, and 6% (2) is partially integrated.

Based on the odds ratio, if TUD would increase by one unit score the odds ratio of partially integrated relative to integrated would be expected to decrease by1.7%. The coefficient is not significant at the 0.05 level, tough.

The expected strong correlation between TUD and PDI, as elaborated in sub-section 3.4, is confirmed by the correlation matrix (-.453 significant at 0.05 level). The negative sign indicates that, as expected, higher trade union density is negatively correlated with status-differentiated separate pension schemes for civil servants. This finding is in line with the Power Resource theory, which asserts that labour union mobilization contribute positively to more egalitarian working class power.

There is however no significant supportive empirical evidence for hypothesis 3 in the logistic regression, neither in the correlation matrix.

Alternatively, a binary logit regression approach is used to examine further the relationship between design and totalitarian regime variable, which showed a significant correlation coefficient in the correlation matrix in Appendix A.

In the binary regression only the separated and integrated outcomes are possible. The drawback is that the sub-sample for the regression is decreases by 14 (i.e. number of countries with partially pension schemes in the sample).

As shown in table 10 in Appendix A, the sub-sample for this regression includes 153 countries, from which 59% (91) have integrated schemes, and 41% (62) have separated pension schemes for the civil-service, while 125 are non-totalitarian, and 28 are totalitarian. The design variable is the dependent, while totalitarian regime is the explanatory variable.

The regression outcome indicates that the odd of a totalitarian regime having a separate pension scheme for the civil-service is 92% higher than the odd of a non-totalitarian regime having a separate scheme for the civil-service, as shown in Appendix E. This finding was expected, given the significant positive relationship shown in the correlation matrix in Appendix B. The result is not significant at the 0.05 level, tough.

CHAPTER 5 Conclusions

Pension systems worldwide have markedly presented growing imbalances over time, leading an expressive group of countries to reform their systems.

Originally public, and based on demographic and economic projections, which have not realized, these systems have been undergoing increasing costs, which jeopardize their sustainability.

The public debate attention towards civil servants' pension schemes is justified by the fact that these schemes are in general funded by the broad society (i.e. tax payers) on a Pay-as-You-Go regime (Pallares-Miralles, R. and Whitehouse, E., 2012), while being generous in nature. Both aforementioned facts enhance fiscal pressure, which especially after the recent financial crisis, is a main concern in countries with economic and budgetary constraints. Therefore the relevance of further research in the topic of civil-service pension schemes and its (cultural) determinants.

When reforming their pension systems, countries may search for lessons learned by other countries which have already undergone such reforms. However, these lessons may not always be applicable for all countries, due to environment differences (i.e. economic, labour market, and fiscal contexts), but also due to differences in national cultures. Therefore it is relevant to consider the constraints imposed by national culture.

Since culture is embedded in the nation, and changes in national culture occur through an indirect and long process, as explained in chapter 3, it is worthy to address compatibility to the national culture, instead of pushing for inadequate pension system reforms.

The process of integrating the special civil-service schemes often involves creating or amending laws, which is a thorough and long lasting process; hence, it is recommended that adequate proposals are made, by taking into account realistic options. Realistic options are the ones which do not confront contextual factors and national culture. Considering cultural constraints early on in the pension system reform process will enhance the chances of success, and decrease the risk of frustration in society due to rejection of reform's proposals and delays in the reform process.

Empirical evidence found in the literature shows that civil-service pension services are generous compared to the general social security scheme, as elaborated in sub-section 2.3.

The logistic regression analysis generated one significant result on the 0.05 level, in multinomial regression (III). This result, combined with the significant positive correlation between totalitarian regime and design variables consist empirical evidence to support hypothesis 2 that authoritarian regimes are more likely to have separate pension schemes for the civil-service.

Research in the topic of civil-service pension schemes is important due to the fact that these schemes are financed out of government budget, while also comprising generous arrangements. This combination of characteristics makes the special pension for the civil-service socially and financially unsustainable.

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APPENDIX A Data and statistical results' details

Table 4: Spending on civil-service pensions, % of government revenues

Country	Group	S / I	0 - 5%	5% - 10%	10% - 15%
Austria	OECD	S		x	
Belgium	OECD	S		x	
United Kingdom	OECD	PI		x	
France	OECD	S		x	
United States	OECD	I		x	
Finland	OECD	S		x	
Germany	OECD	S	x		
Australia	OECD	PI	x		
Japan	OECD	I	x		
Canada	OECD	I	x		
Ireland	OECD	I	x		
Netherlands	OECD	S	x		
Spain	OECD	I	x		
Denmark	OECD	I	x		
Brazil	non-OECD	S			x
India	non-OECD	S			x
Sri Lanka	non-OECD	S			x
Turkey	non-OECD	I			x
Malawi	non-OECD	S			x
Tunisia	non-OECD	S			x
Benin	non-OECD	S		x	
Mauritius	non-OECD	..		x	
Senegal	non-OECD	I		x	
Cape Verde	non-OECD	I		x	
Kenya	non-OECD	..		x	
Bangladesh	non-OECD	S		x	
Jordan	non-OECD	I		x	
Korea	non-OECD	S	x		
Morocco	non-OECD	S	x		
Nigeria	non-OECD	I	x		
Philippines	non-OECD	S	x		
Pakistan	non-OECD	S	x		
Cameroon	non-OECD	PI	x		
Iran	non-OECD	S	x		
Indonesia	non-OECD	S	x		
Nepal	non-OECD	S	x		
Mexico	non-OECD	I	x		

Source: Author's calculations, based on data in Palacios and Whitehouse (2006).

Table 5: Correlation matrix (regression variables)

		Long-term orientation	Trade-union density	totalitarian regime	design	Power distance	gdpCap
Long-term orientation	Pearson Correlation	1	-,202	-,084	-,056	-,061	,279*
	Sig. (2-tailed)		,303	,477	,638	,669	,019
	N	74	28	74	74	52	71
Trade-union density	Pearson Correlation	-,202	1	.a	-,005	-,453*	,353*
	Sig. (2-tailed)	,303		,000	,976	,018	,047
	N	28	32	32	32	27	32
totalitarian regime	Pearson Correlation	-,084	.a	1	,168*	,138	-,276**
	Sig. (2-tailed)	,477	,000		,030	,306	,001
	N	74	32	167	167	57	148
design	Pearson Correlation	-,056	-,005	,168*	1	,145	-,043
	Sig. (2-tailed)	,638	,976	,030		,282	,607
	N	74	32	167	167	57	148
Power distance	Pearson Correlation	-,061	-,453*	,138	,145	1	-,606**
	Sig. (2-tailed)	,669	,018	,306	,282		,000
	N	52	27	57	57	57	54
gdpCap	Pearson Correlation	,279*	,353*	-,276**	-,043	-,606**	1
	Sig. (2-tailed)	,019	,047	,001	,607	,000	
	N	71	32	148	148	54	148

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Table 6:Sub-sample summary-multinomial regression (I)

PDI & GDP per capita		N	Marginal Percentage
design	integrated	32	59,3%
	separated	19	35,2%
	partially integrated	3	5,6%
Valid		54	100,0%
Missing		113	
Total		167	
Subpopulation		54	

Table 7:Sub-sample summary-multinomial regression (II)

		N	Marginal Percentage
design	integrated	43	58,1%
	separated	27	36,5%
	partially integrated	4	5,4%
Valid		74	100,0%
Missing		93	
Total		167	
Subpopulation		50	

Source: Author's calculations using SPSS.

Table (8):Sub-sample summary-multinomial regression (III)

		N	Marginal Percentage
design	integrated	91	54,5%
	separated	62	37,1%
	partially integrated	14	8,4%
totalitarian regime	non-totalitarian	134	80,2%
	totalitarian	33	19,8%
Valid		167	100,0%
Missing		0	
Total		167	
Subpopulation		2	

Table 9:Sub-sample summary-multinomial regression (IV)

		N	Marginal Percentage
design	integrated	20	62,5%
	separated	10	31,3%
	partially integrated	2	6,3%
Valid		32	100,0%
Missing		135	
Total		167	
Subpopulation		32	

Table 10: Sub-sample summary – binary regression

design	integrated	non-totalitarian	78
		totalitarian	13
	separated	non-totalitarian	47
		totalitarian	15

Source: Author's calculations using SPSS.