New and old social risks in Korean social policy: the case of the National Pension Scheme

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ABSTRACT

This is a study of old and new social risks in Korean social policy, in relation to the National Pension Scheme (NPS). It provides a comprehensive overview of the Korean pension structure and the emergence of new social risk groups. Based on the Korean Labour and Income Panel Study undertaken over eleven years and using bivariate and multivariate analysis, this thesis examines the effectiveness of the NPS and its reforms in protecting new social risk groups.

The analytical framework of this thesis is based on the New Social Risk theory. Its limitation in explaining developing welfare states like Korea is also highlighted. Over the past two decades, the NPS has undergone dramatic financial cuts as its coverage expands rapidly. Given Korea's aging population, the reliance on such public schemes will further increase, which will have a profound impact particularly, on those with low income. Societal and economic changes in the Korean society, as a result of de-industrialisation, have given rise to new social risks groups that differ from those that predominate in the post-war welfare era. These new groups are vulnerable because they cannot afford to contribute to their pension even during their working life with the likelihood that they will have little or no benefit from the NPS when they retire. They tend to be the atypical contract holders and workers of small-scale enterprises without unions. Contrary to expectation, women with care responsibility and young workers are less vulnerable.

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LIST OF ACRONYMS AND ABBREVIATIONS

BHPS	British Household Panel Survey
BOAPS	Basic Old-Age Pension Scheme
EDs	Enumeration Districts
GEPS	Government Employees Pension Scheme
GSOEP	German Socio-Economic Panel
HHID	Household Identification
IRR	Income Replacement Rate
KLIPS	Korean Labour and Income Panel Study
MPPS	Military Personnel Pension Scheme
NPS	National Pension Scheme
OECD	Organisation for Economic Cooperation and Development
OSHs	Original Sample Households
O.R.	Odds Ratio
PSID	Panel Study of Income Dynamics
PSTPS	Private School Teacher Pension Scheme
SPOPS	Specific Post Office Pension Scheme

CHAPTER 1 INTRODUCTION

1. Introduction

In 2010, South Korea has the highest poverty rate among persons aged 65 and over (47.2%) as compared to the other OECD countries (OECD 2013). The increasing rate as compared to 2007 also contrasts starkly with the decreasing rate on average of among OECD countries of the same period (*ibid.)*. Becoming old is one of the most profound risks faced by South Koreans today. There is a dire need for the government to install welfare policies that can adequately protect its aging population. For the last three decades, the government has taken the unprecedented steps of introducing welfare policies geared towards income provision for the aged: for instance, the National Pension Scheme (NPS) in 1988, the Private Pension (PP) in 1994, the National Basic Livelihood Security System (NBLSS) in 2000, the Retirement Pension Scheme (RPS) in 2005 and the Basic Old-Age Pension Scheme (BOAPS) in 2007. These programmes are based on the awareness of the critical importance of providing a decent income for all retirees.

However, such efforts have not reduced Korea's high old-age poverty rate to date. Korea's poverty rate is a useful indicator of how well past pension systems have provided secure incomes to its citizens. The government's claim that the poor performance of the Korean pension system is due to the late introduction of the public pension schemes has still to be proven (OECD 2013). Moreover, recent pension reforms seem to further disadvantage the less well off in their old age. In the case of NPS, for example, its benefits have continuously and significantly been reduced by the government since its introduction (more in Chapter 3).

On the contrary, OECD welfare states have been successful in providing

adequate retirement income for their citizens. For instance, the general income of older people has increased faster than that of the population as a whole from the mid-1990s to the late 2000 in France, Israel, and Luxembourg (OECD 2013). This is because the lion's share of transfer of public fund is to the older people, in the forms of earning-related and means-tested pensions (*ibid*.).

From the early 2000s, these welfare states have developed the New Social Risks theory to highlight the emergence of new risks that have occurred as a result of societal, economic, and demographic changes in post-industrialised societies. It is expected that the existing pension system will have profound and negative impact on new social risk groups, particularly in terms of their access to adequate income in their old age as their employability decreases in the labour market (Taylor-Gooby 2004; Bonoli 2005; Ploug 2011). Thus, most welfare states are aware of the importance of providing viable pension schemes to address these new risks.

However, the New Social Risks theory tends to be limited to the contexts of Western welfare states and does not adequately explain the realities in developing welfare states, such as Korea (Cerami 2008). The theory tends to see new social risks as sequential to old social risks that have developed over time, based on a linear historical perspective. So the theory focuses only on the need to reform the existing welfare systems in order to accommodate emerging new social risk groups, assuming that the old risk groups are no longer a social problem.

However, in the case of Korea, the old and new social risk groups exist at the same time and their numbers in relation to the overall population are growing faster than in any of the Western welfare states. Hence, given the fact that Korea

has yet to become a mature welfare state like most others [1] in the OECD, it has to deal with both old and new social risks simultaneously.

2. Twofold Challenges in Korea

Korea faces a multitude of problems when addressing social risks. These include, increasing instability of the job market, rising unemployment rate, high suicide rate among the youths and the elderly, a rapidly ageing population, and so on. The high poverty rate among the retirees deserves particular attention because of the urgency of their problems, as well as the rate at which this group is expanding, as a result of Korea's ageing population. Almost one out of two old persons in Korea is living below the poverty line today, which is the highest among OECD countries (OECD 2013). The recent OECD report reveals that the poverty rate of people aged 65 and over is 47.2% in Korea. This is almost four times higher than the OECD average of 12.8%. According to the report, this is mainly because Korea's pension system is not fully developed to deal with recent social and demographic changes.

As seen from this perspective, the future generation of retirees is expected to live in even harsher and poorer conditions than their predecessors since they are much more exposed to the increased flexibilisation within the labour market (e.g. increase in atypical jobs) with pension schemes that are far less favourable to them (e.g. decreasing benefits level). Generally speaking, the current Korean pension structure is characterised by low basic state pension; public and retirement schemes that are strictly contribution-based and directly linked to the de-regulation of the labour market, as well as private pension schemes which are

[1] E.g. Sweden, Denmark, Germany, France, US and the UK

voluntarism-based, like in the UK (Natali 2012). Moreover, all the major pension reforms of the past fifteen years have shown little reprieve for those who are socially and economically vulnerable.

Thus, Korea faces a twofold challenge : the simultaneous construction of 'an old welfare state' to protect those with low or minimum income among its aged with 'a new welfare state' that addresses groups of people who face new, emerging risks as a result of recent economic, social, and demographic changes. Similarly, as a sole integrated public pension scheme in Korea, the National Pension Scheme (NPS) faces a two-fold challenge. Firstly, the immaturity of the scheme, and secondly, its inability to adapt to changes. The issue of maturity is related to its adequacy and sustainability in benefit provision whilst the issue of adaptation is related to its coverage and practical efficacy in supporting and protecting those who are most disadvantaged by the increased flexibility of the Korean labour market.

The effectiveness of the scheme in providing adequate income for the aged can be measured by Korea's poverty level as the litmus test. The older one gets in Korea, the greater is the danger of falling into poverty. Supplementary pension schemes (i.e. Private, Retirement, and Basic Old-Age Pension schemes introduced in 1995, 2005, and 2007 respectively) do not seem to be effective in ensuring that income levels after retirement can remain viable and sustainable. Few people have opted for more than one voluntarism-based scheme, not to mention that the Basic Old-Age Pension scheme has remained controversial because of its relationship with the National Pension Scheme.

In addition, most past reforms of the NPS have revolved around fund sustainability, rather than of its benefit adequacy. As a result, the income

replacement rate has dropped substantially from 70% to 40% in order to prevent early fund depletion (more in Chapter 3). This implies that if the NPS scheme is not reformed, it will fail to provide adequate retirement income for its beneficiaries.

Secondly, despite the rapid expansion of NPS coverage, de-industrialisation of the Korean society has led to further losses in the NPS, especially since as the labour market becomes increasingly flexible, many Korean workers can no longer meet the required conditions of the scheme. Its principle of social insurance based strictly on self-contribution requires job security and stability on the part of its contributors for the coverage to be effective. If one does not pay regularly to the scheme, this will lead low or even non-entitlement of benefits upon retirement.

According to Kang's research (2011), the extent of non-subscription of NPS[2] is estimated to be at 57.5% among the age group of 18 to 59 years old. As recent official data reveals (*Statistics Korea* a), the coverage rate of temporary and daily workers in the NPS is only 16.7%, in stark contrast to the 97.0% of permanent workers as of April 2013. In 2013, the proportion of temporary workers within the Korean labour market was 23.8%, which was much higher than the OECD average of 11.8% (see table 5-6).

Based on the discussion above, the NPS is confronted with two complex challenges at the same time. It will fail to alleviate poverty as it claims to do if it does not step forward with a more generous scheme for those who are disadvantaged in the de-regulated labour market. Since low old age poverty in some countries is mostly due to the success of its public pension policy (OECD 2013), Korea needs to put in place more support mechanisms for those who are

[2] This includes not only those who are not insured but also those who do not contribute t their pension for some reasons.

most affected by a flexible labour market as so far, they have not been benefitting from the scheme. This is a much overlooked issue in all the proposed NPS reforms.

3. Research Aims and Questions

This thesis is concerned with the set of circumstances whereby the Korean public pension scheme is struggling to provide adequate retirement incomes and in coping with new social risks that leave many people with no pension, or low income in their old age.

The aims of this research are:

a) Exploration of the emergence and development of new social risk groups in Korea

b) Assessing the extent to which the pension policy and its reforms address the problems faced by the new social risk groups

The main research questions are:

a) What are the key developments in Korean pension reforms?

b) Who are the new risk groups in Korea and how did they come about?

c) To what extent did the recent pension reforms help new social risk groups in terms of pension coverage? Were these reforms successful?

This empirical study hopes to shed light on the problems faced by new social risk groups in the light of Korea as a developing (and not a fully mature) welfare state. Additionally, it hopes to suggest alternative pension scheme(s) that can provide better and more adequate retirement incomes to all pensioners.

4. Structure of the Thesis

This thesis is divided into seven chapters. Chapter 1 is the Introduction that

provides the background to the research purpose and questions. Chapter 2 gives a comprehensive review of the existing research on New Social Risk theory. It examines the relationship between the theory and the pension schemes specifically in western welfare states. The chapter also examines the limitation of the theory in relation to developing welfare states like Korea. Chapter 3 provides an overview of Korean social policy with particular attention on its pension system. It reviews all the pension schemes that comprise the Korean pension structure and examines their relationships to the new social risk groups. It also assesses if and how the NPS reforms have benefitted the new social risk groups.

Chapter 4 explains the sources of primary and secondary data used in this research and how the new social risk groups are defined based on existing literature. It also explains the research design and methodology selected for this empirical research, which is based on logistic regression analysis. Chapter 5 and 6 elaborate on the empirical data collected. Chapter 5 identifies the extent to which new social risk groups exist in the Korean labour market and reports on the trend of exclusion from NPS coverage over the past decade, especially among the new social risk groups. Chapter 6 explores the direct impact new social risk groups have on pension coverage. It also discusses how the pension reforms affect their probability of coverage in the NPS. Chapter 7 summarises the findings and explains the contribution made by this research to the New Social Risk theory. It also offers policy recommendation on how NPS can cope with the current and changing Korean realities and topics for future research.

CHAPTER 2 LITERATURE REVIEW

1. Introduction

A main feature of post-war welfare states (circa 1940s – 1970s) was its determined attempt to maintain social risks at an acceptable level. However, these states have all met their limitations after about three glorious decades, and are currently struggling to tackle new circumstances brought forth by rapid societal, economic, and demographic changes. A wide range of western scholarship on new social risks reflects the anxieties of these welfare states. Many of them point out that the new kinds of risk (namely, reconciling paid work and family care, long-term unemployment, being the working-poor, single parenthood or interrupted career) that are substantially generated by the process of de-industrialisation have led to serious consequences. These have not been addressed by traditional welfare programmes and require a whole new approach to overcome them (Esping-Andersen 1999; Pierson 2001; Taylor-Gooby 2004; Armingeon and Bonoli 2006). This chapter shall discuss the new social risks and their implications for welfare programmes in various countries, specifically in relation to pension schemes.

The first section discusses what these new social risks are, as compared to the old social risks and the appropriate type of risk management to deal with them. It also examines changes in a de-industrialised society, with an increasingly flexible labour market and unstable family structure. We will also consider new social risks from the perspective of *dualisation discourse*. This is followed by the definition of new social risk groups and delineating which of these groups are most vulnerable to the new risks and the reasons.

In the second section, we shall examine pension schemes, as a critical

protection programme of welfare states, and discuss their links with new social risks and with each of the new social risk groups respectively. Based on the *dualisation discourse,* this section also clarifies if and how pension schemes give rise to social inequality.

The third section describes how the relationship between new social risk groups and pensions differ in different countries and welfare regimes. The final section summarises the links found between new social risks and pension schemes.

2. New Social Risks and Welfare States

2.1 Social Risks and Welfare States

In general, the concept of 'risk' is closely connected to 'uncertainty or unpredictability that results in welfare losses' (Holzmann and Jørgensen 2001: 553). Traditional risks, such as war or natural disasters have a pervasive, undesirable impact that affects all members of the society indiscriminately. Thus, social risks are societal uncertainty that cause welfare losses to individual(s) in a particular social context. For example, ageing is an inevitable and universal event, experienced by those who live long enough to become old and this causes various risks (e.g. deteriorating health and/or income). Thus, as part of risk management, social risks determine the kind of welfare structure to be created and developed so as to eradicate or at least, mitigate their undesirable consequences.

Holzmann and Jorgensen (2001) underline the two historical movements that have brought far-reaching changes in terms of social risks and risk management. These are industrialisation and urbanisation. At the wake of industrialisation followed by urbanisation, conventional and informal risk-

managing mechanisms at the community level (for example family, guild, church, and so forth) are constrained by emerging work-related risks precipitated by the process of industrialisation (i.e. 'old social risks'). These are namely, ageing, work related injury, sickness, disability, death and unemployment. However, the risk-management system responsible for coping with these perils is increasingly constrained when tackling these new issues in a collective manner.

It was in the late 19th century that these risks came to prominence (Arza and Kohli 2007). Then welfare states began to intervene, giving rise to the introduction of a prototype for social protection, such as health care and public pension provisions. As intended and expected, the objective of the welfare state was to fill the gaps between social demands and supplies in a free market (through pension, disability and unemployment benefits), so as to redress the discrepancy between income and expenditure during one's life time (e.g. child support), or to meet state-sanctioned needs (e.g. heath care and education) (Taylor-Gooby 2004).

Since the 1950s, post-war welfare states have proliferated as a result of specific economic and societal conditions. Stable economic growth with low prices and high employment were sustained. Secondly, within families, economically active members and their dependents were balanced out giving rise to a stable nuclear family structure (i.e. a male-breadwinner, female-housewife and children model). Broadly speaking, there is much support in existing literature for the idea of a ' golden age' in welfare capitalism after WWII that is aimed at guaranteeing income security of the male breadwinner in full employment (Esping-Andersen et al. 2002; Taylor-Gooby 2004; Bonoli 2005).

While welfare states were widely regarded as 'functional complements to industrial production', there are a few perspectives that differ in their

understanding of this societal development (Korpi 2006: 167). Given that functionalists are criticised for overlooking political actors in framing welfare policies, the *power-resources* theorists focuses on 'class-related distributive conflict and partisan politics' (Korpi 2006: 168) instead. They focus on the strength of union members, political solidarity between organised labour and other citizens. This approach also has its limitation as seen in some western welfare states whereby their welfare policies were developed through power resource mobilisation rather than through labour power. The German Conservative Party in the late 19th century is a case in point.

2.2 Changes in the Welfare State, Labour Market, and New Social Risks

However, huge environmental changes in welfare states since the 1970s are undermining the foundation of these states. First of all, they had experienced stagflation due to the energy crisis of the 1970s and, as a result, they had to abandon their full-employment policy (Iversen and Wren 1998). In addition, a demographic reshape owing to decreasing fertility and increasing life expectancy began to squeeze pension budgets. Last but not least, there was a big wave toward deindustrialisation and globalisation across the world, thus making the labour market increasingly flexible.

It is important to question if there was ever a golden age of the welfare state. Or whether increased labour flexibility is indeed a new phenomenon? Critical scholars like Auer and Cazes (2000) have done their empirical study on the subject and argued that the labour market is not as unstable as it is often thought to be. By comparing the employment rate between the European Union, the United States and Japan, they concluded that although there is increasing flexibility in the

labour market in many countries today, the overall trend is not as dramatic or alarming as we expect, in the major economies across the world (*ibid.*). They also concluded that the labour market in most countries have a mixture of a central stability section with an outer flexibility section, rather than a homogenous labour structure that is entirely flexible (Auer and Cazes 2000: 406).

De-industrialisation often refers to the 'long-term absolute decline of employment in the manufacturing sector' as underlined by Bazen and Thirlwall (1989: 7). By and large, the manufacturing industry underpinned the post-war welfare states by granting full employment and a stable economic growth. However, growing unemployment in this sector is not matched by a corresponding increase in the service sector and this in turn, imposes huge burdens on the welfare states. Such new economic circumstances are largely incongruous with the establishment of welfare states, which are primarily based on the model of male-headed households that assumes full employment in the manufacturing sector.

Iversen & Wren (1998: 508) describe the situation confronting welfare states in today's socio-economic conditions as 'trilemma'. According to them, welfare states in service-based economies cannot achieve three objectives simultaneously; namely, 'income equality, employment growth, and budgetary restraint' because of the trade-off in the service industry. To be more specific, high employment rate in service industries is only possible by increasing low-waged jobs or by depressing wages of existing jobs, thus resulting in greater income inequality.

Therefore, governments must create alternative jobs in the public service sector to achieve income equality. This will inevitably lead to budget deficit. Consequently, most welfare states have to prioritise at most, two of the many

options at the expense of the rest. This has been empirically proven by individual country cases from 1970s to 1980s. However, Oesch (2010) and Cantillon (2011) for instance, have criticised such an approach.

Meanwhile, as Taylor-Gooby (2004) analyses, there are four stages in the process of transition from an industrial to a post-industrial society that are important drivers of new social risks. Firstly, the mass entry of female workers into the labour market as a result of increased female literacy and an expansion of the dual-earners family model. This constitutes a large proportion of the service industry, thereby improving family welfare, not least because women generally prefer service-sector jobs for their relatively flexible working conditions. On the other hand, pairing paid work and domestic care has also created greater family instability; making it harder for female workers to retain gainful jobs. This in turn creates new risks for them (Esping-Andersen et al. 2002; Bonoli 2005).

Secondly, the importance of elderly care is increasing substantially due to extended life expectancy. Without the needed social care programmes, female workers often find themselves having to withdraw from the labour market to provide domestic care. Thus, whether they remain in the labour market largely depends on their ability to access care services (Esping-Andersen 1999). Consequently, more households are likely to become working-poor as the breadwinners' real wage decreases, as compared to the generation before them when it was still possible to earn a family wage.

Thirdly, the structural changes of the labour market no longer provide low-skilled workers with gainful employment. Since education and technical skills are highly related to employment in the knowledge-centred industries, low (or non)-skilled workers with low education are likely to fall into long-term unemployment

and live below the poverty line.

Lastly, new social risks can also occur in some countries where citizens make the wrong choices in private pensions or health care under inappropriate governmental regulations. With recent changes in the welfare states, people are moving into privatised schemes in order to meet their welfare needs but market-oriented private services do not always deliver satisfactory outcomes. Without appropriate government intervention to protect the people from possible welfare loss, privatisation may in fact, lead to greater social insecurity.

Consequently, new challenges (namely, 'new social risks') have emerged in response to the need to maintain one's bargaining power in the workplace, and the need to strike a balance between paid work and domestic care at the individual level. A new era of de-industrialisation has generated new social risks (Esping-Andersen 1999), and particularly and prominently, female workers, young workers, and workers without appropriate skills are most vulnerable to new social risks (Taylor-Gooby 2004; Bonoli 2005). Structural changes in labour market and family model in post-war welfare states have inevitably rendered the traditional protection system ineffective. Thus, new risks create gaps in social protection that must be addressed by new measures of intervention, which welfare states have to adapt to in response.

2.3 Defining New Social Risks

Although the concept and origin of new social risks vary in different literature, the differences are small. Esping-Andersen (1999: 34) depicts welfare states as 'a unique historical construction', which responds to certain social risks in certain times and those new social risks originate from the 'disjuncture between

the existing institutional construction and exogenous change'.

Pierson (2001) also highlights the tendency of incongruity between the two factors, namely, the welfare state's capacity and its citizens' desires, because social and economic changes often precede their corresponding programmes. Taylor-Gooby defines new social risks as risks that people confront in the journey of their lives due to 'the economic and social changes associated with the transition to a post-industrial society'. These changes are for instance, the entrance of women into the labour market in large numbers, an ageing society, the predominance of knowledge-based industry, and the privatisation of social security (2004: 2). He claims that these are 'significant but transitory and particular' transformations and that 'new risks' need 'new welfare' after all (2004: 2).

Meanwhile, Bonoli presents several categories of new social risks by taking into account, the shift from manufacturing to the service sectors and women's entry into the labour market (2005). According to him, today's new social risks are namely, the reconciling of work with family life, single parenthood, caring for a frail relative, possessing low or obsolete skills and insufficient social security coverage. Given these arguments, new social risks can be compared with old social risks as shown in following table 2-1.

To sum up, from the 1940s to the 1970s, western welfare states have constructed and sustained their welfare systems on the basis of an industrial society characterised by full employment and high productivity in the manufacturing industry. This arrangement is premised upon male family providers holding stable jobs and earning a relatively high living wage. With such a family structure, the welfare state only needs to grant supplementary comfort and services to the primary breadwinners. Hence, income loss due to certain life events

(e.g. retirement, disability, sickness, or short-term unemployment) as well as the disjuncture between temporary needs in the course of a life cycle and supplementary income, such as child benefits become social risks that need to be addressed even though, by and large, most families consider social care for children and the elderly as their responsibilities (Taylor-Gooby 2004).

Table 2-1 The comparison of old and new social risks

	Old social risks	New social risks
The era	Industrial society	Post-industrial society
Social foundation	- Full employment in manufacturing-based economy - Male-breadwinner family model	- Increasing flexibility in employment in service-based economy - Increasing double-income/single parenthood family models
Shape of risks	Being old, disabled, ill , temporarily unemployed	Care for children or the elderly, interrupted career, low wage, long-term unemployment
Risk bearers	Male workers	Female, low-skilled, atypical workers, youths
Risk management	Welfare states	New departure?

Source: Taylor-Gooby (2004)

However, changes in social structure have given rise to social risks particularly since the 1980s. While old social risks are related to the loss of labour ability, new social risks is more about vulnerability in and limited accessibility to the labour market. In other words, the transition to post-industrial society has made labour far more flexible and precarious in the job market. Moreover,

demographic changes have also led to other significant social changes (e.g. higher divorce and female literacy rates).

These are undermining the traditional family structure and producing new family structures, such as dual-income and single parent households. Accordingly, the combination of labour flexibility and a modified family model has generated new challenges: interrupted careers, long-term unemployment, accompanied by low-wages. Most of all, if domestic care is not fully socialised, women are deterred from entering the labour market or are forced to withdraw from it so as to undertake care work for the family.

2.4 Dualisation and New Social Risks

Profound changes in the post-industrialisation labour market have generated much more social differentiations that seem to attract increasing scholarly attention today. For instance, the dualisation discourse highlights how the 'outsiders' are increasingly differentiated from the 'insiders' through differential treatment in the job market nowadays, which in turn leads to an increase in atypical or precarious work, and widening inequality (Davidsson and Naczyk 2009; Palier and Thelen 2010; Emmenegger et al. 2012). And these institutionalised differentiations between the 'insiders' and 'outsiders' are occurring in tandem with social policies and national politics as structural drivers.

Generally, the distinction between the 'insiders' and 'outsiders' is based upon a person's location in the labour market (Emmenegger et. al. 2012); the 'insiders' enjoy standard employment with high pay, good social benefits and adequate social protection. In contrast, the 'outsiders' are those at high risk of 'being in atypical employment or unemployment' (2012: 305). On top of it, high

deregulation of the labour market with strong maintenance of formal institutional relations have created more 'outsiders' than 'insiders' from among an increasingly wide range of people (Palier and Thelen 2010; Emmenegger et. al. 2012). The study of *dualisation* pays particular attention on women and their conditions in respect to their socio-structural location.

Due to increased flexibility of the labour market and number of atypical family structures, more women than men are struggling to enter standard employment that guarantees income stability and social protection today. As a result, the issue of 'women at risk' has become an important and 'visible' political agenda, contrary to the past when they were rendered 'invisible' because of stable marriage and family structures and secure social protection provided by the state (Emmenegger et al. 2012: 306).

As compared to the past, more and more workers and from more and more different types of social groups have ended up in insecure social positions today. Social and economic divides are not simply a reflection of the labour market which naturally adapts to socio-economic development. In reality, the process of dualisation, as a result of public policies, *catalyses* these divides, which can in turn, be exacerbated or ameliorated by national politics.

For instance, welfare reforms are regarded as 'gradual dualisation' in Germany and France (Palier and Thelen 2010: 139). In both countries, reforms were implemented in different directions in the same process of dualisation. So that core workers are provided with more benefits, such as occupational insurance/contribution programmes whilst the outsiders in the labour market are given more assistance/non-contribution benefits at the same time.

The different theories of dualisation may contain some variances but they

share many similarities. As new social risks emerge in new socio-economic environments in the form of de-industrialisation, the relationship between the 'insiders' and 'outsiders' becomes highlighted in 'the age of dualisation' (Emmenegger et. al. 2012: 312). Moreover, specific social groups, such as women, young workers, low-skilled workers in the service sector, migrants are considered as 'outsiders' (Emmenegger et. al. 2012; Schwander and Häusermann 2013) and therefore, the new social risks bearers.

However, in contrast to new social risks theorists who insist that there is a distinction between new and old risks, the dualisation perspective acknowledges that 'outsiderness' will always be present in certain social categories, such as women or young workers (Emmenegger et. al. 2012: 307). Furthermore, unlike scholars of new social risks theory, dualisation scholars advocate that welfare policies and politics are precisely, the causes of new risks. And not that new social risks are the consequence of welfare policies' inability to adapt to new environment.

In short, the dualisation thesis, unlike the new risks theory, insists that there are different social groups that can be categorised as 'outsiders', who are therefore, more vulnerable to various types of social and labour market risks. This foregrounds what these new risk groups are.

2.5 Defining New Social Risk Groups

Based on the arguments above, new social risks can be conceptualised as risks that limit people's access to the labour market, which can in turn give rise to job insecurity, and people's non-entitlement to full social protection programmes in the face of rapid socio-economic changes, such as the shift from primary to

tertiary industry, an ageing society, and eroding family structures (Esping-Andersen 1999; Esping-Andersen et. al. 2002; Taylor-Gooby 2004; Bonoli 2005).

This study proposes four different new social risk groups for our empirical analysis (see table 2-2). They are most vulnerable to new social risks (Esping-Andersen 1999; Taylor-Gooby 2004; Bonoli 2005; Emmenegger et. al. 2012). The table below illustrates why they are considered as new social risk groups.

Table 2-2 New social risk groups

Changes in society	New risks emanated from the changes	Most vulnerable groups to the risks
Mass female entry into labour market	Reconciling between domestic care and paid work	Women with care responsibilities
Move towards knowledge-centred industry	Gain and/or retaining secure jobs	Low-skilled workers
Increased flexibility in labour market	Interrupted careers	Part-time workers, temporary contract holders
Increasing dualisation of the labour market	Difficulty in entering the core market	Young workers

Source: Talyor-Gooby (2004), Emmenegger et. al. (2012)

Women with children or care responsibilities are the exemplary cases reflecting the result of a combination of fragmented family model and increased labour flexibility. The influx of women into the labour market represents two sides of the same coin: 'new possibilities' for the economy and 'new burdens' to social provision because of family model fragmenting (Pierson 2001:95). With increasing

divorce rate and decreasing real wages in the service economy, single parents and dual-income family models have become widespread. However, given that domestic care service is barely socialised, women face the pressure of domestic care responsibilities and have therefore, more difficulties than men in retaining standard employment contracts in a de-regulated labour market.

In her research on women's poverty, Kim (2006) pinpoints that the new social risks exacerbate women's vulnerability in the labour market, so that they are more likely to live below the poverty line despite an increase in women's participation in the workforce by over 50% in 2005. The average rate of women in non-standard employment is 69.2% and this increases to 72.8% among women in their late-30s. As in the case of women responsible for child care, new social risks tend to have a precise effect on 'particular subgroups at particular life stages' (Taylor-Gooby 2004: 10). So, when the children are grown up and no longer need full-time care, women may re-enter the labour market and end up in non-standard jobs.

In terms of job skills, Taylor-Gooby (2004) stresses that the lack of necessary skills can hamper people's access to secure jobs. Given the dramatic changes towards knowledge-based economies, workers are more likely to be exposed to new risks as a result of their outdated skills without the benefit of upgrading. In particular, Hinrichs (2012) reveals a correlation between the education level and the employment rate among older workers in his empirical study. According to his analysis, older workers with low skills are the most vulnerable, adding that low wages, low skills and a shorter career span often exist concurrently. Therefore, a knowledge-centred service economy has the propensity to divide the workforce (Esping-Andersen et. al. 2002) by increasing the demand

for a minority of highly skilled workers in a flexible labour market and at the same time, creating many low-wage jobs in the service sector, thereby leading to high unemployment (Esping-Andersen et. al. 2002: 2).

According to the 2010 Korean Economic Activity Population Survey, the ratio of standard employment is proportional to the educational level of the workers whilst that of non-employment is disproportionate to one's educational background (*Korean Contingent Workers' Centre*). In particular, having a post-secondary diploma crosses the threshold of above 50% for standard workers' ratio and below 50% for non-standard workers' ratio conversely; likewise, unemployment rate, which is differentiated by education level, shows similar trends. The rate was 3.1% for those with post-secondary educational background whilst this has increased to 4.2% for those with secondary education. This criterion seems to be a decisive factor on whether or not a worker gains or retains job security.

Atypical workers, that are part-time, with fixed-term/temporary contract workers, constitute another vulnerable group to new social risks. As Kalleberg (2000; 2009) insists, these atypical employment relations are not new. From the mid-1970s onwards, more flexible employment has been created due to sluggish economic growth, technological advancement in the communication and information systems, labour laws that favour permanent contract employees, as well as expanded female and older workforces.

Hence, employers' strategy for greater employment flexibility in conjunction with workers' changing preferences in work patterns have led to an increase in atypical employment contracts. Kalleberg (2009) argues that such changes in employment contracts are critical in our understanding of their

relationship to increased job insecurity and inequality at the levels of the individual, family, and community. As shown in this research, the combined effect between discontinuous job careers and contribution-based social programmes often leave people dependent on public assistant programmes or on their spouses' income. Specifically, Hinrichs and Jessoula (2012) focus on the problem of non- or incomplete entitlement after retirement, arguing that this is 'disproportionately affecting women', which must be prioritised over and above inferior employment status (e.g. 'working poor') before retirement (Hinrichs and Jessoula 2012: 12).

By comparing the coverage rate of different welfare elements, table 2-3 illustrates how workers are treated in a discriminatory way that varies according to employment types. Compared to regular workers, benefits for disadvantaged workers, as well as non-standard workers are substantially poorer (Lee and Lee 2007). In their paper, 'disadvantaged workers' refers to those who have standard employment but do not enjoy company and social benefits, e.g. temporary and daily-waged workers[3]. 'Non-standard workers' refer to those who do not fit neatly into standard employment categories, such as fixed-term, part time workers, etc.[4]. Less than a third of disadvantaged workers have social insurance benefits and only a tenth or less among them receive company benefits. As for non-standard workers, they seem to be better off than disadvantaged workers, even though they enjoy similarly low levels of welfare.

[3] We limit the definition for the purpose of this section

[4] The table below shows components of paid employment in August 2006 (Lee and Lee 2007)

		Regular	Temporary and daily
Types of employment	Standard	43.3%	21.2% (Disadvantaged)
	Non-standard	35.5%	

Table 2-3 The coverage rate of corporate fringe benefits and social insurance, 2006 (%)

		Regular	Disadvantaged	Non-standard
Social insurance	National Pension	98.1	31.3	38.2
	Health Insurance	98.3	30.6	40.0
	Employment Insurance	82.5	28.4	36.3
Corporate fringe benefits	Retirement Allowance	97.9	6.8	30.3
	Regular Bonus	95.7	10.1	27.7
	Overtime Payment	76.9	6.8	21.5
	Paid Holidays	77.3	9.4	23.1
	Five-day workweek	51.5	11.4	28.8

Source: Lee and Lee (2007)

Lastly, young workers also constitute one of the new social risk groups for various reasons. Schwander and Hausermann (2013) highlight that vulnerability in the labour market as represented by long-term unemployment and atypical employment (i.e. the 'outsider-ness') is more likely to happen to specific occupational and social groups, as explained by the *dualisation* discourse. Particularly, the risks in relation to 'outsider-ness' seem pervasive among young entrants to the labour market, as well as women in many European countries, irrespective of their welfare regimes. They are more likely to be disadvantaged in the labour market, in terms of income and job mobility (Schwander and Häusermann 2013: 262).

In the 2010 Korean Economic Activity Population Survey, youth aged 15 to 24 have the highest unemployment rate (10.5%) among all age groups (*Statistics Korea* b). This is in some ways, lagging behind the average unemployment rate of 3.6% for the whole population. In addition, Keum (2011) demonstrates that young workers (aged 25 to 29) received 78.8% of the average wage in companies with

five or more employees in 2001. However, the wage level for young workers has decreased to 71.9% in 2009. Keum (2011) argues that this is due to the trend of income polarisation as the labour market disadvantages young workers not only in terms of employment but also wage levels. For these reasons, it can be said that young workers are becoming more vulnerable as a result of increasing dualisation of the labour market.

3. New Social Risks and Pensions

3.1 The Link between Pensions and New Social Risks

When it comes to the relationship between a flexible labour market and poverty in old age, Hinrichs and Jessoula (2012) point out that, two progressive transitions have occurred in the last few decades, thereby changing the relationship between employment and income security in old age. Firstly, the combination of post-industrialism, colossal female entry into the labour market with care responsibility, and de- and/or re-regulation of the labour market have in sum, produced more atypical employment and unemployment.

Atypical employment careers are characterised by discontinuous labour market participation, recurrent spells of unemployment, enforced early exit, and/or delayed labour market entry (Hinrichs 2012). These features are more or less related to new social risks. Secondly, changing provisions of pension benefits in response to changing demography has led to several continuous reforms in various countries. Thus, it is very important to understand how pension schemes (including reforms) interact with variable labour market arrangements (Hinrichs and Jessoula 2012) in practice.

As Hinrichs and Jessoula (2012:7) indicate, the concept of standard employment[5] refers to work conditions that are related to 'job stability, wage level, access to social benefits and the like'. In this regard, workers who do not involve themselves voluntarily (or involuntarily) in standard employment must put up with job instability and very often, low wages, which in turn, leads to their limited access to social benefits. As labour market flexibility increases, these non-standard workers have also become widespread since the early 1980s when economies began to veer towards services, economic growth began to slow, unemployment began to soar and global competition began to accelerate (Buschoff and Protsch 2008; Hinrichs and Jessoula 2012).

More importantly, the length of time of atypical employment careers and the stage at which these take place during one's working age shall decide if atypical careers precipitate uncertain income patterns before and after one reaches the statutory retirement age (Hinrichs and Jessoula 2012). Accordingly, "(o)ne of the important points to consider is 'how spells of involuntary joblessness and early exit are taken into account in statutory and supplementary pension schemes" (Hinrichs and Jessoula 2012: 13). In other words, the length of time that a certain economic status (e.g. precarious job, unemployment, etc.) in the labour market is retained, could be the most critical determinant of people's ability to overcome their risk of poverty in old age (Buschoff and Protsch 2008; Hinrichs 2012).

Another aggravating factor is the lack of mobility from temporary/atypical contracts into standard/stable jobs (Hinrichs and Jessoula 2012). The following

[5] A pattern of gainful employment implies continuity and stability of employment (Hinrichs and Jessoula 2012).

example demonstrates how difficult it is for atypical employment contract holders to improve their status in the labour market. In their empirical research, Lee and Lee (2007) highlight that, although workers can enter non-standard employment just to get into the labour market and later, move to a more stable job, only about 8% of non-standard workers in Korea managed to move into standard jobs between 2005 and 2006. On the contrary, more non-standard workers (14.1%) have left the labour market than those who remained, or those who moved to other non-standard employment in the same period. This indicates that atypical employment is not a sufficient stepping-stone to standard contracts, in fact, it is itself a dead-end (Lee and Lee 2007).

One problem of a flexible labour market is that non-standard employment patterns do not match existing pension programmes. Vulnerable workers are more likely to be trapped in inferior working conditions for a long time, say from working age to old age or even in their entire work life (Esping-Andersen et. al. 2002: 6). This is because, as discussed before, the post-war welfare system assumes that people have standard careers i.e., full-time work and life-long careers (European Commission 2006; Castles, Leibfried and Lewis 2010).

Thus, the main challenge for precarious workers in terms of pension is their lack of contribution record, combined with incremental atypical employment patterns. Their interrupted employment trajectory directly results in incomplete pension coverage. In principle, a contribution record is the absolute determinant of whether or not, one is entitled to social benefits and how much. As expected, non-standard workers tend to have a shorter contribution profile which increases their vulnerability and their possibility of falling into poverty during old age (Esping-Andersen 1990; Aust and Bonker 2004).

Nevertheless, the emerging and expanding new social risks have generally failed to give rise to a proper pension reform process except for a good measure of pro-elderly pension programmes as the society ages (Tepe and Vanhuysse 2010). In their comparative research, Tepe and Vanhuysse (2010: 218) consider population and new social risks as demand-side changes, and eight individual spending variables (pensions, incapacity benefits, health spending, family spending, and so on) as supply-side programmes.

To see the aggregate welfare expenditure bias, two programmes (old-age pension and survivor pension) are correlated to the ageing population variables. And two other programmes (family spending and active labour market policies) correspond to new social risks as key programmes. After analysing the data, they concluded that the issue of new social risks as compared to the issue of an ageing population rarely become the political agenda and thus, tend not to attract the appropriate resources to address the problem. Thus, even in welfare states, demands by new social risks groups hardly have any effect on government spending. On the contrary, issues surrounding an ageing population tend to influence government's pension spending.

This line of reasoning coincides with Bonoli's observation (2005) to some extent. He argues that the political consent on the issue of new social risks tends to result in adopting major policies, which regards them only as a minor *quid pro quo* against major changes. With respect to political mobilisation of new social risk groups, their lack of accessibility to policy making, as well as low political representation and unclear political preferences have all resulted in the subordination of new social risk groups in the labour market (Bonoli 2005: 436).

3.2 The Link between Pensions and New Social Risk Groups

Some literature pays attention to the adverse effects of financial sustainability on new social risk groups in pension reforms. Specifically, pension reforms implemented in some countries include parametric revisions, which reinforce the linkage between contribution and benefits, eligibility conditions, and higher entry age (Hinrichs and Jessoula 2012). It is argued that this kind of reform movement may threaten the pension rights of non-standard employees since they contribute for a relatively shorter period, and with lower income.

Arza and Kohli (2007) also focus on the recent trend of pension reform in selected European countries in dealing with pension individualisation. By and large, the pension system has become less functional in its redistributive feature, and there is growing resemblance to individual savings accounts instead. For example, individual actions, such as paid contribution, labour market profiles, and private pensions' outcome have become a pivotal point in deciding the level of benefits one receives. This is made possible through the reform process stressing financial sustainability and 'actuarial fairness' rather than inter- and intra-generational solidarity (Arza and Kohli 2007: 121). Thus, adopting actuarial reasoning may be 'the most politically viable way to maintain financial stability'; in the sense that other options for reform can be difficult to take (Arza and Kohli 2007: 121). The main features of these recent reforms are namely, movement toward individualised schemes focusing on individual responsibility, and consequently, greater dependence on personal working-life histories. Hence, this can end up affecting high-risk groups negatively, such as female workers, workers with low income or intermittent employment, etc. (Arza and Kohli 2007).

Eventually, new social risks without appropriate pension modifications may

resurrect somehow old social risks for some groups, which has to some extent, been addressed by income maintenance and poverty rate in old age for the past several decades (Hinrichs and Jessoula 2012). New social risk groups tend to be much more exposed to atypical jobs for a long spell. They are also highly likely to fall into poverty a few decades later unless the pension systems are modified (Bonoli 2005; Hinrichs and Jessoula 2012). In this regard, it is not surprising to see Tomlison and Walker's empirical research proving that 'previous poverty experience remains the strongest determinant of future poverty experience' (2012: 67).

3.3 Dualisation and Pensions

Generally speaking, social protection systems are recognised as an apparatus for social integration because they address social inequalities through redistribution of wealth and by contributing to poverty relief (Emmenegger et. al. 2012). However, this is not always the case. In spite of its intentions, the system often works as solidifying the existing social relationship shaped by other sectors of society (Esping-Andersen 1989; Emmenegger et. al. 2012).

Esping-Andersen makes the point (1989) that social policy has the characteristic of regulating hierarchical social strata directly and positively. In a nutshell, existing social protection programmes could have the propensity of justifying and maintaining, as well as ceasing current social interrelation for the so-called 'insiders' and 'outsiders' divide.

In this sense, the concept of *dualisation* is defined as 'a process that is characterised by the differential treatment of insiders and outsiders, and that can take the form of newly created institutional dualisms or the deepening of existing

institutional dualisms (output)' (Emmenegger et. al. 2012: 10). These seem to be the two sides of dualisation theory (e.g. in pension policy) associated with new social risks.

One perspective refers to the pension policy as a reinforcement of social inequality originating from the labour market. Emmenegger et. al. (2012) argue that the principle of income-based pension plans in post-war welfare states reinforces socio-economic disparities as a result of dividing workers into the 'insiders' and the 'outsiders' in the labour market. Consequently, the labour market is generous to the 'insiders' with standard employment (e.g. secure and full-time employment). This sharply contrasts the non-standard employment (part-time, temporary employment contractors) of the 'outsiders, which has a particular bearing on women and youth who do not possess many relevant skills (Taylor-Gooby 2004; Emmenegger et. al. 2012).

In other words, social protection programmes are designed to offset labour market inequalities, but it has been empirically proven that these programmes on the contrary, are in fact, reinforcing market dualisation and strengthening occupational segregation. Lee and Lee (2007) highlight how a social security programme can function badly in labour market segmentation, for instance. In their research on Korea, labour costs, including corporate fringe benefits and social insurance contributions are the main reasons for employers to employ more and more non-regular workers in order to reduce their financial outlay.

Consequently, the pension coverage expansion policy of the government does not work as well as expected for these vulnerable workers. Hence, new inequalities through the dualisation process are 'not just a result of structural labour market change, but they may also be a result of social policy developments'

(Emmenegger et. al. 2012: 7), thus rendering it as 'an inadequate instrument to cover outsiders' (Hausermann and Schwander 2012: 41).

In the case of France, according to Palier and Mandin(2004), its new policies' emphasis on new social risks should be taken into account in the welfare state's dualisation process. The new policy is vastly different from the traditional system, by bringing into awareness that the social system is to be blamed for exacerbating social exclusion. This echoes Kwon (2009), who argues that social policy, particularly the pension schemes, in fact reinforces inequality. To be more specific, the welfare regime in East Asia is by and large, a tool to protect specific groups of workers of key industries who are seen to promote economic growth.

Consequently, workers from other sectors deemed as economically insignificant are excluded from social protection, thus aggravating inequalities. Recently, Frericks and Maier (2011) analysed the gender impact of a series of pension reforms over the past two decades. Interestingly, they observed that pension schemes still retain (or even proliferate) gender-biased outcomes, despite an increase in our consciousness about gender equality that encourages better understanding of women's roles in workplace and home. This calls for more practical actions to reduce the gender gap in newly reformed pension schemes. Furthermore, Esping-Andersen (1999:148) insists that the 'insiders' whom the previous welfare state has served may try to defend the status quo by rejecting changes to the system, which in turn leads to further exclusion of the 'outsiders' (i.e. the new risks bearer). Several empirical studies are found to support this (Hinrichs 2001; Taylor-Gooby 2004).

On the other hand, pension reform per se can be regarded as a catalyst of

institutionalising dualisation (Palier and Thelen 2010). Whilst pension reforms in developed countries do not seem to negatively impact on today's pensioners, those reforms however, may have dreadful effects on future pensioners, with worse consequences for those who are vulnerable in the labour market (Emmenegger et. al. 2012).

For instance, the way public pensions have been substantially cutback can affect future pensioners more than today's pensioners. Further, the multi-pillar systems introduced recently in many countries, by which new social risk groups hardly receive benefits from the private pension sector is another case in point. Lastly, extended periods of pension in order to qualify for full benefits can make it much harder for new social risk groups with interrupted careers to get the most out of the plan. Those who are encouraged to retire earlier, as a result of welfare-without-work policy in France is a good example (Taylor-Gooby 2004; Emmenegger et. al. 2012).

Studies on welfare reforms in France and Germany have found that a clear line is drawn between contribution-based social insurance and social assistance. Due to German labour market policy that changes from earning-related status protection to means-tested rudimentary fulfilment protection from 2005 onwards (from Bismarck to Beveridge), there are more workers benefitting from social assistance programmes than from social insurance today (Konle-Seidl, Eichhorst and Grienberger-Zingerle 2007). This implies that more and more well-protected workers are sheltered under a traditional insurance system whereas atypical workers are relegated to means-tested support (Palier and Thelen 2010; Hinrichs 2012).

4. New Social Risks and the Implication for Pensions in Different Countries

4.1 Policies in Western Welfare States

A review of welfare states in the west in how social risks are being managed is important because their systems are considered to be more advanced than the Korean system in terms of risk management. Moreover, they are consistently updating and upgrading in response to new challenges as post-industrial societies. Arza and Kohli (2007: 7) point out that the 'social expectation' of specific groups which have benefitted from the established welfare structures has a tendency to resist pension reforms, for instance, the trade unions in Bismarckian countries. In this region, regime theory by Esping-Andersen is a useful tool for outlining risk policies, although there are deviations in some cases (Taylor-Gooby 2004: 209).

Firstly, the Nordic countries, represented by Sweden and Denmark as the ideal type, have minimised the impact of new social risks through well-built care services and an active labour market policy (Bonoli 2007). According to Bonoli (2007), these countries have transitioned into post-industrial societies in as early as the 1970s, which have enabled them to address new social risks without political difficulties. Taylor-Gooby (2004: 213) also points out that their 'existing high level of universal and wide-ranging provision' has overcome new social risks, thereby rendering these risks as 'potential rather than actual'. Nevertheless, he warns that the recent shift to compulsory private funded pensions, and more defined-contribution schemes may increase new social risks for those with poor-performing private pension schemes that can lead to inadequate provision in the future.

In the case of Denmark, Ploug (2011) argues that the Danish pension reform has somehow been weakened by expanding the scheme to include private sector employees in the 1990s. Involving only economically active people in the scheme implies that the modified pension scheme grants no entitlement to such spells of leave as unemployment, sickness, or maternity leave. Combined with a long history of a flexible labour market, this would mean fewer non-standard workers can expect a decent secondary pension in the future. Although a robust state pension can protect its people from the risk of poverty after retirement, Ploug (2011) adds that it can also become a potential problem for future retirees.

Secondly, reforms in corporatist-conservative nations have been lagging behind because of core workers, who are involved in old social risks. They are resistant to reforms that favour new social risks groups in order to safeguard their interests (Taylor-Gooby 2004). Arguably, they are clinging onto the male breadwinner model and gender-based division in their workplaces, thus leading to the slower development of new-social-risks-related policies.

For example, in Germany one of the main objectives of pension reforms since 1989 is to increase contribution rate, which modifies the benefits formula. This would cause the net replacement rate in general to drop by about a quarter in 2030 (Hinrichs 2012). To compensate for the loss of public pension benefits, a 'multi-pillar approach' to introduce supplementary retirement savings alongside a voluntary private pension, has been implemented through giving tax incentives (Hinrichs 2012: 41). In this process, some factors that once favoured the unemployed or low-paid workers by for instance, revaluing the years of coverage when earnings were low have been cut or scrapped. Subsequently, public pensions have reinforced the linkage between the contribution made and any benefits

granted. After all, Hinrichs (2012)concludes that the recent reforms have not reduced the risks stemming from an increasingly flexible labour market but rather, they have intensified the traditional connection to standard employment careers.

Lastly, liberal regimes including the UK and US have a strong tendency to untangle problems related with new social risks by targeting aid and free market forces. They have insisted on workfare and fiscal reforms as key policies that are 'limited and highly targeted services and benefits with a strong role for a private sector', thereby resulting in increasingly alienating new social risks (Taylor-Gooby 2004: 60).

In the case of the UK, through a series of reform that began since the 1980s, the outcome is the privatisation of the pension system (Arza and Kohli 2007). First, the overall replacement rate is expected to decrease continuously because of projected falling replacement rates in public pension. Secondly, the distribution of workers between public income replacement pensions and private pensions has changed from about 50/50 to more weighting on the private sector. Thirdly, in terms of pension arrangements, most private schemes were defined-benefit schemes in the late 1970s, but by the early 2000s, defined-contribution schemes have taken over substantially by almost half. The consistent transition towards privatisation in pension planning in the UK may create some potential on the one hand and substantial inequalities between typical workers and atypical workers on the other (Taylor-Gooby 2004: 221).

Table 2-4 Comparison of welfare states by regime typology (Esping-Andersen 1990)

	Social democratic regime	Corporatist-conservative regime	Liberal regime
Main features	- Emphasis on universal support - Heavy state intervention and direct provision	- Focus on social insurance differentiated across class - Less dependence on private provision	- Emphasis on means-tested social assistance - Encourage non-state welfare provision
Aim	To promote cross-class solidarity and equality	To preserve status linked to previous earnings	To provide support mainly for low-income groups
Countries	Sweden, Denmark	Germany, France	US, UK
Key changes	- Maintain high-level of public provision - Active labour market policy	- Move towards multi-pillar system	- Strengthen limited and highly targeted services - Privatisation of pension system
Common changes	- Shift towards individualised systems (i.e., more compulsory private pensions, more defined-contribution schemes, tightening the connection between contribution and benefits level, and so on)		

Based on the regime theory, there are both similarities, as well as differences in the way pension reforms have taken place across countries. In the case of the former, it is 'reducing benefits, tightening eligibility conditions and increasing the role of the private sector', whereas in the latter, it is 'increasing the number of specific rules of benefit allocation and the number of pillars and layers in each system' (Arza and Kohli 2007: 17).

This implies that there is widespread convergence and divergence with

respect to pension systems' evolution among countries, regardless of the initial regime boundary. This is known as 'hybrids', which makes regime classification no longer a useful indicator in explaining reform outcomes (Arza and Kohli 2007: 17). For example, Arza (2007: 109) argues that countries like Italy, Sweden, Poland, and the UK have reformed their pension policies more or less towards 'individualised systems'. This trend of individualisation not only focuses more on the private rather than public pension schemes. It also implies that public pension benefits are becoming more directly related to individual incomes or wealth conditions by way of a means-test, which further tightens the linkage between individual contribution history and benefits level (Arza 2007).

4.2 New Social Risks and Developing Welfare Countries

By and large, most existing literature addresses new social risks within the contexts of the periphery of western welfare states. Esping-Andersen (1999) analyses that 'mature' welfare states sustained by strong support (e.g. sturdy economic growth, full employment and stable family structure) drew much attention to their crisis. The absence of support for those encountering new social risks sprung from the gap between welfare states and emerging vulnerable individuals. As described by Esping-Andersen (1999: 45), the idea of maturity indicates 'the move from basic, minimal protection in the 1950s to a much more ambitious of benefit adequacy and universal coverage in the late 1960s and early 1970s'. With regards to this, Cerami (2008) claims that because most studies focus on western European issues, few studies proposed social policy changes in dealing with the two risks simultaneously.

So it is not surprising that few studies have investigated the significance of

developing welfare state that straddles both types of risks that also overlap each other, thus, bearing the dual burden of addressing old, as well as new risks simultaneously. For example, the debate on potential financial deficit through pension reforms in Korea has overshadowed other issues surrounding the pension schemes. Given the circumstances, pension policies that can deal effectively with new social risk groups (especially those in more flexible labour markets) have failed to receive enough attention from policy makers.

The debate in developing welfare countries are slightly different from that in the western welfare states, because of its relatively recent history of social security programmes that tend to protect formal sector workers. Since the informal sector outweighs the formal sector in terms of the number of employees, such a policy has excluded many informal sector workers from social protection (Seok 2003). In this regard, some Korean studies have concentrated on the causes of 'blind spots' (referring to people who do not contribute enough to receive decent benefits for various reasons, or who are out of the scheme either legally or practically), and their consequences on social security programmes. Being interrelated with the issue of new social risks to some extent, this blind spot has been dealt with in terms of pension coverage and income security of retirees (Choi 2002; Seok 2003; Kang 2011).

Taylor-Gooby (2004) predicts that pension reform will increase in significance in the future because new social risks tend to happen to the younger generation rather than the older one. The issue of increasing labour market flexibility and its subsequent new social risks are related to the security issues of workers in employable age (active labour market policy), and not in old age (Hinrichs and Jessoula 2012). However, without appropriate and spontaneous

pension adaptation to a new group of social risks, the situation may result in poverty disaster for older people several decades later (Bonoli 2005). This can only lead to increased public spending in the future. Thus, it can be reiterated that very few studies have drawn attention to the consequences of increasing new social risk bearers and how this will affect income security after retirement (Hinrichs and Jessoula 2012).

5. Conclusion

The welfare states, which emerged in Europe in the 20th century (Marquand 1994), underwent the golden age, from the 1940s to the 1970s, aided by robust socio-economic development. However, the accumulated changes under capitalism have created new conditions, which began to erode the economic and societal assumptions underpinning the welfare states. This transition has produced 'new' social risks, so much so as to put the welfare states 'in crisis' due to ineffective management of new risks. The new social risks theory that explains post-industrialisation focuses on the systematic emergence of new risks and the limitation of post-war welfare programmes in dealing with these risks.

New social risks are strongly related to limited accessibility or vulnerability in a flexible labour market as opposed to standard employment. When it comes to pension scheme, new social risk groups suffer from the lack of contribution, which often correlates to non-entitlement or lower-benefits in various countries without a supplementary policy. The challenges faced by new social risk groups in terms of pension coverage tend to draw little political attention, and are overshadowed by concerns of financial constraint brought forth by an ageing population. The modified pensions for financial sustainability in many countries are likely to

endanger the pension rights of new social risk groups more than ever before. Hence, many scholars have highlighted the fact that existing social protection systems can exacerbate social inequalities as a result.

There are indications that reforms across welfare states are converging, irrespective of their background; in the form of strengthening the relationship between contribution and benefits, tightening entitlement conditions, and most of all, reducing benefits. Particularly, structural reforms of pensions shifting towards an individualised system will be most challenging for new social risk groups because this stresses individual life patterns, such as income, wealth, and contribution history. Thus, no new social risk group which tends to be at a disadvantage in terms of the conditions noted above would be overlooked in favour of other groups which have stronger bargaining power.

In this sense, developing welfare states like Korea tell a different story. Not having the inbuilt system to address old social risks makes it harder for Korea's policy makers to tackle any new social risks. The Korean National Pension Scheme has rapidly extended its coverage to all citizens after the first decade of its introduction. However, the poverty rate of the old, aged 65+ in Korea is the highest of all OECD countries and yet, the coverage does not reach most new social risk groups (more in chapters 5 and 6).

The next chapter shall examine specifically, the Korean pension policy by focusing on the National Pension Scheme and its relationship to new social risks through pension reforms.

CHAPTER 3 KOREAN SOCIAL POLICY

1. Introduction

Western welfare states have been reconstructing their welfare systems in response to demographic changes (Taylor-Gooby 2004; Armingeon and Bonoli 2006). Of those, pension reforms have been a priority in order to balance out welfare budgets (Arza and Kohli 2007). In fact, the real income of the elderly has increased over the decades (Esping-Andersen and Myles 2005), and thus the older generation no longer forms the primary 'poverty class' in western developed countries.

Korea, however, has a different reality. The elderly in Korea are most vulnerable to social risks the among OECD countries (OECD 2013) with a poverty rate among those aged 65 and above at 47.2%, as compared to 35.5% in Australia and 27.6% in Mexico. What causes Korea's aged to be so impoverished? Is an insufficient income protection system to be blamed? Korea has established a multi-tiered income protection mechanism within its pension policy; a quasi-universal basic state pension scheme that is integrated with occupational pension scheme in combination with four other special occupational pension schemes, as well as voluntary retirement and private pension schemes. Some argue that the schemes are not yet matured enough to prevent the elderly from falling into poverty. If so, is the problem simply one of time then? Are there any recent reforms that benefit either the current older generation, or the future older generation in terms of poverty relief?

This chapter shall explore answers to these questions. It will also examine the relationship between pension policies (i.e. coverage) and new social risk

groups. We will review the Korean welfare state as a whole in the first section. This consists of four social insurances, social services, and public assistances. This is followed by a review of the current Korean pension system with a discussion on how each policy came into being; the beginning of the occupational pension schemes from the early 1960s, up to the recent basic state pension established in the year of 2008. The political discourse surrounding their development shall be elaborated. Each pension scheme is also assessed for its effectiveness in preventing or ameliorating old age poverty. The third section shall highlight the key features of the NPS reforms in 1998 and 2007 respectively, in view of the new social risk groups. This section also examines the direction of NPS reform and the reasons for these major changes. The last section will summarise and discuss the implications of Korean pension policy and its reforms on the new social risk groups.

2. An Overview of the Korean Welfare System

Some scholars (Holliday 2000; Gough 2004) consider East Asian economies, such as Taiwan and Korea, as 'productivist welfare capitalism', comparable to Esping-Andersen's welfare regime typology. In their analysis, this exceptional welfare cluster has developed a social policy 'strictly subordinate to the overriding policy objective of economic growth' (Holliday 2000: 708). Social rights are considered as 'minimal with extensions linked to productive activity' and 'state-market-family relationships are directed towards growth' (Holliday 2000: 708). Korea is indeed a case in point.

President Park Chung-hee (1963-79) pushed forward a social policy that was to drive and be driven by fast paced economic development. It is well known that the National Pension Scheme (NPS) came into being because of the country's

dire need for capital mobility, particularly during this phase of its development, which was very much driven by economic growth (Kwon 1999). Most of the welfare programmes[6] from the mid-1960s to the mid-1990s covered only those who contributed to them, based on the so-called 'social insurance principle'. This applies to the National Health Insurance, Industrial Accident Compensation Insurance and Employment Insurance. This social policy proved itself to be relatively successful until the economic crisis in 1997 (Gough 2004). Nevertheless, Holiday (2000) still insisted that Korea remains within the scope of 'productivist welfare capitalism'.

There is compelling evidence that the extensions of welfare have been limited and were implemented mainly to strengthen economic growth (Kwon and Holliday 2007). The welfare system remains particularly limited for many low-income Koreans or those in informal or irregular employment. These are the people who are unlikely to receive social benefits because they do not meet the stringent and complex conditions laid out by the system (Kim 2006).

However, Kim (2008) was among scholars who disagree with this. They argue that the Korean welfare system has experienced dramatic institutional changes since the 1997 economic crisis, which made Korea acutely aware of her inability to cope with the impact of external shock because of a weak domestic social welfare system. Since then, various welfare programmes have been introduced and their scope was expanded to strengthen the social insurance system so as to cushion the people against economic calamities. This signifies a shift from productivism in social policy to a more universal welfare arrangement.

[6] The Public Assistance Programme for the poor in 1965 was an exception (Holliday 2000).

Table 3-1 Korean social welfare system

Social insurance	Social welfare services	Public assistance
- Public pensions - Public Health Insurance - Industrial Accident Compensation Insurance - Employment Insurance - Long-term Care Insurance	- Services for the Aged - Services for Children - Services for Women - Services for the Disabled - Services for the Family	- National Basic Livelihood Security System - Medical Aid - Aid for the Disabled - Disaster relief - Basic Old Age Pension[7]

Source: Kim (2008)

During the economic recession, some changes were introduced to the welfare programmes. Table 3-1 outlines the Korean social welfare system, which consists of three areas: social insurance, social welfare services, and public assistance (Kim 2008). Among these, the National Basic Livelihood Security System was introduced to provide all poor families with a minimum standard of living. In 2000, the previous Livelihood Protection Act was replaced by the National Basic Livelihood Security System, as 'a citizenship-based system', to provide supplementary payment to families whose income does not meet the official poverty line[8] (Kim 2008: 114). Although the selection process for eligibility is quite complex, the outcome has been significant in terms of quantity as the number of beneficiaries soared from about 370,000 in 1997 to 1.5 million in 2002 (Kim 2008). The National Basic Livelihood Security System has been crucial in protecting the

[7] Even though it is classified as a public pension within the Korean pension structure, it should really be part of public assistance technically.

[8] The criteria depend on the number of family members in a household, calculated against income level or property as a cut-off point. The applicants' ability to work is not taken into consideration but they should prove that they have no family to support them in order to qualify for the benefits.

poor, along with the Medical Aid programme, in which recipients can enjoy free or subsidised medical services, according to their financial circumstances, etc.

Another shift in Korean social welfare policy is the expansion of its coverage for all social insurances. In 1999, the NPS succeeded in setting up universal coverage and the National Health Insurance became integrated into 'a socially inclusive single-payer system' (Kim 2008: 114). The Industrial Accident Compensation Insurance and the Employment Insurance also extended their coverage to workers in small-scale businesses, which employ one worker or more.

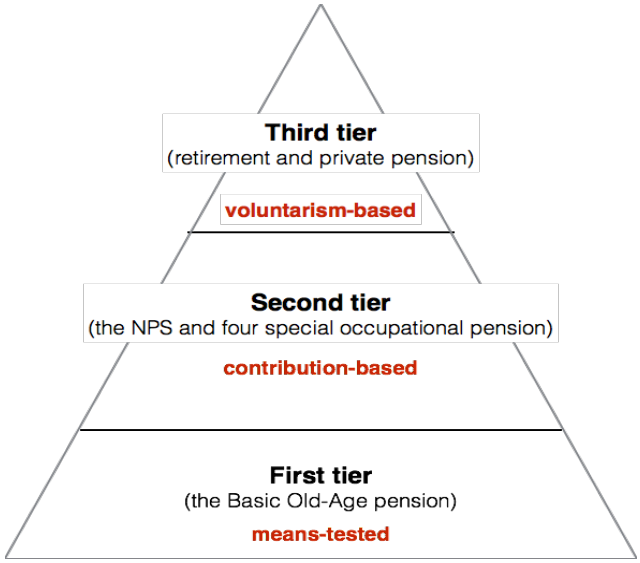
Alongside this, the benefit level of social insurance was raised except for the NPS (more in section 6). More importantly, due to these broader inclusive policies, non-standard workers were covered by all insurance programmes at that time. As a result, the number of insured increased substantially. The insured of Employment Insurance increased from 4.3 million in 1996 to 7.2 million in 2003 and that of Industrial Accident Compensation Insurance went from 8.1 million in 1996 to 10.5 million in 2003 (Kim 2008).

Given this transformation towards a more comprehensive welfare system, Kim (2008) argues that "productivism is no longer a major force that characterises the Korean welfare system" (2008: 120). He (2008: 120) pays particular attention to the 'powerful pro-welfare civic forces' that were on the rise, advocating for more solidarity-based welfare arrangements against the mentality of a developmental state that regards welfare policies as solely for the purpose of economic growth. Therefore, the Korean welfare system was no longer modelled after a path-dependency of social policy since the unprecedented economic crisis of 1997.

3. An Overview of the Pension Structure

Korea has established a multi-tiered old age income security system (Moon 2009). The first tier is the Basic Old-Age Pension Scheme (BOAPS), which is means-tested, and has been in place since 2008. The second is contribution-based public pension scheme established since 1988 i.e. the NPS, and four special occupational pension schemes dating from 1961, all based on the model of social insurance. The third is the Retirement Pension at company level and Private Pension at individual level, and these are basically voluntary.

Figure 3-1 Three-tier Korean pension system



As a multi-tiered system, this classification is to some extent, unclear as compared to conventional pension categories. Unlike the multi-pillar pension system in countries, such as Sweden, Japan, and the UK where the basic scheme and the earning-related scheme exist independently, the NPS in Korea combine both elements in its benefits (Kim and Kim 2005). In a nutshell, the NPS has a sole benefit formula by which two important factors are incorporated. These are

income re-distribution and earnings-linked elements. In general, such characteristics can also be found in pension schemes of single-pillar countries like Germany and the US, which have no basic and universal old-age pension scheme that is funded by tax payers. However, Korea has recently introduced a basic old-age pension scheme.

Nevertheless, this study retains the respective categories for the different schemes as they are because it regards BOAPS[9] as public pension that are being constantly debated and developed towards the formation of a national pension structure since 2008. Secondly, the NPS in its implementation excludes a substantial number of citizens even though legally, it is supposed to cover all citizens. Hence, this study considers the NPS as a restrictive scheme tied to the conditions in the labour market that favours those with stable jobs and regular income. BOAPS, on the other hand, is a universal scheme that covers the entire population.

The next section shall discuss the history of each pension programme with particular emphasis on the political discourse surrounding its development.

4. History of Korean Pension Scheme

4.1 From Public to Private Sector: Four Special Occupational Pension Schemes and the NPS

[9] Kim (2007) argues that the role of BOAP in supplementing the NPS is limited as compared to the first tier of basic pension in a multi-tiered system. Meanwhile, Oh (2007) insists that the introduction of benefits based on a sliding scale of the basic component of the NPS benefit formula (i.e. at 5% of the average income of the insured under the NPS, and expected to increase up to 10% by 2028) should be regarded as a form of public pension and not public assistance.

Korea's first pension scheme was only for civil servants in order to obtain their loyalty to the military dictatorship and to justify the authoritarianism of the state. It was set up in 1960 as the Government Employees Pension Scheme (GEPS). This was followed by three public occupational pension schemes: the Military Personnel Pension Scheme (MPPS) in 1963, the Private School Teacher Pension Scheme (PSTPS) in 1975, and the Specific Post Office Pension Scheme (SPOPS) in 1991 (Kim and Kim 2005).

To begin with, the design of the GEPS was generous: low contribution rates with high benefits level. The two reasons are, civil servants' wages were generally low so the generous benefits were to compensate for their less favourable working conditions (Kim and Kim 2005). Secondly, the authority was not yet aware of the long-term financial implications of such a generous scheme on the country's purse string. Hence from early 1990s, the country's pension expenditure dramatically increased, given the increase in the length of time that contributions were paid into the scheme, which in turn increased the accumulated benefits accrued to the beneficiaries over time, particularly when the policies reach maturity.

Thus by 1995, the pension fund was beginning to shrink, as a result of overspending i.e. expenditure-exceeded revenue (Min 2011). The government quickly responded by instituting various reforms to secure financial sustainability; one of these was to increase contribution rate and reduce paid-out benefits. Likewise, the financial trouble of the MPPS started much earlier than the GEPS. From 1973, MPPS suffered financial deficit for the first time, which led to some parametric interventions; likewise for the GEPS.

NPS, on the other hand was established amidst a rather peculiar historical period in Korean history. Despite the 1960s' rapid economic growth, the then

President Park Jung-Hee struggled to pay off the country's foreign debt (Jung and Walker 2009). At the same time, the government needed huge capital input to continue to fund targeted industries (Lee 1994; Kim and Kim 2005). Hence, a new law[10] was passed in 1973 to provide financial support and ensure income security for retirees. This subsequently shaped the NPS into a public funded pension scheme and not as a 'pay-as-you-go'.

As a result of the 1973 oil crisis and the economic recession that followed, the implementation of NPS was postponed for an unspecified period (Jung and Walker 2009). After several attempts to implement it and failed, a new bill was passed in 1986 and implemented in 1988 to target workers employed in companies that hire ten or more workers. In the 1980s, Korea experienced continuous economic success due to the expansion of its labour force, following the post-war baby-boom of the 1960s. Moreover, the political democratic social movement that was pushing for a re-distribution of social resources ensured that welfare policies remain on the government's agenda and under public scrutiny. There was public consensus on the need for balanced economic growth that would benefit citizens across socio-economic classes (Kim 2002). Since then, the NPS has in 1995 and 1999 respectively, progressively extended its compulsory coverage to include residents in rural areas and the self-employed in urban sectors. It eventually became a universal public pension scheme (Choi 2006b) despite many amendments to the final bill. Nevertheless, a basic but important principle has remained; it is an income and contribution-based pension fund. However, this has excluded the majority of the retirees from the scheme's provision at that time.

The NPS generous benefit system, like most public occupational schemes, is

[10] Known as National Welfare Pension Act then

not exempt from possible depletion of fund in the future. This has led to two major reforms that caused a decade of drastic reduction of paid-out benefits. The main difference between the reforms of NPS and other public pensions is that NPS has started the process before the expected financial problem set in (Min 2011). Despite this compelling reason for reforms, Jung and Walker (2009) insist that the reforms were in fact, only a by-product of a well-endowed fund[11] and management strategies necessitated by the shift of Korean economy to neo-liberalism.

The 1997 economic crisis has caused this inevitable shift in response to IMF bailout of Korea that also exposed its economy to the global financial market. Since this huge fund is 'a core source of stimulation for the stock market in the form of an institutional investment', neo-liberal political actors were keen to shape the discourse for the two major pension reforms to ensure financial sustainability, rather than seeing the reform as a necessity for mainlining income security for the people (Jung and Walker 2009: 433).

4.2. Supplementary Pension Schemes: Private and Retirement Pensions

Private Pension Scheme was mooted in 1994 as a practical instrument of Korea's welfare policy. It was to be a 'bridge pension' because early exits from the labour market were becoming wide spread but the eligible age for public pension pay-out was at the same time, delayed (Lee and Lim 2013). It also aimed to address the problem of income insecurity of the elderly caused by diminishing benefit levels of the NPS over a number of years. In fact, the original objective for the

[11] The fund stood at around 30% of Korea's GDP in 2006 (Jung and Walker 2009).

reforms was to prevent shortage of funds in the financial market due to the introduction of real-name financial transaction system in 1993, and to maintain a sound financial market (Lee and Lim 2013). Nevertheless, the Private Pension Scheme has attracted those interested in long-term savings as a safety-net, enticing people to make voluntary contribution towards their old age.

In addition, as the top end of a multi-tiered income maintenance system for old age, it was designed to increase income through tax waiver as a form of tax-qualified annuity (Choi 2004). Over time, other reforms were regularly implemented to bolster the scheme. Having been through several reforms, the Private Pension Scheme has also expanded in terms of its number of subscribers. At first, the income deduction was 40% of yearly contribution at a maximum of 0.72 million KRW (equivalent to 360 GBP), but this has increased progressively to four million KRW (equivalent to 2,000GBP) from 2011. In addition, the minimum age (it was originally twenty years old and later amended to eighteen) to qualify for the scheme was abolished in 2013, and the mandatory contribution period shrunk to five years from ten in the same year. As in 2011, the number of policyholders in the Private Pension Scheme was estimated at about eight million, accounting for 26.4% of the entire population (aged 20 to 60) (Lee and Lim 2013).

The second supplementary pension scheme is the Retirement Pension Scheme. Before the introduction of NPS in 1988, dependent workers in the private sector had to rely entirely on the Retirement Allowance Scheme, introduced in 1953 as their only source of old-age income (Choi 2006b). This was exclusively for workers with standard employment contracts with companies that hire more than five workers. It has been for a long time, a primary source of income for retirees, providing a lump sum that is based on the sum total of one's monthly salary for

each year worked (i.e. 8.3% of monthly salary) (Kim and Kim 2005). However, the one-off Retirement Allowance Scheme could not adequately address the problem faced by an ageing society and the changes that were occurring in the labour market, not least because of poor government monitoring and control (Phang 2004).

To make up for the deficiency of the Retirement Allowance Scheme, the Retirement Pension Scheme was implemented in 2005. It was set up to cover employees of workplaces that hire five or more workers before it expanded to include firms that hire less than five employees. It is however, up to the discretion of the employers if they would subscribe to the scheme, based on the agreement between the employer(s) and the union(s) concerned (Lim and Kang 2005).

4.3. Quasi-Universal Basic Pension Scheme: the BOAPS

The Basic Old-Age Pension Scheme (BOAPS) was implemented in 2008 to address the inadequacy of contemporaneous protection systems; exemplified by the NPS set up in 1988 to provide people with a retirement income. The NPS is unable to tackle all existing issue, given its short history of only 25 years. Moreover, a series of reforms have in the end, undermined its role as an income security mechanism. The NBLSS shows a narrow coverage for the over 65-year-olds, with only 5.5% claiming assistance in 2006 (Kim 2009a).

In this regard, the BOAPS that provides benefits for up to 70% of those aged 65+ kicks in to compensate for NPS' inadequacy. This new means-tested scheme was highlighted at the time of its implementation to be different from NPS because it does not require any contribution period (i.e. a tax-based system). Moreover, claimants who reach 65 and beyond do not need to go through complicated

procedures to claim the benefits because the only determinant to qualify for its pay-out is the number of families supporting the scheme. However, some doubted its effectiveness as a pension scheme because of the meagre amount of money granted (Oh 2007), which is a mere 5% of the average income of those insured under NPS (as of December 2013). This comes up to only 96,800 KRW a month, which equals to 49 GBP only (*Ministry of Health & Welfare*).

5. Main Features of the Pension Schemes

This section shall discuss how well each tier of pension schemes deal with income security for the elderly.

5.1. First Tier Pension: The Basic Old-Age Pension Scheme

The BOAPS was initiated in 2003 because of public debates about NPS reforms. Although the main problem of pension reform was the potential depletion of fund, political parties put the blind spot[12] issue (in and out of NPS) on the agenda (Oh 2007). As a result, the benefit level of BOAPS was set to balance out to some extent, the reduced benefit replacements of the NPS. And a schedule was set up for this purpose (see table 3-2 and 3-3).

[12] The concept varies depending on perspectives. Generally, it refers to two groups: those who do not contribute either legally or practically, and those who do not get pension benefits due to a lack of adequate contribution period (Kang 2011).

Table 3-2 The benefit level of two schemes (%)

	2007	2008	2028
The NPS	60	50	40[13]
The BOAPS	-	5	10
Total	60	55	50

Note: % of average income with 40-year-long contribution

Table 3-3 The amount of money in BOAPS

	2008	2009	2010	2011	2012
Single household	84	88	90	91	95[14]
Couple household	134	140	144	145	121

Source: Ministry of Health & Welfare [Available at: http://.....]

Note: This is in the unit of a thousand KRW (equivalent to 5GBP)

More specifically, BOAPS was to grant in 2028, 10% of the average income of those insured in NPS; this is an increase from the starting point of 5% in 2008. Due to the would-be dramatic drop of the income replacement rate of NPS from 60% to 40% in 2028, BOAPS was initially designed to compensate the loss of NPS function as a form of old age income security, as well as to minimise public resistance towards the reforms. Thus, since 2008, people are supposed to get their benefits at 50~55% of its income replacement of their lifetime's earning through NPS and BOAPS combined.

In addition, the ratio of benefits pay out by BOAPS has been decreasing slightly but continuously after peaking at 68.9% in 2009 (table 3-4). This is despite the increase in the number of people insured since its introduction (*Ministry of*

[13] This income replacement rate is on the condition that the insured pays his/her contribution for 40 years. Therefore, if a person contributes less than that, the rates are reduced correspondingly to 10% for 10 years or 20% for 20 years of the average income of the total number of persons insured.

[14] This stands only at 17% of National Minimum Living Cost in the same year of 2012

Health & Welfare). This implies that more elderly people will be at risk in the future.

Table 3-4 Changes in the way benefits from BOAPS is received

	2008	2009	2010	2011	2012
Number	5.1m	5.3m	5.5m	5.7m	6.0m
% to all 65+	57.2	68.9	67.7	67.0	65.8

Source: Ministry of Health and Welfare [Available at: http://.....]

There is a problem of selecting the appropriate persons as beneficiaries for the scheme, not to mention the administrative cost of adopting a means-tested method. Basically, due to budget constraint and the principle of non-universality, only 70% of the elderly (aged 65 and above) who have little income and/or property are granted benefits. The norm of 'recognisable amount of income' (the combined sum of monthly income and the converted amount of property income, in addition to an annual interest rate of 5%) is used to calculate the pay-out to the beneficiaries. The point is that the elderly, who have 300 million KRW (about 150 thousand GBP) in terms of property, will not be entitled to any benefits, whether or not, they have a monthly income or they can afford basic expenditures.

5.2. Second Tier Pension: The National Pension Scheme and Four Special Occupational Public Pension Schemes

Generally, there are some major features of the NPS that distinguish it from other public occupational schemes, which are solely integrated and balanced between factors like, income redistribution, earnings-related elements, and intergenerational solidarity (Kim and Kim 2005). Firstly, the NPS basically covers

all people under a single scheme, unlike the four occupational schemes for civil servants. Regardless of personal characteristics (self-employed, dependent workers, farmers, miners, etc.), they are all integrated in a single NPS. By maintaining a single system, there is more likelihood of reducing social inequality. Moreover, such form of pooling financial risks together can potentially increase social solidarity between different income groups, thus leading to social integration.

Secondly, the NPS is designed to provide two benefit elements all at once i.e. maintaining previous income levels and securing a decent living standard, in its formula. A closer look at the pension benefit formula[15] of the NPS can give us a better understating on this.

Accordingly, individual benefits after retirement should correspond proportionally to one's lifetime income over the entire period of one's work life as a contributor. Hence to some extent, it does maintain a consistent life pattern; the higher income one earns, the more benefits one gets. On the other hand, by mirroring the average of all contributors' income in the formula, income redistribution is realised naturally between social classes. To put it differently, a person who contributes less gets a 'relatively' high provision and vice versa. By

[15] Basic Pension Amount (BPA) =

[2.4(A+0.75B)×P1/P + 1.8(A+B)×P2/P + 1.5(A+B)×P3/P + 1.485(A+B)×P4/P + … + 1.2(A+B)×P23/P + X(A+A)×C/P + X(A+A/2) ×6/P] × (1+0.05n/12)

In the equation, the number (2.4, 1.8, 1.5, 1.485 and 1.2) is a constant that determines the Income Replacement Rate (IRR) in specific years. For instance, the constant of 2.4 is used for the year between 1988 and 1998, which represents 70% of the IRR. From 1999 to 2007, the IRR decreased to 60% with a constant number of 1.8, and to 50% (1.5 in constant) in 2008, followed by annual IRR decline by 0.5% until 40% of IRR (1.2 in constant) from 2028 and later. The 'A' of the formula represents the average of the total number of insured person's Standard Monthly Income over the last three years, prior to the commencement of pension payment while 'B' refers to the average of the Standard Monthly Income during the insured period of the insured.

doing so, minimum basic benefit is provided to all recipients, resulting in a transfer of income from the better-off to the worse-off.

Thirdly, NPS also embodies an income-redistribution mechanism between generations. The scheme was initiated by way of a partially funded system [16]as discussed previously, and designed in such a way that the cost-benefit ratios[17] for all participants would exceed '1', regardless of income level. Thus, all income groups are supposed to get more benefits than they have paid for. This also implies that the excess money given to today's pensioners must be paid for by the future generations. Basically, the next generation is responsible for subsidising as much money as the current generation draws in excess from the NPS. This raises the problem of 'inter-generational equity' in debates over pension reform and is instrumental in decreasing the pension benefits levels (Kim and Kim 2005: 212).

Despite its late launch, the NPS has played a pivotal role in pension policy design by overtaking the other public pension schemes in terms of size and its corresponding impact on the society (see table 3-5). In terms of its coverage, about 88% of the employed population is contributing to one of the secondary tier schemes in 2012. And the absolute number of persons covered by the NPS is extremely high; more than 90% of the total number of people is insured in the second-tier. Likewise, NPS beneficiaries represent almost 90% of all recipients. As seen in the table below, from mid-1990s onwards, when the NPS has started to expand its coverage step by step, its sheer size has eventually overshadowed the other pension schemes.

[16] Korea's pension reserve is less than 100% of the present value of all pension liabilities owed to current members (Choi 2006b).

[17] It refers to the expected total amount of benefits over the total contribution. When the cost-benefit ratio is 1, the benefits equal the payments made whereas when it exceeds 1, the benefits exceed contributions (Kim and Kim 2005).

Table 3-5 Coverage of 2nd tier public pensions in Korea (1988-2012)

Year	Employed population (A)	All public pension contributors				B as % of A
		Total (B)	NPS	GEPS	PSTPS	
1988	16,728	5,341	4,433	767	141	31.9
1995	20,365	8,636	7,497	958	181	42.4
1999	20,246	17,383	16,262	914	208	85.9
2003	22,114	18,355	17,182	948	225	83.0
2007	23,399	19,540	18,267	1,022	251	83.5
2012	24,682	21,705	20,329	1,064	312	87.9

Source: Ministry of Health and Welfare

Note: a) Employed population is aged 18+, after 2000, the age became 15+ b) In the unit of thousands of people c) In case of the MPPS and the SPOPS, we will not take these schemes into consideration because they appear too small d) GEPS = Government Employment Pension Scheme, PSTPS = Private School Teacher Pension Scheme.

However, we need to look at the ratio of pension beneficiary to the insured carefully. It is premature to expect the scheme to fully function as an income security for the elderly because of its short history, which at the same time, excludes the current generation of old people. Compared to 32.8% of the GEPS, the ratio of beneficiaries to the insured in the NPS remains only at 17.3% (see table 3-6).

Most of all, since the basic feature of the NPS is close to the Bismarckian model[18], it is strongly linked to the labour market conditions. It has a very generous benefit formula for those who are covered under the scheme, especially those with standard employment. On the other hand, not adapting to the new

[18] It refers to contribution financing, earnings-related provision, and entitlement of benefit through labour market profile (Bonoli 2000: 9-13)

labour market circumstances at the right time also renders the scheme unhelpful to those in non-standard employment.

Table 3-6 Change of beneficiaries to the insured population

Year	NPS beneficiaries (B1)	B1 % of the insured	GEPS (B2)	B2 % of the insured	PSTPS (B3)	B3 % of the insured
1988	3,136	0.1	18,084	2.4	783	0.6
1995	878,102	11.7	56,343	5.9	3,950	2.2
1999	1,254,621	7.7	128,940	14.1	10,550	5.1
2003	1,177,378	6.9	181,726	19.2	17,900	7.9
2007	2,256,912	12.4	255,565	25.0	27,816	11.1
2012	3,518,090	17.3	348,493	32.8	4,438	13.5

Source: Ministry of Health and Welfare

5.3 Third Tier Pension: The Retirement Pension and Private Pension Schemes

There is potential but also a very significant drawback in the Retirement Pension Scheme. For example, workplaces with less than five employees are not obliged by law to insure their workers and this group of workers account for more than half of Korea's working population. Consequently, the percentage of big companies with more than a hundred high-income employees under the scheme tends to be high whilst the percentage of insured from small companies with less than ten employees is far lower. As seen in table 3-7, firms with less than ten employees account for around 84% of all subscribers, but their adoption rate of the Retirement Pension Scheme is just below 10%. This contrasts sharply with big firms with more than 300 employees, in which the rate surges to about 74%. On the whole, the RPS is not attracting workers in precarious employment. In order

for such a policy to be effective and appealing, there is an urgent need to reform it. Otherwise, the Retirement Pension Scheme may reproduce income inequality in the long-run instead.

Table 3-7 Businesses that participate in RPS (by the number of employees)

	Less than 10	10 to 99	100 to 299	300 or more
Share to total	83.8	15.3	0.7	0.2
Share of Joined	9.6	31.9	48.9	73.3

Source: Financial Supervisory Service (2012)

With regards to the Private Pension Scheme, there are limitations in terms of its lack of income re-distribution function and low rate of subscription, especially among the low-income earners. When both high-income earners who pay an income tax rate of 35% and low-income earners who pay 10% contribute to the scheme at the same time, they are entitled to tax refund at the end of the year worth 1.4 million (about 700 GBP) and 0.4 million (about 200 GBP) respectively.

This income deduction regulation that guarantees an internal rate of return of 35% and 10% respectively favours the high-income earners more than the low-income earners (Choi 2004). Next, there are significantly less subscribers among the lower socio-economic classes as compared to the middle class who sign up for private pensions, presumably due to their insufficient household income (see table 3-8). More importantly, only 14.7% of the policyholders remain to the maturity of their initial contract with 84.9% of the subscribers withdrawing their money as a lump sum and not as an annuity (Lee and Lim 2013). Therefore, the Private Pension Schemes with such characteristics are fundamentally flawed as a three-tier pension system. Hence, persons in precarious financial situations tend to

benefit way less from the PPS than from public schemes.

Table 3-8 The insured rate of the PPS by income level (%)

Less than 20	20-40	40-60	60-80	80-100	Over 100
3.0	25.2	47.4	60.9	68.8	63.4

Note: This is in the unit of a million KRW (equivalent to 500 GBP)

Source: Lee and Lim (2013)

To sum up, the third-tier pension schemes, based on voluntarism, can barely provide sufficient coverage, which flies in the face of their intended purpose (Hinrichs 2012). In particular, the Private and Retirement Pension Schemes lack the capacity to prevent vulnerable groups from falling into poverty after retirement. For example, there is a clear distinction between those who are covered by a private pension and those who are not, which corresponds to their employment status (table 3-9). Only 15.7% of daily-waged workers and 24.5% of temporary workers say 'yes', as compared to 39.9% of permanent workers.

Table 3-9 Insured persons % of Private or Retirement Pension Schemes (by employment status in labour market)

	Permanent workers	Temporary workers	Daily workers
Private pension	39.9	24.5	15.7
Retirement pension	16.8	2.7	0.0

Source: Korea Institute for Health and Social Affairs (2012)

As for retirement pension, the figure is even more noticeable; permanent and temporary workers occupy 16.8% and 2.7% respectively in the pension scheme, but no daily-waged worker is insured under the scheme (*Korea Institute*

for Health and Social Affairs).

Therefore, it is not true that non-standard employment workers can get the most out of voluntary-based pension schemes. This therefore, implies two things: firstly, the current Retirement and Private Pensions are not good enough to secure a regular income for old age, especially for the disadvantaged workers. Secondly, the BOAPS and the NPS should be adequate as public schemes, so as to cover those who can barely benefit from voluntary-based pensions.

6. Changes of the NPS

Introduced as a partially funded scheme[19], the NPS financial reserves are expected to peak in 2020 and exhausted in early 2030, which have resulted in its transition into a pay-as-you-go scheme (Kwon 1999). NPS has been criticised for its structural imbalance (low contribution and high benefit) at its core, which has raised doubt about the sustainability of its fund (Kim and Kim 2005; Choi 2006b). This has in turn led to two major reforms. The first occurred in 1998, ten years after its formation, in the form of a decreasing income replacement rate. The second major reform was implemented in 2007, further reducing its benefits. The issue of structural exclusion was hardly mentioned during the debate on the second reform to improve NPS as a secure scheme with universal coverage (Choi 2006b).

On the contrary, an expansion programme installed in 2003 has shown progress in protecting vulnerable groups by covering employees of small firms and some categories of atypical workers. This particular programme has had the rather

[19]The pension reserves are less than 100 % of the present value of all pension liabilities owed to current members (Choi 2006b).

notable outcome of granting better coverage and benefits to those who are (and will be) struggling for a decent quality of life before and after retirement.

6.1. The Reform in 1998

Unlike many other countries, an ageing society was not an imminent threat to the NPS because of its huge accumulated fund in the late 1990s (Kim and Kim 2005); extending coverage, rather than raising pension expenditure, was of major concern to the government. The 1997 economic crisis brought about a neo-liberal economic regime in Korea and this paradigm shift has subsequently caused problems of financial sustainability, which have dominated the reform debate ever since. Despite these, the then Kim Dae-Jung government tried to form a strong pro-welfare coalition to maintain a genuine NPS structure as one of the measures to soften the impact of external shock (Kim and Kim 2005). Therefore, the first major NPS reform in 1998 was generally evaluated as only having received actuarial revision as some welfare functions of the NPS were indeed retained. This is a noteworthy achievement amidst the global trend of receding government welfare after 1997 (Kim and Kim 2005; Jung and Walker 2009).

The main changes of 1998's reform are an expanded coverage, the decline of Income Replacement Rate (IRR)[20], and the delay of entry age to benefits (Choi 2006b). Firstly, the scheme has extended its coverage to the urban self-employed and private sector workers in small companies. Secondly, the IRR was reduced by approximately 15% from 70% to 60%. Lastly, the entry age of pension benefits was to be raised by a year in every five years starting from 61 years old in 2013 to 65 years old in 2028. Benefits were also reduced by around 15% (from 70% to

[20] It refers to the benefit level of the average earner who earned 40 years of coverage

60%). In addition, in 1999, it expanded its coverage to residents in urban areas. This was crucial in establishing its universal presence across the country, at least in legal terms (Choi 2006b).

This received a rather favourable evaluation as compared to the 2007 reform. And careful examination of the changes of the basic benefit formula as a result of the 1998 amendments indicates that these were in line with IRR. As mentioned earlier, a pension benefit formula consists of two important elements in the NPS: income-related and income re-distribution units. However, the solidarity function of the benefits formula has deteriorated in conjunction with a general IRR reduction that went almost unnoticed. The formula, which was '2.4(A+0.75B) × (1+0.05n)' before the revision in 1998, has changed to '1.8(A+B) × (1+0.05n)'. The 'A' is a basic pension component that contributes to income redistribution, while the 'B' is an earnings-related component in calculating one's benefit. As for the 'B', there was no change at all because '2.4×0.75B' before the revision equals 1.8B since then. When it comes to the basic pension component, the 'A' which is providing the income re-distribution, however, has decreased from 2.4A to 1.8A by a quarter.

In other words, the weight of two components (income re-distribution versus income-related components) has changed from 2.4:1.8 (i.e. 4:3) to 1.8:1.8 (i.e. 1:1); indeed 25% of the redistribution function has vanished entirely. Clearly, the impact of the changed benefit formula and reduced income replacement rate was imposed directly on the low-income earners and not on the high income earners. The result is that these important changes have undermined the core function of the NPS, i.e. its income re-distribution function.

Apart from the main features of the reform, there were some desirable

amendments for new social risk groups: a shortened minimum contribution period (from 15 to 10 years) and the new Divided Pension. The Divided Pension was expected to be particularly favourable to women, although it is a gender-free policy (which is proven by statistics, see table 3-10). This may be evaluated against another programme focusing on women in the NPS, besides the Survivor Pension[21].

The Divided Pension benefit is given to people who are married for at least five years of his or her spouse's insured period. They may be granted half of the pension amount corresponding to the marriage period, as part of his/her spouse's old-age pension. Thus, even if a person has no contribution career, in the case of divorce, he/she has a chance to get (half of) a decent pension benefit by way of their spouse's pension. In fact, there has been a dramatic increase in the divorce rate around the time of this reform: from 11.4% in 1990 to 17.1%, and to 47.2% in 2002. The new programme reflected the reality of Korean society by helping especially women to have their independent pension right.

Table 3-10 Change of Divided Pension Beneficiaries

	2007	2008	2009	2010
Women	1239	1852	3037	4021
Men	191	286	470	611

Source: National Pension Service

Although the scheme was expected to benefit women more, the right to benefits has in reality been limited by the fact that the Divided Pension is tied to

[21] Bonoli (2005): 432 reviews that widow's pension was only aimed at women in welfare states, as the only income transfer from male breadwinner to his spouse upon his death.

whether the spouse has pension (Divided Pension is not an independent pension benefit). If the spouse has no pension entitlement in old age, no Divided Pension will be given to his/her divorced spouse. Moreover, if a beneficiary of the Divided Pension re-marries, the right of the Divided Pension benefits is revoked (this was amended in 2007). In this regard, there were drawbacks to Divided Pension even though it has never been fully debated. This is because the overwhelming issue of pension benefit cut has dominated other issues at that time, including the prolonged pension's entry age (Kim and Kim 2005).

6.2 Phased Expansion of Coverage (2003-06)

The NPS, a single integrated system that cover all citizens, forms a good social security system, just as western welfare states have. Discrimination in pension policies against atypical workers, whose numbers have increased far more rapidly since the economic crisis of 1997, was a prominent issue. When atypical workers have only held temporary or daily job for less than three consecutive months, or if they work in micro businesses with less than five employees, they do face dual obstacles. One is that they must pay the entire contribution by themselves on an individually insured basis (that is, 9% of income compared to 4.5% by typical workers with subsidy from their employers). Second is that they often fail to register or pay their contributions since they need their disposable income.

However, a tripartite committee, comprising of the labour (trade unions), management and government sectors agreed in 2002 to expand compulsory coverage to workplaces with one or more employees from July 2003 onwards. This was relatively late in protecting atypical workers from social insecurity,

considering that other social insurance schemes have already done that: Employment Insurance in 1998, Occupational Health and Safety Insurance in 2000, National Health Insurance in 2001.

The expansion needed three different developmental steps according to the characteristics of the business concerned, and in consideration of domestic economic stagnation, and the employers' imminent burden: the phased expansion occurred in July 2003, July 2004, and January 2006 respectively. This phased expansion movement has led to dramatic changes in the coverage rate for new social risk groups (e.g. female and temporary workers) as expected and was also proven by statistics. To be specific, mandatory coverage by the NPS has expanded from workplaces with five or more employees to include workplaces with one or more employees. In addition, the definition of a worker who comes under such a scheme is also expanded to include, 'a daily or temporary worker employed for more than a month', and a 'part-time worker with more than 80 work hours per month' (This threshold was changed to 60 hours per month in September 2010 to improve their pension coverage).

Despite the targeted programme and its visible success, many atypical workers, such as a daily-waged workers working consecutively for less than one month, and part-time workers with less than 80 hours per month at the time (for now, 60 hours a month), are still officially excluded from the pension scheme. However, sequential measurement has not yet been implemented.

6.3 The Reform in 2007

Compared to the previous reform in 1998, the second major reform in 2007 was more radical, resulting in fundamental changes of some features of NPS. The

pro-reform arguments i.e. the neo-liberal actors reiterated that the future depletion of pension funds could have a huge negative impact, both socially and economically. Moreover, the next generation will have to shoulder big financial burden if the current generation does not sacrifice somehow their benefit levels: a retirement and private pension scheme can make up for the low benefit of NPS (Jung and Walker 2009). As a result of these reforms, the income replacement rate has dramatically dropped by a third. All in all, the reform has exacerbated the current working generation's burden, rather than easing the next generation's load (Choi 2006b).

Changes in 2007's reform have reshaped the foundation of pension schemes. Firstly, by maintaining a contribution rate of 9% of monthly income, and slashing the income replacement rate from 60% to 40%. Secondly, to introduce the basic tax-based pension scheme, the Basic Old-Age Pension Scheme (BOAPS).

In fact, the outcome was decided not through policy but rather, political debate. To avoid potential financial crisis, increasing the contribution rate became more in line with the public pension principle, while maintaining the benefit levels. However, politicians have chosen to keep the contribution level but substantially slash the income replacement rates instead, not least due to fear of losing forthcoming elections. Subsequently, the best-off group was the employer group who pay half of the entire contribution (Oh 2007; Jung and Walker 2009). It may be a case of 'the tail wagging the dog', where the scheme substantially surrenders the function of poverty prevention among the elderly for the sake of securing financial sustainability. Although the BOAPS was introduced as a quid-pro-quo for the loss of NPS; both schemes have remained a problem in terms of how they supplement each other to tackle income security of the elderly.

Meanwhile, two credit period (non-contributory) programmes were introduced in 2007: the childbirth credit period (table 3-11) and the military service credit period. Since the NPS has a contribution-based structure, this was a step forward, in that a person who struggles to make sufficient contribution due to an intermittent working career (e.g., female, youth, atypical workers) tends to be vulnerable to new social risks (Bonoli 2003). In other words, a childbirth credit period is a period designed to grant additional coverage to a parent with more than two children in order to encourage higher birth rate in Korea. A military service credit period is a period designed to grant six months of coverage to a person who has successfully finished his military service[22], in order to compensate for their loss of career during the same period.

Table 3-11 Credit period by the number of children

Number of children	2	3	4	5 or more
Additional coverage granted	12 months	30 months	48 months	50 months

Source: National Pension Service

[22] Generally, the period of military service lasts for two years. If it goes beyond six months or more, he is eligible for an additional coverage of six months for his old age pension (*National Pension Service* a).

Table 3-12 summarises the main amendments of the two major reforms as compared to the previous NPS law.

Table 3-12 The NPS major reforms in 1998 and 2007

	Prior to 1998	1998 reform	2007 reform
Contribution rate	Employer: 3% Employee: 6%[23] Total: 9%	Employee: 4.5% Employer: 4.5% Total: 9%	-
IRR	70%	60%	50% in 2008 up to 40% in 2028
Coverage expansion	-	All citizens (Workers, self-employed in urban areas and non-standard workers, etc.)	-
Entry age	60	61 in 2013 up to 65 in 2029	-
Key programmes	-	Divided Pension	Non-contributory period programmes

7. Conclusion

As Korea was officially declared an 'ageing society' in 2010, it has been projected to be 'the most rapid population ageing country among OECD countries' in terms of its old-age support ratio [24]; from 5.6 in 2012, to 1.3 in 2060. Korea has the highest proportion of older people after Japan (OECD 2013, p.182). It is also proven that the old in Korea are the most impoverished among OECD countries. All these factors combined, shall lead to unprecedented poverty among the elderly

[23] Employers pay additional 3% of total contribution every month on behalf of their workers, but they deduct the same amount from the workers' retirement allowance when the latter retire.

[24] The old-age support ratio is an important indicator of the pressures that demographics pose for pension systems. It measures how many people there are of working age (20-64) relative to the number of those in retirement age (65+) (OECD 2013).

unless the social protection system adapts quickly and appropriately to the changing environments.

While almost all OECD countries have innovative public pension schemes that are tied to certain institutional arrangement from the 1990s, most of them have since discarded their pension budget in principle (Hinrichs 2006). Korea is also following the global trend of pension reduction despite the importance of addressing the issue of poverty among its aged.

The issue of financial sustainability was a priority in driving pension reforms, resulting in a substantial reduction of benefits level (Choi 2006b; Jung and Walker 2009). In a nutshell, NPS has rescinded from its original objective by implementing reforms that meet its long-term financial interest, rather than maintaining a viable income for the elderly.

Jung and Walker (2009) argue that this is the evidence that depletion of pension fund is dominating Korea's policy agenda. The pension system as it is will inevitably cause the pension fund to deplete in the near future, which will weigh heavily on the future generation and the Korean economy. This echoes Ervik's argument (2005) that the concern of potential fund depletion is overriding all other issues. Therefore, despite its critical importance, old age poverty remains unresolved throughout the various pension reforms.

Privatisation of pension schemes is another concern to be highlighted. The voluntary third-tier pensions are neither a mature nor a socialised system. In other words, few companies have taken up RPS, and few individuals have taken up private pensions. The more problematic issue in these pension schemes is that they are strongly connected with individual features, such as whether or not the contributors work for larger companies; whether or not the beneficiaries are high

income earners and so on. Therefore, privatised pension schemes tend to aggravate inequality among pensioners, and thereby, affect income security (Esping-Andersen et. al. 2002; OECD 2013). Furthermore, by stressing that it is the responsibility of individuals to invest in private pensions as saving accounts for his/her old-age security is likely to lead to 'blame avoidance' for the government (Arza and Kohli 2007).

Thus, in order to effectively ameliorate poverty, we need to return to socialised pension schemes by granting adequate benefits and strengthening their re-distribution function. Particularly, when considering the new social risks groups, reforms of pension programmes need to consider the following: most reforms tend to affect the future pensioners more than the current pensioners, and affect atypical workers more than typical workers (Emmenegger et. al. 2012). Despite the legal changes in Korea, it is unclear to what extent the new risk groups are covered by NPS, which shall be examined in the next chapter.

CHAPTER 4 DATA AND METHOD

1. Introduction

This chapter explains the main data set used for the analysis of this study; the Korean Labour and Income Panel Study (KLIPS). The research model and methodology used will also be examined. The focus is on modelling techniques and specifications, as well as the procedure used to ensure the robustness of the research results.

In the following section, we will explore the KLIPS data set, from its general features to its detailed procedures, such as the attrition issue and sampling method. In the subsequent section, we will describe all the elements of processing and analysing data in relation to the research questions, which includes the variables used in the analytical chapter, as well as how the concept of 'new social risk groups' is operationalised, based on the theoretical framework presented in the previous chapters. The fourth section will cover the research methodology used including, logistic regression analysis, and set out the dependent and independent variables in analysing the extent of pension coverage.

2. Data Set

In this research, we use the eleven-year-long KLIPS data set from the 3rd wave of 2000 to the 13th wave in 2010 as our main source of analysis. The KLIPS is Korea's only labour-related survey that has a panel element, largely divided into two sets of data, namely, households and individuals who belong to the households, aged 15 years and above. In particular, the individual data set includes diverse economic activities, e.g. the state of economic activity, income-earning

activities, employment characteristics, work hours, labour market mobility, social insurance participation, etc.

In relation to old-age security, we can look to other panels, KLoSA (Korean Longitudinal Study of Ageing) and KReIS (Korean Retirement and Income Study). The objective of this research is not to look at the present conditions of old age security, but to understand the elements that affect the income security levels of the individuals in this group after their retirement. As the sample populations of these panel surveys are those aged 45+ and 50+ each, they are not suitable for appreciating the relations between one's lifetime career in the labour market and the latent pension profile. Thus, the KLIPS is the most appropriate data set to analyse the propensity of pension coverage by these individual economic features and thus, fulfils the main objective of this study.

2.1 About KLIPS[25]

The KLIPS was initiated by the Korea Labour Institute in 1998, and was conducted annually to track the characteristics of households, as well as economic activities, labour movements, income expenditure, and social activities of the individuals. The original sample of the KLIPS in 1998 was 5,000 households with members aged 15 and above (about 13,000 individuals). As of March 2014, the latest data available is the thirteenth wave, conducted in 2010.

In terms of sampling methods, two-stage stratified clustering sampling is used: first selecting the enumeration districts (EDs) and then selecting the households. In 1997, the KLIPS had 10% of the sample EDs (21,675 districts except the 263 in Jeju Island) from the 1995 Census EDs. Of these, 19,025 EDs of the cities

[25] The information is largely drawn from the User's Guide of the KLIPS.

nationwide were used as the sample frame for the KLIPS. All in all, the population for the KLIPS samples is the 5,000 households in the EDs of urban areas nationwide, that is, city-districts, towns and sub-counties, excluding Jeju Island (for more detailed process of sampling, see the User's Guide of KLIPS). This implies that the KLIPS is representative of the national population by ensuring different income groups and household types are included, along with a rich variety of information, such as economic activities, labour market mobility, education, etc.

The composition of the KLIPS questionnaires is largely divided into two parts: households and individuals. The individual questionnaire is again divided between working and non-working individuals, and the working individual's questionnaire is further separated into wage earners and non-wage earners (that is employers, self-employed, and unpaid family workers). In the individual questionnaire, questions are based on job classifications developed from the second wave in 1999. In order to closely observe the type of entry and exit from the labour market of the individuals and their movements in between, the individual questionnaire consists of eight types of entry and exit, based on the job held at the time of the previous survey, and the individual's current job (See table 4-1).

The questions are structured slightly differently based on job continuation in eight Job Classifications. For example, a person who held a job at the time of the previous survey, and currently maintains it falls into Job Class 1 for 'wage worker' and 3 for 'non-wage worker'. Meanwhile, a person who has started work after the previous survey and quit before the start of the current survey goes to Job Class 6 for 'wage earner' and 8 for 'non-wage earner'.

Table 4-1 Job Classification Questionnaires

Job	Job status	Continuing today	Type of questionnaire
Employed at the time of previous survey	Wage worker	Yes	1
		No	2
	Non-wage worker	Yes	3
		No	4
Newly started work since the previous survey	Wage worker	Yes	5
		No	6
	Non-wage worker	Yes	7
		No	8

As far as the response rate is concerned, the KLIPS has shown high stability (i.e. low sample attrition). As Bryman (2012: 65) highlights, there are problems with sample attrition for panel studies because sample sizes decline over time. However, the OSHs sample sizes have been maintained comparatively well over time, from the fourth wave in 2001 at 77.3% to the latest thirteenth wave in 2010 at 72.1%. In comparison with the well-known PSID (Panel Study of Income Dynamics) of the US, GSOEP (German Socio-Economic Panel) of Germany, and BHPS (British Household Panel Survey) of the UK, the KLIPS' high level of OSHs retention rate appears encouraging (see table 4-2). As of wave nine of each study, for example, the KLIPS records 76.5% retention rate, overwhelmed only by SOEP at 78.4%, whilst PSID and BHPS retention of their original sample households falls as low as 71.2% and 72.1% respectively.

Table 4-2 Comparison of OSHs retention rates % (year) in household panel studies of selected countries

	PSID (U.S)	GSOEP (Germany)	BHPS (UK)	KLIPS (Korea)
Wave 2	89.0 (1969)	89.9 (1985)	87.7 (1992)	87.6 (1999)
Wave 3	86.3 (1970)	86.0 (1986)	81.5 (1993)	80.9 (2000)
Wave 4	83.7 (1971)	84.9 (1987)	79.9 (1994)	77.3 (2001)
Wave 5	81.2 (1972)	81.3 (1988)	76.8 (1995)	76.0 (2002)
Wave 6	78.8 (1973)	79.2 (1989)	77.3 (1996)	77.2 (2003)
Wave 7	76.6 (1974)	78.4 (1990)	76.0 (1997)	77.3 (2004)
Wave 8	74.1 (1975)	78.9 (1991)	74.1 (1998)	76.5 (2005)
Wave 9	71.2 (1976)	78.4 (1992)	72.1 (1999)	76.5 (2006)
Wave 10	69.0 (1977)	78.8 (1993)	70.4 (2000)	75.5 (2007)
Wave 11	67.0 (1978)	77.7 (1994)	68.4 (2001)	74.2 (2008)

Note: Retention rates for BHPS are calculated on the basis of the original sample households' members

Source: User's Guide of the KLIPS

2.2 Sampling Method

This research examines data for all men and women aged (1) from 18 to 59 years old who have (2) dependent employment contracts (3) from the third wave in 2000 to the thirteenth wave in 2010. There are reasons to restrict our analysis to this cohort and years as a sample of the study.

Firstly in principle, NPS coverage policy is only applicable to people in this age bracket. There is, however, an exception in terms of the range of age coverage. For example, if the insured voluntarily extends the insurance term from over 59 years to as long as possible. This is known as 'voluntarily & continuously insured persons'. Nonetheless, because of its voluntary basis, the data merely represents the effectiveness or reflect the change of pension policy. In practical terms, the

number of insured persons aged 60 or over accounts for about 49,381 in the NPS as of December 2010. This is no more than 2.0% of the number of employed in the same age group (approximately 2.5 million) for the same period (Economically Active Population Survey as of December 2010). So, we expect that the number of this voluntarily insured group would not make a big difference for the analysis; adding little to the results.

Another reason for selecting only (2) dependent employees is because of the design of the questionnaire. Only wage earners had been asked pension-related information so as to compare their present state with the 11th wave in 2008, where non-wage earners were asked similar questions for the first time.

The concept of dependent employment is defined as a person who is employed by others or a company, receiving wages or salaries regardless if they work full- or part-time. In contrast, a non-wage earner is defined as an employer or self-employed person who manages his/her own business with or without hired workers, and an unpaid family worker works for the family business for eighteen hours or more per week. In the KLIPS, people are asked their job type (i.e. permanent, temporary, daily, self-employed/employer, or family worker) in the Job Class Questionnaire mentioned above.

Of these Job Class questionnaires, four types (1, 2, 5, and 6) inquire whether an interviewee is participating in NPS through a current (or recently finished) job. This implies that only wage earners who have pension coverage-related data from the KLIPS are considered for this research. As a universal scheme, NPS covers all citizens by law from April 1999, including employer/self-employed and unpaid family workers as individually insured persons. However, the design of KLIPS did not take this on board until the 11th wave in 2008, which enables us to facilitate

non-wage earners' data in association with coverage by asking whether or not, they make contribution to the scheme.

Besides, I want to focus on just one group of workers, as this is the most important group in relation to new social risks theory. Although they are legally insured as workplace-based insured persons, we want to see if they are in practice, excluded from the scheme due to the new social risks they face. Thus, only wage earners are sampled to answer the research questions because we want to look at the change of pension coverage based on a series of pension reforms over a decade.

The reasons for using (3) specific period of data set from 2000 to 2010 are as follows: in the first wave (1998) and the second wave (1999), there is insufficient information in relation to the coverage of public pension schemes, i.e. NPS, GEPS and PSTPS. Two other public schemes, MPPS and SPOPS, which have never been consulted to date, are believed to make no significant difference to the analysis because of their small share of the whole public pension system. Whether or not a person is covered under GEPS or PSTPS, is a crucial factor in determining whether or not he/she is entitled to NPS. Basically, any person who falls under other public schemes is excluded from the NPS. Therefore, we analyse the data sets to their maximum capacity, from the third wave in 2000 to the 13th wave in 2010, which is the last wave available to date. Since there have been interesting pension scheme changes in the last few years (as discussed in Chapter 3), this makes the comparison even more interesting.

To be more specific, the sample for analysis in this study is obtained step-by-step through the phases described below:

Firstly, wage earners are chosen based on their answers about employment

contract status. Those who are permanent, temporary, or daily workers from the Job Class Questionnaire are selected, excluding individuals classified as employer/self-employed or unpaid home worker. Moving on to the second step, those who answered the question whether or not, they are insured under other public schemes are considered. There are three options to this question – 'yes', 'no', or 'don't know'. We then exclude interviewees who chose the options, 'no' or 'don't know' because they are not (or are highly unlikely to be) covered compulsorily under NPS. As the third step, the sample is further restricted to those whose age ranges between 18 to 59 years old. Given the coverage policy of NPS, this is the only age group to be used in our analysis. As a result, each year's data sets produce samples as shown in table 4-3 below.

Table 4-3 Sample size by years

Year	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
Wave	3	4	5	6	7	8	9	10	11	12	13
Size	3194	2963	3322	3555	3602	3468	3666	3680	3670	4320	4401

Following the steps discussed above, the sample population size as a panel survey is somehow dissimilar every year; ranging from 2,963 to 3,680 in 2000 and 2008, not least because the ratio of respondents to non-respondents differs. The last two years show a larger sample size, which is caused by the survey purpose (i.e. an addition of 1,415 households to the original survey based on the 12th wave in 2009, in order to supplement its representation). There is a need for careful consideration when we analyse data sets in terms of weights, which we will discuss in the following section.

In relation to multivariate analysis, we will focus on four different years:

2000, 2003, 2007, and 2010, for analysis and comparison because firstly, we consider that every year has something to do with environmental change and pension reforms. For example, the year 2000 is a year after the first major NPS reform in 1999, when it became a universal scheme for all citizens. But the coverage for workers of small businesses with less than five employees was not yet based on workplaces. This is why we want to see the data of 2003 when the coverage expansion programme had just started, as well as the previous reform which was implemented four years earlier. This shall enable us to analyse whether or not, the scheme has performed as expected under these coverage policy conditions.

Following this, the data of 2007 is examined as follows: the year right after finishing the coverage expansion programme (2003-06); by including workers of micro workplaces and as a workplace-based insurance. As this reform is expected to give them greater security in their pension coverage, we shall examine how this may increase their likelihood of being insured. Furthermore, this was the year before the world financial crisis took place. Therefore, we will assess the difference between the time before and after the economic crisis by adding the year of 2010 to our examination; followed by lastly, the year when the crisis was in swing and austerity measures have fully kicked in.

Data sets to analyse trends from 2000 to 2010 shall be used in the following section. However, it should be noted that there are limitations because small changes in smaller groups can result in statistically significant results when comparing year-to-year data sets.

2.3 Weighting

In terms of weighting issues, we use individual cross-sectional analysis in this research to meet our research objective. Nevertheless, because KLIPS is a panel survey, we should also consider panel attrition over time in weighting terms. It may occur at the household or individual level, and may be accompanied by non-response.

To begin with, we examine how to weight a sample in the survey in a cross-sectional way. Like most cross-section surveys, weights in the KLIPS are defined by the following steps: step 1 - calculation of selection probabilities. Since cross-sectional surveys have largely different selection probabilities, the first step involves calculating these probabilities in order to make adjustments. At this point, the issue of incomplete coverage of the sample population is also considered.

Then the next step is to adjust for non-responses. To do this, a widely known method of performing logit analysis using the known traits of all samples, is used in KLIPS. This method calculates the expected probability by establishing a logit model against the responding and non-responding household members. This is followed by the final step - post-stratification, that is the process of adjusting the marginal distribution of the sample to render it identical with the marginal distribution of the population. Such a method is often used to solve the problem of under-representation in the sample frame.

In order to cope with panel attrition in a longitudinal survey, KLIPS has the same rules as PSID (the U.S). In short, defining weight for the first wave at the household level is basically the same as the weight definition for a cross-section survey. The household weight produced in the initial year should be used for all household members irrespective of age or response status. From wave two, the

weight should be adjusted using the different response rates of household members. Household weight for the second wave is calculated by the average individual weight calculated in the same wave. The same methodology is applied in wave three and so on.

All in all, individual cross-sectional weights are calculated by assigning each household member with the average of household weights. This reflects the logic that non-response by household members is scarce if the household responds, and that household response takes precedence over individual member's response. The calculated weight goes through the scaling process as the last step using, for example, the five-year average increase rate in the total number of households for household weights, and in the productive population in non-agricultural areas for individual weights.

As we compare the development of pension coverage between the third and 11th wave separately, cross-sectional individual weights will be used. For individual level analysis, two different types of weight given by the KLIPS may be used, cross-sectional or longitudinal individual weights, depending on the nature of the desired analysis. However, the longitudinal weights will be less appropriate for the analysis, because they will result in fewer cases over time by giving weights to original sample members only.

3. Operationalisation

In this section, the concepts stemming from the previous theoretical chapter will be operationalised to analyse the research results. Given our definition of new social risks, the four different groups most vulnerable to new social risks are:

- Women with care responsibilities

- Low-skilled workers

- Atypical workers (Part-time workers, temporary contract holders)

- Young workers

By this classification, the choices of variables used for the study is explained, whereby we can measure the operationalised central concepts mentioned above. Given that these variables do affect pension coverage based on existing literature, this study divides them into two main categories, based on our research objective, in relation to the dependent variable of pension coverage: core variables measuring the new social risk groups and control variables that are very likely to affect pension coverage. We also add a brief descriptive analysis of comparison between years (2000, 2003, 2007 and 2010) in statistics of mean[26] and standard deviation by variables (see table 4-6). By doing so, we expect to see the apparent trend of the sample population over the eleven years.

3.1 Core Independent Variables

3.1.1 Women with Care Responsibility

Women with care responsibilities can be measured by a combination of two variables, that is, gender and children to care for. We define 'children to care for' from 'at birth' to 'school age' (aged 0 to 18), as those in need of domestic care. We assess if women have one child or more who are aged 0 to 18 by our definition.

To be more specific, the group of women with care responsibility involves

[26] As Pampel (2000) notes, the mean of a dummy variable is the same as the percentage of cases with a value of 1.

two variables: the variable of gender and the variable of 'children to care for'. We combine these to see their interaction. Male with no child is a reference group. The idea of domestic care responsibility is limited to whether or not an interviewee has a child or children aged 0 to 18 who are considered as domestic care subjects before they enter tertiary education or the labour market.

Unlike other variables used here, this variable needs a couple of processes to be generated through the household survey because the individual data in the KLIPS does not contain information about whether or not; they have children to care for. To begin with, we see if there is a family member age from 0 to 18, and then we create a new variable with 'children to care for' in the household data. We merge this with the individual data by using the key variable 'HHID' (which stands for Household ID) as the next step. This variable is used as a dichotomous variable, i.e. 'has one child or more in the household' versus 'has no child'.

In descriptive analysis, as of the year 2000, female with a child accounts for 21.0%, and this has decreased continuously to 15.3% of the total population in 2010. There is also a decrease among the males who have only one child; from 35.8% in 2000 to 25.8% in 2010. Meanwhile, the percentage of female without a child has increased from 19.0% to 26.1% during the same period.

3.1.2 Low-Skilled Workers

The level of education is used as the distinguishing factor between high-skilled and low-skilled workers for this study. It is presumed that a high level of education is an important determinant in obtaining and retaining job security, as opposed to those with a low level of education. Given that the percentage of attaining tertiary education is 65% in Korea compared to the OECD average of

38%[27], anything less than a post-secondary educational background is the cut off point for identifying low-skilled workers. Thus, people with less than post-secondary education is defined as low-skilled workers for our purpose.

To elaborate on the variable, the question of 'what type of educational institution did you attend last or are you attending?' has nine educational level options coded in the original data from 'before school age' to 'graduate school of Doctoral degree'. The classification of the question is comparable to that of ISCED (International Standard Classification of Education) used widely across the world. Rather than using its grouping as one set, we then divide it into three sets to clarify the distinction between education levels - primary or below, secondary, and post-secondary - before 'dummy coding' with reference to the group at post-secondary education level. With regards to the trend of educational attainment, Koreans' general level of education has been increasing. Those with primary or below and secondary education made up 24.0% and 43.0% of the sample population respectively in 2000. However, this dropped to 12.0% and 32.0% after a decade, which implies that tertiary education has become more prevalent over time.

3.1.3 Atypical Workers

In general, the terminology of temporary and daily workers in the survey is aligned to that used in the National Pension Act. This survey defines temporary and daily workers as: temporary contract holders with varying contract length (1) work contract is more than a month but less than a year, (2) without contract but expect their employment to be terminated in less than a year. Daily workers are defined as those (1) whose work contract is for less than months, (2) who are

[27] This is for aged 25-34 in 2010 (OECD Education at a glance 2012)

hired on a daily basis, or (3) who do not have a usual workplace but work on an ad-hoc basis for pay – similar to that of a zero-hours contract of the UK. When it comes to coverage, only daily workers are not obliged to have NPS. Therefore, the temporary contract holders as a new social risk group can be distinguished by the variable of employment contract status.

In a nutshell, both permanent[28] and temporary[29] contract holders are legal subjects of NPS, while daily contract holders are not[30]. Meanwhile, part-time work in the survey refers to those who (1) work less hours compared to other workers on the same job/task, or (2) are paid based on work hours. In the survey, the definition of part-time workers is defined by law. However the two options: full-time or part-time workers are selected based on respondents' own decision. Given the definition in the questionnaire, respondents can choose with regards to the question on 'type of work hours'. According to NPS and the law, the concept of part-time is defined by the exact number of hours worked per week. The cut-off point for including or excluding them from the scheme is 15 hours per week. If a person works less than 15 hours per week, there is no legal obligation to cover him or her under NPS.

When we look at another variable, the, weekly working hours, however, it tells us that people with less than 15 hours per week are so few (about 1%) in the sample population that there is no point analysing them separately. Thus, for the

[28] For permanent workers, they are automatically covered. However, the time of application varies depending on the number of employees at the workplace.
[29] For temporary workers, only those who have contracts of 3 months or more were legal subjects until July 2003, after which the coverage is extended to those with a month's contract or more.
[30] Daily workers are in principle, not covered. But there is an exception. For example, if a daily worker has worked 20 days or more in the last month, he/she must be covered by law retrospectively.

purpose of this study, we use this subjective definition of part-time workers – that is, the variable of 'type of work hours' - to identify part-time workers. Based on that, we can measure the atypicality of respondents in our analysis.

Next, the third new social risks group of atypical workers needs a few independent variables to distinguish outcomes. Firstly, the category of employment contract status variable consists of three parts for wage earners. We use it on its own - permanent worker, temporary worker, and daily worker – and then transform them into 'dummy variables'. The reference group is permanent worker, given that temporary workers have increased slightly from 13.0% in 2000 to 15.0% in 2010, after a small decline to 11.0% both in 2003 and in 2007, whilst the percentage of daily workers has decreased from 11.0% in 2000 to 9.0% in 2010.

As for part-time workers, the interviewees can select their answers based on thir type of work hours: part-time worker and full-time worker. This explains how well people are covered based on their time-based contracts. We use full-time workers as a reference group when coding dummy variables. Part-time workers seem to have decreased, from 10.0% of dependent workers in 2000 to 9.0% in 2003 and 6.0% in 2007. This was followed by a rebound at 7.0% in 2010. Temporary workers show more or less the same pattern as part-time workers; from 13.0% in 2000, it went down slightly to 11.0% but went up to 15.0% in 2010. As for daily workers, they have become less from 11.0% in 2000 to 9.0% in 2010.

3.1.4 Young Workers

High unemployment among young workers has become a national issue globally. Without exception, the younger age groups in Korea are facing

unemployment. To assess their vulnerability in the labour market, we look at the age bracket from 18 to 24 years old, taking into account their education behaviour and military conscription for Korean men.

As a result of the increase in young people in tertiary education and obtaining [31] better jobs in their mid-20s (or late-20s, as is the case for Korean men who are required to undergo military service for about two years), the average age of first job-holders in Korea has been delayed to 33.2 years of age for men and 28.6 years for women (*Statistics Korea* a). Nevertheless, the reason for choosing the age group of 18 to 24 years as our cut-off point for this study is because those who have secondary education are considered to be academically inferior to those with higher education, based on the more commonly used international standard.

The age variable is used as a scale variable ranging from 18 to 59 years, to define young workers. In order to see specific results, if there are any, between age groups, they are further grouped into three age cohorts: young workers (aged 18 to 24), prime workers (25-54), and old workers (55-59). The group of prime workers is used as a reference group. Since the survey is carried out with the same individuals on a yearly basis, an upward trend in the age variable is to be expected. The average age has increased steadily from 36.4 in 2000 to 39.15 in 2010. The trend of specific age groups in distribution reflects this panel survey's attribute: the number of young workers aged 18 to 24 has decreased from 13.0% in 2000 to 5.0% in 2010, while the number of old workers aged 55 to 59 has increased by a small margin, from 5.0% to 7.0% respectively.

The operationalising of the concept of new social risk groups by using core

[31] 65% of Koreans aged 25-34 finished tertiary educations in 2010, as compared to the OECD average of 38%.

independent variables is shown in the table below.

Table 4-4 Operationalisation of new social risk groups

New social risk groups	Operationalisation	Variables to use
Women with care responsibility	Women with children	- Gender - Children to care for
Low-skilled workers	Workers with less than post-secondary educational background	Level of education
Part-time and temporary contract holders	- Part-time based workers - Temporary and daily workers	- Type of work hours - Employment contract status
Young workers	Workers aged 18 to 24	Age

3.2 A Dependent Variable

This section examines how well a pension scheme meets the interests of new social risk groups: whether their coverage under NPS is appropriate and relevant to our research purpose; in that one's sufficient coverage career leads to decent pension benefits for him/her in the future. We shall examine pension coverage as a dependent variable. Interviewees were asked if they were participating in any of the following social insurance schemes through their current job. In response, the interviewee can choose 'yes', 'no', or 'don't know' as his/her answer. As a nominal variable, this is put into a binary value, by making the last option into a negative answer because those who choose the option of 'don't know' are unlikely to be a member of NPS. Therefore, they can be ignored in the analysis since they account for a very small proportion of the population: two

to eight persons in the whole sample through the waves.

The difference in coverage rate between KLIPS and NPS is likely to come from the potential lack of clarity of the questionnaire; the potential vagueness of this question in the survey, which may hold two different meanings to the respondents. The word 'participating' can be active or passive depending on the person concerned. Even if it is obligatory by law, one may consider that he/she does not participate actively in NPS unless he/she contributes to the fund for some reasons.

On the other hand, 'participating' can also be passive regardless if the person contributes to NPS. Therefore, the possibilities to that question are namely, 'paying contribution' or 'being insured'. Given that only 52% of the respondents in 2000 answered in the affirmative, it is very likely that some people thought they are 'not participating' because they are 'not paying contributions'. This assumption is supported by the official coverage rate from NPS, in which 72.4% of the economically active population was insured in the same year, regardless if they contribute, and this trend has continued for some time (more in next chapter).

Despite this disparity, it can be argued that KLIPS facilitates a better appraisal of pension coverage, in that paying contributions is more critical with a decisive impact on one's future pension benefits and security. In other words, based on the rationale of social insurance (i.e. not paying contribution is equivalent to no benefits), KLIPS matches our research aim by locating the group of people who are unlikely to receive decent pension benefits later in their life. Therefore, it can be said that KLIPS indicates more precisely, the real pension prospect for those who are vulnerable to new social risks.

In terms of coverage rate over the years, the percentage of the insured has

increased dramatically from 52.7% in 2000 to 72.0% in 2010, not least because of the expansion policy over a decade. Nevertheless, this figure is far below than expected, given that full coverage policy for nearly all dependent workers had been accomplished in 2006. This implies that it is important to investigate which elements of the scheme make workers vulnerable. Subsequent chapters shall show exactly who among the population are more likely not to be covered by the scheme.

3.3 Control Variables

Firstly, we use the variable of income level on its own as a scale variable in the unit of 1 million KRW (equivalently to 500 GBP) per month; ranging from 0.03 to 60.

There is a question about the specific industry to which respondents belong in the questionnaire. This is coded into seventeen classes along with Open Code of Industry by Statistics Korea that is based on NACE Rev. 1 (Nomenclature statistique des activités économiques dans la Communauté Européenne) of the European Community, which is a very commonly used sector categorisation. Although the international standard is much more fractionated, some groups in this research are collapsed into one category because their numbers are too small on their own. Moreover, coverage policies do not discriminate between industries. For example, there is no point in differentiating agriculture from mining, so it is not worth following the sophisticated standard of NACE as it is. In order to analyse the data better, we create eight different levels by similarity and *dummify* them: agriculture/forestry/fishing/mining, manufacturing (as a reference group), construction/energy, wholesale/retail trade, hotel/restaurant, transportation /communication, financial/insurance, and other services.

When it comes to occupation types, the survey adopts an open question so that respondents can answer freely. The answers are then categorised using the Open Code of Occupation of Statistics Korea. The classification code is similar to the international standard classification of occupations, such as ISCO (The International Standard Classification of Occupation). As in industry grouping, since the occupation on its own is not a determinant for pension coverage, we categorise them only in the interests of this research. After getting rid of two groups, 'soldier' and 'unemployed' that are inappropriate for this study, a total of ten classes is rearranged into five different groups distinguished by their key features: managers/professionals (a reference group), clerks, service/sales workers, skilled agricultural workers/craft/related trades workers, and elementary occupations.

There are seven options to choose from a company type variable when asked, 'Which of the following best describes your current workplace?' We shuffle the answers to recode into three main types, according to their characteristics: private company, government/public company (a reference group), corporation/Non-Governmental Organisation (NGO).

The question of how many employees (i.e. company size) consists of two steps. First, the interviewees have to answer an open question, 'About how many employees currently work for this company or organisation?' If they do not know the exact answer, then they have to choose from eleven multiple-range choices to pick an alternative answer. Both a continuous and a nominal variable are merged, and classified into four groups, which are then coded as dummy variables: micro business (1-4 employees), small business (5-9 employees), medium business (10-299 employees), and big business (300 or more employees as a reference group).

This classification is based on the phased extension of the compulsory

coverage range since the implementation of NPS in 1988, and the legal definition of a small and medium size company (SME). The pension scheme for workplaces with ten or more employees has extended its compulsory coverage to workplaces with five or more employees in 1992. About three years later, in 1995, the coverage was further extended to cover workers and employers of companies with less than five employees in the rural areas and in the urban areas by 1999. The category of 'self-employed' also became included by this time.

Lastly, compulsory coverage was also extended to workplaces with one or more employees. This effectively meant all workplaces were covered by the scheme from 2003 to 2006. It is interesting to examine this particular variable by these categories after the policy change.

In addition, there was a question about the presence of unions as a variable (reference group). Question about job tenure is also asked, 'When did you start working in this job?' This is used as a scale variable by the unit of a year, ranging from 1 to 40 after recoding data of 40 or more as 40.

Most of the control variables do not have such obvious direction in the course of a decade, unlike the core variables, except for 'earnings'. In 2000, the average monthly income of 1.056 million KRW (equivalent to 528 GBP) has almost doubled up to 2.048 million KRW (equivalent to 1,024GBP) in 2010. Meanwhile, the standard deviation of earnings has become much bigger than before (from 0.597 in 2000 to 2.048 in 2010), which implies that the polarisation of income has become severe over the same period. In the case of tenure, we can see increasing propensity as age variable for the same reason: the average of tenure has changed from 5.26 in 2000 to 6.21 in 2010. All variables processed for use in this analysis and their descriptive statistics are tabled below.

Table 4-5 All variables for the model

Variables		Explanation
Core independent variables	Women with care responsibility	Reference group: male without a child Vs. female with a child Vs. female without a child Vs. male with a child
	Level of education	Reference group: post-secondary education Vs. less than secondary education Vs. secondary education
	Type of work hours	Reference group: full-time worker Vs. part-time worker
	Employment contract status	Reference group: Permanent worker Vs. temporary worker Vs. daily worker
	Age	Reference group: aged 25-54 Vs. aged 18-24 Vs. aged 55-59
Control independent variables	Level of income[32]	A scale variable ranged 0.03 to 60
	Industry	Reference group: manufacturing Vs. agriculture, etc., Vs. construction / Energy Vs. wholesale/Retail trade Vs. accommodation and food service Vs. transportation / Communication Vs. financial / Insurance Vs. other services
	Occupation	Reference group: managers / professionals Vs. clerks Vs. service / sales workers Vs. skilled agricultural worker, etc. Vs. elementary occupations
	Company type	Reference group: private company Vs. government / public company Vs. corporation / NGO
	Company size[33]	Reference group: big business (300 or more employees) Vs. micro business (1-4 employees) Vs. small business (5-9 employees) Vs. medium business (10-299 employees)
	Existence of union	Reference group: Union exist Vs. union does not exist
	Tenure	A scale variable ranged 1-40
Pension coverage (Dependent variable)		Reference group: not covered by National Pension Scheme Vs. covered by National Pension Scheme

[32] This is in the unit of one million KRW (equivalent to 500 GBP)

[33] The number of employees

Table 4-6 Descriptive statistics of variables

Variables			2000		2003		2007		2010	
			Mean	*Std. D*	Mean	*Std. D*	Mean	*Std. D*	Mean	*Std. D*
Core variables	Women with care responsibility	Female with a child	0.210	*0.407*	0.186	*0.389*	0.164	*0.371*	0.153	*0.360*
		Female without a child	0.190	*0.392*	0.228	*0.420*	0.234	*0.423*	0.261	*0.439*
		Male with a child	0.358	*0.479*	0.306	*0.461*	0.284	*0.451*	0.258	*0.437*
		Male without a child*	0.243	*0.429*	0.280	*0.449*	0.317	*0.465*	0.328	*0.470*
	Level of education	Less than secondary	0.240	*0.428*	0.200	*0.402*	0.160	*0.370*	0.120	*0.328*
		Secondary	0.430	*0.494*	0.380	*0.487*	0.350	*0.477*	0.320	*0.467*
		Post-secondary*	0.330	*0.471*	0.410	*0.492*	0.490	*0.500*	0.560	*0.497*
	Work hours	Full-time*	0.900	*0.306*	0.900	*0.296*	0.940	*0.246*	0.930	*0.258*
		Part-time	0.100	*0.295*	0.090	*0.279*	0.060	*0.242*	0.070	*0.258*
	Employment contract status	Permanent*	0.760	*0.425*	0.780	*0.412*	0.780	*0.414*	0.760	*0.427*
		Temporary	0.130	*0.334*	0.110	*0.313*	0.110	*0.318*	0.150	*0.358*
		Daily	0.110	*0.311*	0.110	*0.307*	0.110	*0.308*	0.090	*0.284*
	Age	Aged 18 to 24	0.130	*0.332*	0.110	*0.318*	0.070	*0.258*	0.050	*0.217*
		Aged 25 to 54*	0.830	*0.378*	0.830	*0.375*	0.870	*0.341*	0.880	*0.326*
		Aged 55 to 59	0.050	*0.211*	0.060	*0.229*	0.060	*0.242*	0.070	*.258*
Control variables	Income		1.056	*0.597*	1.401	*0.898*	1.840	*1.695*	2.048	*1.295*
	Industry	Agriculture	0.010	*0.090*	0.010	*0.076*	0.010	*0.075*	0.060	*0.232*
		Manufacturing*	0.320	*0.465*	0.280	*0.449*	0.270	*0.446*	0.250	*0.434*
		Construction	0.120	*0.323*	0.120	*0.322*	0.120	*0.322*	0.250	*0.434*
		Wholesale	0.120	*0.330*	0.130	*0.340*	0.130	*0.341*	0.020	*0.124*
		Accommodation	0.060	*0.241*	0.060	*0.242*	0.060	*0.240*	0.080	*0.268*
		Transportation	0.070	*0.249*	0.060	*0.246*	0.060	*0.246*	0.050	*0.216*
		Financial	0.060	*0.233*	0.060	*0.239*	0.040	*0.193*	0.050	*0.207*
		Other services	0.250	*0.430*	0.270	*0.446*	0.300	*0.459*	0.300	*0.457*
	Occupation	Manager/Professional*	0.240	*0.426*	0.260	*0.441*	0.290	*0.453*	0.270	*0.443*
		Clerks	0.140	*0.352*	0.170	*0.374*	0.170	*0.379*	0.190	*0.396*
		Service workers	0.150	*0.357*	0.160	*0.363*	0.150	*0.354*	0.170	*0.374*
		Skilled workers	0.350	*0.478*	0.310	*0.463*	0.290	*0.452*	0.260	*0.440*
		Elementary	0.110	*0.316*	0.100	*0.299*	0.100	*0.305*	0.070	*0.250*
	Company type	Private*	0.860	*0.343*	0.850	*0.361*	0.860	*0.350*	0.860	*0.352*
		Govt./Public	0.066	*0.249*	0.050	*0.218*	0.059	*0.236*	0.066	*0.247*
		Corporation/NGO	0.020	*0.147*	0.030	*0.183*	0.050	*0.216*	0.060	*0.234*
	Company size	Micro firms (1-4)	0.150	*0.361*	0.150	*0.357*	0.160	*0.363*	0.140	*0.348*
		Small firms (5-9)	0.100	*0.306*	0.120	*0.330*	0.130	*0.337*	0.140	*0.352*
		Medium firms (10-299)	0.400	*0.489*	0.370	*0.482*	0.400	*0.489*	0.410	*0.491*
		Big firms (300-)*	0.210	*0.406*	0.220	*0.415*	0.260	*0.436*	0.220	*0.412*
	Union	Yes union*	0.210	*0.406*	0.180	*0.385*	0.170	*0.374*	0.140	*0.349*
		No union	0.784	*0.412*	0.814	*0.389*	0.827	*0.378*	0.856	*0.351*
	Tenure		5.267	*5.701*	5.378	*5.679*	5.877	*6.039*	6.217	*6.200*

Not covered by NPS*	0.470	*0.499*	0.440	*0.496*	0.340	*0.473*	0.280	*0.449*
Covered by NPS	0.527	*0.499*	0.559	*0.497*	0.661	*0.473*	0.720	*0.449*
N	3194		3555		3680		4401	

Note: The identified groups with * are reference groups in each variable.
Source: KLIPS

3.4 Missing Value

As Field (2009) argues, we should investigate missing values in data sets in that missing values do not necessarily mean things that we ignore. Given that the possibility that inaccurate data can mislead us, identifying these is critical. With regards to representativeness of the sample population, it is fair to say that after checking all variables shown, there exist few missing cases (0%-3% of the sample population) each year, this indicates a reliability factor for this data set.

4. Modelling Technique

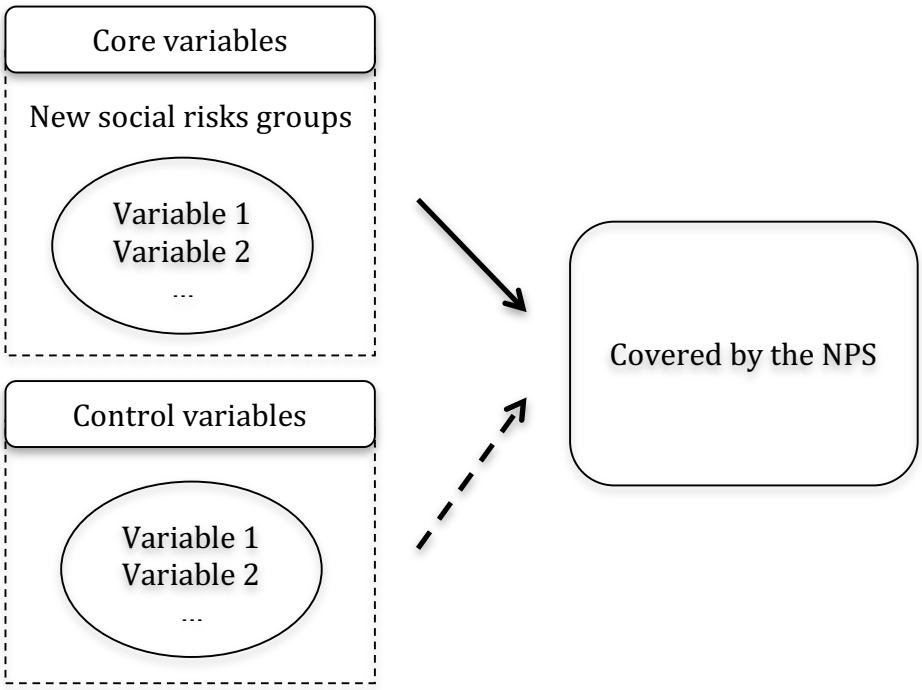
In this section, the research and analytical model is explained in relation to the research question. The method relies on a cross-sectional analysis of the survey data for different time points. The longitudinal survey available in KLIPS does not provide sufficient detailed data on pensions. However, the work involved in constructing quasi-cohorts with this dataset is beyond the scope of an MPhil. Moreover, even though longitudinal analysis would have been a better option, it is beyond the scope of this study. It should be addressed in a follow-up project in the future.

4.1 Research Model

Figure 4-1 below depicts a representation of the research model adopted for this study in a simple graph. It shows the independent variables divided into

two categories, core and control variables, based on the research objective. These variables can affect the outcome we want to predict as a dependent variable - 'covered by NPS' versus 'not covered by NPS'. In particular, core variables are critical in explaining whether or not; the new social risk groups are well covered. Based on statistical analysis, the dichotomous outcome by the predictors will demonstrate what and how many elements of individual characteristics and the labour market affect pension coverage. And in turn, whether NPS and its reforms have been (and will be) beneficial to new social risks groups after all.

Figure 4-1 Research model



4.2 Methodology: Logistic Regression

Definition

A set of circumstances in which one can find discrete outcomes – for example, an event occurring or not occurring, a yes-or-no answer to a given

situation, etc. – is quite typical in many fields of social science research (Long 1997; Pampel 2000; Field 2009). This research too, is about two alternative outcomes, whether or not wage earners are covered by NPS; depending on their diverse features in the household and labour market.

In this regard, logistic regression is a well-known and useful tool when we statistically model these types of events; it shows the positive or negative in the predicted probability of an event's occurrence or the change in the predicted portion of respondents due to change in the independent variables by a unit (Pampel 2000). By definition, logistic regression is 'multiple regression, but with an outcome variable, that is a categorical variable, and predictor variables that are continuous or categorical' (Field 2009: 265).

In this research, we use categorical outcomes (0= not covered by NPS, 1=covered by NPS) and other variables, some of which are continuous variables (e.g. age, income, tenure) or categorical variables (e.g. education levels, employment contract status, occupation types). In order to predict dichotomous outcomes as we begin, we use a specific logistic regression known as, binary logistic regression (Pampel 2000; Field 2009).

Transforming Nonlinearity into Linearity

Logistic regression as a multiple regression model follows some basic assumptions of normal regression (Field 2009), the most important ones are linear relationships between independent and dependent variables. This means that 'the conditional proportions or probabilities define a straight line for values of X' (Pampel 2000: 2). However, holding the dependent variable with the outcome of the categorical value of 0 and 1 violates this assumption in nature (Field 2009). To

address this problem, the regression requires an alternative process of transforming non-linear relationships into linear relationships as a valid model. This is referred to as logit transformation (Long 1997; Pampel 2000). The basic logic of logit transformation is as follows:

Linear regression with a dichotomous dependent variable inherently has the conceptual problem that probabilities have limitations on both the maximum (with a value of 1) and minimum (with a value of 0). Not exceeding 1 and below 0 is incongruent with the idea of the linear regression line, in which the predicted dependent value should extend toward both positive and negative infinity. Moreover, this limitation in both directions (S-shaped curve) entails another weak point in which 'the same change of X has a different effect on Y depending on how close the curve corresponding to any X value comes to the maximum or minimum Y value' (Pampel 2000: 10).

To cope with this inappropriateness, the logistic regression model uses logarithmic (also called logistic or logit) transformation in linearising the non-linear relationships. The logit transformation changes probabilities into odds. The equation of logit is represented below. Assuming that the equation is each independent variable has a probability of occurring an event (as P_i). Having the dependent variable with probability between 0 and 1, we look at the ratio of P_i to $1 - P_i$ (the odds of the event occurring) as the first step. Next, we take the natural logarithm of the odds.

$$L_i = \mathrm{In}[P_i/(1 - P_i)]$$

To begin with, the odds illustrate the likelihood of experiencing an event to the likelihood of experiencing no event. Unlike a probability, odds have no limitation with positive direction, although they are still under limitations in

negative terms. The example below shows the difference between two indicators. When P_i is .5, the odds equals 1 because of $P_i/(1 - P_i)$. However, as the probability gets closer to 1, the odds become substantially larger. Just a slight change of probability near its maximum will cause a big difference in the odds. On the other hand, the odds are getting closer to zero as a probability without going below it. Nevertheless, odds in comparison with a probability provide us with an appropriate interpretation of the likelihood of experiencing an event, as well as an explanation of coefficients of independent variables in the model.

Furthermore, the odds ratio of the predictor can help us understand its size and direction of effect easier (Long 1997). The value of odds ratio is 'an indicator of the change in odds resulting from a unit change in the predictor' (Field 2009: 270). In other words, given that the odds are 'the probability of an event occurring divided by the probability of that event not occurring', the odds ratio refers to 'the ratio between the odds before and after a unit change in the predictor variable' (Field 2009: 270-271). Transforming the odds into logged odds generates additional benefits as an analytical model. Logged odds get rid of the issue of limitations in the probability.

Therefore, logistic regression is a good analytical regression model for this research by 'linearizing the inherent nonlinear relationships between X and the probability of Y' with dichotomous outcomes as a simple regression (Pampel 2000: 14). The following simplified regression equation shows the applied basic model for this research, as derived from the assumptions we discussed above.

$$\mathrm{Log}(y_i/y_j) = \alpha + \beta_1 \text{gender} * \text{children to care} + \beta_2 \text{level of education} + \beta_3 \text{type of work hours} + \beta_4 \text{employment status} + \beta_5 \text{age} + \beta_6 \text{level of income} + \beta_7 \text{industry} + \beta_8 \text{occupation} + \beta_9 \text{company type} + \beta_{10} \text{company size} + \beta_{11} \text{existence of union} + \beta_{12} \text{tenure}$$

$$y_i = 1 \text{ (covered by the NPS)}, y_j = 0 \text{ (not covered by the NPS)}$$

Model Accuracy

In logistic regression, the maximum-likelihood estimation helps us to find the best model parameters, i.e. coefficients, which allow the observed values to most likely occur in the sample data (Pampel 2000; Field 2009). So that we can assess how well the model fits the observed data by looking at specific measures, namely, the log-likelihood statistics; the log-likelihood is 'an indicator of how much unexplained information there is after the model has been fitted' (Field 2009: 267). Therefore, its large values mean poor fitness of model to data with more unexplained observations.

More importantly, it is useful to compare different models by looking at their log-likelihoods. In other words, it can be used to compare some regression models against basic state models. In logistic regression, the basic state model is the model with only the constant that provides us with the best result, which means, to predict the outcome that happens most often, when we have nothing but the values of the outcome. In that way, if we put some predictors into a model, we can assess the fitness of the model by computing improvement as follows:

$$\mathcal{X}^2 = 2[\text{LL(new model)} - \text{LL (basic model)}]$$

$$(\text{df} = k_{\text{new}} - k_{\text{basic}})$$

By multiplying the difference by 2, the result gives us the value of a chi-square distribution that enables us to calculate the significance of the value (Field 2009).

4.3 Software Package: SPSS

As a practical tool, we will use the software package, SPSS (version 21 for Mac) for descriptive analysis, as well as for logistic regression.

CHAPTER 5 ANALYSIS (i)

1. Introduction

This chapter investigates findings from the data analysis of KLIPS based on the theoretical framework discussed in the previous chapter. It shall identify new social risk groups in Korea and examine their trends through official data, such as the International Employment Outlook from the OECD and Statistics Korea. This will enable us to see the extent to which these groups exist as compared to western welfare states, and the extent of their vulnerability in the labour market. These official sources will help meet the primary objective of this research: exploration of the emergence and development of new social risk groups in Korea. Combining these with KLIPS data will lead to the second research objective of this study, which is to assess the extent to which the pension policy and its reforms have addressed the new social risk groups.

In the next section, we shall explore pension trends for new social risk groups – the exclusion pattern of different years in pension coverage in relation to pension reforms through bivariate analysis during an analytical period using the KLIPS data set.

2. Tends in New Social Risk Groups: Their Vulnerability in the Korean Labour Market

Prior to data analysis, it may be worth identifying new social risk groups in Korea empirically through official data based on the definition of the groups as discussed earlier. Our main concern is to investigate four specific groups to see if the pension programme is beneficial to them in coverage terms. They are namely,

women with care responsibility, low-skilled workers, atypical workers, and young workers. Most literature agrees that they are most vulnerable to new social risks (Esping-Andersen 1990; Taylor-Gooby 2004; Bonoli 2005; Emmenegger et. al. 2012).

The first group is women who have to reconcile the conflicting demands between paid work and childcare. The second group are workers with low skills which make them more vulnerable in today's increasingly knowledge-centred economy. The third is part-time workers or temporary contract holders with limited job security. Lastly, we define young workers as those between the age of 18 and 24.

This section shall examine each group and the extent to which they exist in detail, as well as the extent to which they are vulnerable to new social risks that have emerged in the Korean labour market, in comparison to other OECD countries[34] over the last decade.

2.1 Women with Care Responsibility

The first risk group is women who need to reconcile paid work with child care. Kim (2006) argues that this group of women in Korea has trouble getting and retaining a standard employment contract. Due to their domestic responsibility, they have inevitably, limited access to standard employment. The ratio of employment to the country's population seems to support this.

Among the OECD countries, Korea has the lowest ratio in terms of employment to population. When looking at selected countries (see table 5-1),

[34] Sweden, Germany, and the UK are highlighted because they are representative of the three categories in the regime theory used for this study.

74.9% of men in Korea were employed in 2012, which is comparable to or even higher than those of other countries, given that the OECD average was at 73.2%.

Table 5-1 Employment rate by gender (aged 15-64)

	Men		Women	
	2000	2012	2000	2012
OECD	76.1	73.2	55.0	57.2
Germany	72.9	77.6	58.1	68.0
UK	78.9	76.1	65.6	65.7
Sweden	76.3	75.6	72.2	71.8
Korea	73.1	74.9	50.0	53.5

Source: OECD Employment Outlook, 2013

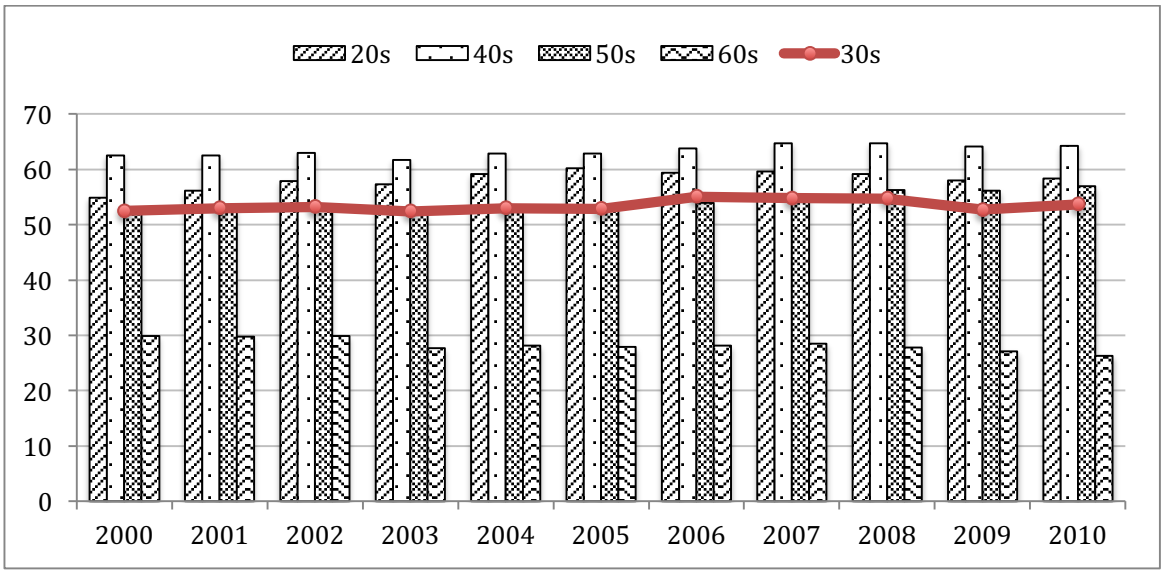
Note: as a percentage of the male/female population in each age group

Moreover, while Sweden and the UK have suffered downturns in men's employment for over a decade, men's participation in the labour market in Korea has on the contrary, improved. However, the case for Korean women is quite different. Although the recent figures seem slightly better than a decade ago, their rate of participation in the labour market is still far behind other countries', including the OECD. There is only a meagre 3.5% of improvement in the employment of women in Korea for over a decade. It seems that the successive introduction of new social policy initiatives over the past ten years have indeed boosted women's participation in the job market with some success.

According to Kim (2006), new social risks faced by women deepen and widen women's poverty. This is reflected in women's employment rate distinguished by age group (see figure 5-1). Apart from the group of 60 years old, the employment rates of all other age groups have increased. However, the rate of

increase over the decade is somewhat different; the 30s group had the least improvement, while the 40s group fared best. Even since 2008, the employment rate of the 30s group has so far lagged behind the 50s, leaving them in the last place among all age groups. Given that women are mostly occupied with child bearing and child rearing during their 30s, they are more likely to stay out of the labour market due to their responsibility.

Figure 5-1 Women's employment rate by age group (%)



Source: Statistics Korea

Furthermore, the poverty rate of female single households shows a peculiar trend in comparison with that of male single households (Kim 2006); the poverty rate among female single households are generally higher than that of male single households. And female single households with young children have the highest poverty rate among the female age groups. This trend mirrors the trend of employment rate during their working age (figure 5-1). The employment rate of women in their 30s is even lower than women in their 50s. Comparing with a decade ago, women in their 30s (and 40s) have seen the least improvement in

their employment rate. This confirms that domestic responsibility, if not socialised, inhibit women's access to decent paid jobs, and in turn, render them poor.

Table 5-2 The ratio of being in precarious jobs for women, as compared to men

	2000	2003	2007	2010
Temporary	1.6	1.7	1.5	1.8
Daily	0.5	0.5	0.5	0.6
Part-time	2.1	2.4	2.8	4.5

Source: The KLIPS in 2000, 2003, 2007 and 2010

Even if women were given work, the majority of them tend to be employed in relatively precarious work, such as temporary contracts or part-time jobs. Table 5-2 shows the ratio of being in precarious jobs for women as compared to men. Although the ratio of women as daily-waged workers is less than men, two other types of employment contract holders have shown some outstanding figures; in 2000 there are1.6 times as many female temporary contract holders as there are male, and this has increased to 1.8 times in 2010. Likewise, more substantially, female part-time workers have increased from 2.1 times as many as male in 2000 to 4.5 times in 2010. And it looks like women are catching up with men in daily-waged jobs. Moreover, the security gap between women and men in those same jobs has broadened year on year.

Table 5-3 Employment rate with tertiary education, 2011 (%)

	Men	Women
OECD	87.6	78.4
Germany	91.0	84.0
UK	87.7	78.9
Sweden	89.8	87.8
Korea	89.7	60.5

Source: OECD Employment Outlook, 2013

Note: Persons aged 25-64, as a percentage of the population by gender

It is noteworthy that in Korea, the level of education does not have a big influence on the disparity between genders, in terms of employment. As seen from table 5-3, tertiary education tends to enhance people's participation in the labour market regardless of gender in certain countries. The OECD average employment rate for women with tertiary education is much higher; 78.4% (in 2011) than that of all female labour participants at 57.2% (in 2012, see table 5-1). Yet, in Korea although women with tertiary education have higher labour market participation compared to other women, this gap is not as large (that is, 53.5% versus 60.5%) in relative terms when compared to the OECD average. On the contrary, tertiary education in Korea seems to give men much better opportunities - comparable to the other developed countries. The rate of all male participants went up from 74.9% to 89.7% when they have completed tertiary education. This implies that even if the women are highly educated, they still remain outside the labour market, which is a great loss to Korea's human capital.

Hence, women's participation in the Korean labour market seems problematic generally, as compared to other OECD countries. We can assume that this is because few social institutions are ready to take up the substantial

responsibility of childcare in Korea. This assumption is supported by the fact that the 30s female age group has the lowest participation rate in the labour market and the highest poverty rate, apart from the age group of the 60s. This implies that having a higher education for women in Korea does not automatically lead to better career opportunities. In fact, given that women's participation in the labour market is lower than expected, women with high education in particular, should be considered as a new risk group as well.

2.2 Low-Skilled Workers

Comparing the unemployment rates between differently skill sets (i.e. different education levels) primarily corresponds to our purpose of investigating the extent of people's job security in the Korean labour market. Table 5-4 shows employment rate to total population by levels of education in some OECD countries. In general, higher education seems to lead to more job opportunities in the world labour market. However, there is a subtle difference between Korea and the other countries. Whilst those with less than upper secondary education seem to have relatively high employment, this should be interpreted with caution as this does not necessarily mean that the Korean labour market is friendlier to workers with educational levels lower than tertiary. Rather, this may indicate that the Korean labour market focuses more on providing low-quality jobs, which results in, high employment rate for low-educated workers and low employment rate for high-educated workers, relatively speaking. It is however, beyond the scope of this study to examine the causes of this phenomenon.

Table 5-4 Employment rate by educational attainment (%)

	Less than upper-secondary		Upper secondary		Tertiary	
	2000	2011	2000	2011	2000	2011
OECD	57.1	55.5	74.2	73.8	83.2	83.0
Germany	50.6	56.5	70.4	77.6	83.4	87.9
UK	53.7	55.9	79.1	78.2	87.8	83.2
Sweden	68.0	65.2	81.7	83.5	86.7	88.7
Korea	67.8	65.2	68.8	70.8	75.5	76.9

Source: OECD Employment Outlook 2002 and 2013

Note: persons aged 25-64, as a percentage of the total labour force

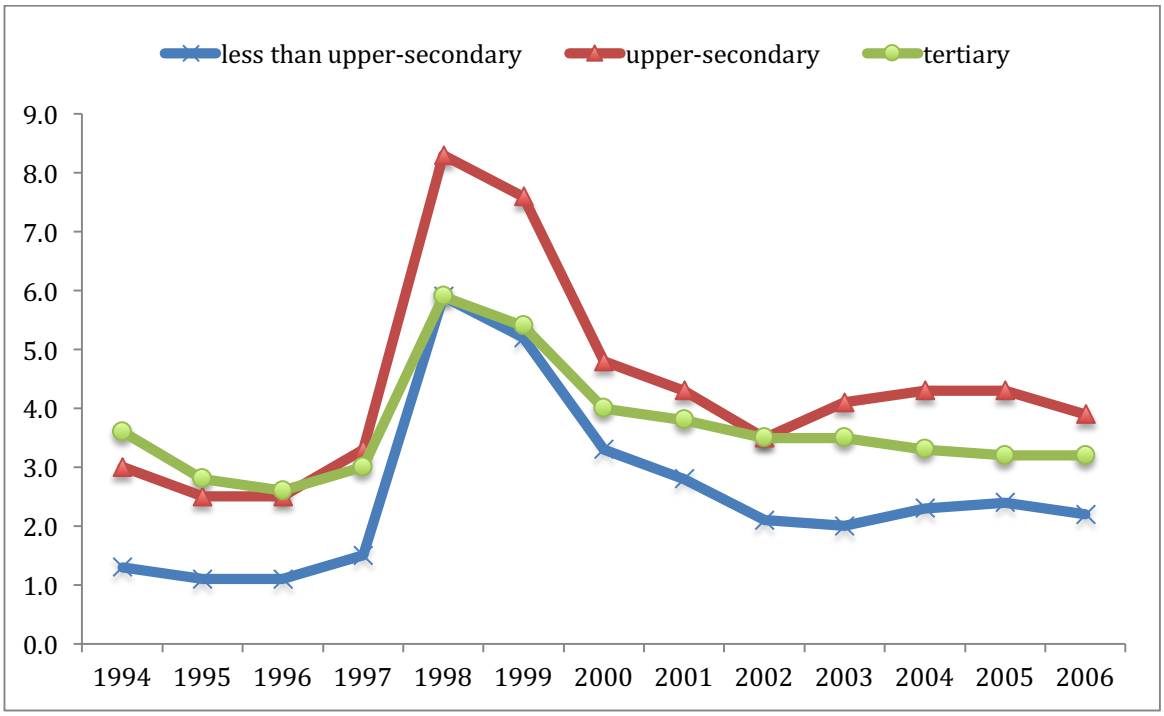
Figure 5-2 below depicts the trend of unemployment over a period of more than ten years differentiated by levels of educational attainment. As mentioned in the previous chapter, low-skilled workers here refer to those with less than post-secondary education[35]. Unemployment soared at an unprecedented rapid rate for all groups during the 1997 economic crisis. In the following year, the unemployment rate of those with upper-secondary education peaked at 8.3%, whilst the unemployment of the other two groups peaked at 5.9%.

Nevertheless, two things from this trend need to be investigated in detail (Freeman, Kim and Kŭm 2008), one is the gap change between highly skilled (tertiary) and low-skilled workers (upper-secondary and below). The other is the group that was more affected by economic difficulty. Apart from the least skilled groups (with education below upper secondary), low-skilled groups had

[35] The classification of the levels of education is based on the International Standard Classification of Education (ISCED 1997), which divided education attainment into six levels. To compare with other international figures, we name the legend in figure 5-2 accordingly.

experienced lower unemployment rate in the early 1990s, but the gap narrowed and even reversed when Korea was bailed out by the International Monetary Fund (IMF) in 1997. Since then, the difference between the two groups remains with the low-skilled workers more negatively affected than all the other groups.

Figure 5-2 Unemployment rates by educational attainment (%)



Source: Freeman, Kim and Kum (2008)

In 1998, the unemployment rate shot up from 3.3% to 8.3% for the group with upper-secondary education, whereas the impact on the group with tertiary education was much less with only a slight increase from 3.0% to 5.9%. According to their analysis (Freeman, Kim and Kŭm 2008), the two possible reasons are firstly, since the financial crisis, high-skilled workers who are displaced from high-skilled work have crowded out the low-skilled workers from industries where the latter used to work. That the rates of employment and unemployment became low can mean that many in the lower education level group became inactive in the

labour market. On the other hand, it can also mean that the demand for low-skilled workers in the manufacturing and construction sectors were not as high as before the financial crisis set in.

Table 5-5 The ratio of low-educated workers in each contract type, compared to that of high-educated workers

	2000	2003	2007	2010
Permanent	1.7	1.2	0.8	0.6
Temporary	2.1	1.5	1.4	1.2
Daily	11.3	11.5	7.8	9.9
Full-time	2.0	1.4	1.0	0.8
Part-time	1.9	1.4	1.6	1.4

Source: The KLIPS in 2000, 2003, 2007 and 2010

In table 5-5, the KLIPS data shows that the ratio of low-educated workers of certain contract type to the high-skilled workers, reiterates the arguments of this study to some degree; low-educated workers were replaced by high-educated workers over the years, except in daily-waged jobs. Although there was an overwhelming number of a worker in low-skilled and precarious jobs, the share of high-skilled workers in those jobs has been growing rapidly. This is especially apparent with permanent contract holders who showed a stark contrast of 1.7 to 0.6 drop between 2000 and 2010. This implies that working conditions and job security for low-skilled workers have not improved over the years.

2.3 Atypical Workers

One of the main concerns in Korea has been the increase of atypical workers because they replace secure jobs without creating new jobs. Schmidt

(2007) argues that Korea's labour market has become increasingly precarious because more and more precarious and atypical employment is substituting regular jobs.

Table 5-6 The rate of part-time and temporary employment (aged 15 and over, % of the total employed)

	Part-time		Temporary	
	2000	2012	2000	2012
OECD	11.9	16.9	11.3	11.8
Germany	17.6	22.1	12.7	13.9
UK	23.0	24.9	6.8	6.3
Sweden	14.0	14.3	15.2	17.5
Korea	7.0	10.2	24.7	23.8

Source: OECD Employment Outlook 2013

Note: a) Part-time employment refers to people who work less than 30 hours per week in their principal job. b) Temporary employees are wage and salary workers whose jobs have fixed contract periods as opposed to permanent employees with contracts that are without termination dates. c) The data of temporary employment in Korea for 2000 and 2012 is replaced by information for 2007 and 2011 respectively due to the lack of data in the former. The data of temporary employment of Sweden in 2012 is also replaced by information for 2007 for the same reason.

Based on recent OECD statistics (see table 5-6), there is a large noticeable proportion of temporary workers vis-à-vis the other job categories; with 25% of dependent employment in 2000 and 2010, which is more than twice the OECD average. As opposed to the average increase in OECD countries, Korea seems to have levelled off in its share of temporary employment. Nevertheless, a fifth of Korean employees over the span of a decade are still a notable number in

comparison with other OECD countries.

Table 5-7 Trends in compositions of paid employment (% of the total employed)

	2001	2002	2003	2004	2005	2006
Regular	44.8	43.1	43.7	41.7	42.8	43.3
Disadvantaged	28.4	29.5	23.7	21.3	20.5	21.2
Non-standard	26.8	27.4	32.6	37.0	36.6	35.5

Source: Lee and Lee (2007)

Note: For the purpose of this section, we define 'Disadvantaged workers' as those with a standard type of employment but do not benefit from any company or social benefits. And 'Non-standard workers' include those who do not fall under any of the standard employment categories, such as fixed-term, part-time, etc.

The following analysis about employment trends may account for the phenomenon mentioned-above. In terms of the composition of paid employment from 2001 to 2006, Lee and Lee (2007) argue that there is a compositional change between 'disadvantaged' and 'non-standard workers'. As seen in table 5-7, while the ratio of regular employment has shown relative stability, the share of the disadvantaged group has been declining but that of the non-standard workers has increased. They insist that the transition from disadvantaged workers to non-standard workers is due to employers' avoidance of higher labour costs by offering non-standard jobs instead of regular ones. Thus, one who once held a non-regular job is very likely to transfer to another non-regular job. This maintains the total number of non-regular workers employed at a certain level, as seen from the table.

In this regard, labour market polarisation in terms of employment is critical in that it can exacerbate income inequality, putting many atypical workers at risk of becoming the working poor (Förster and Pearson 2002). As pointed out, the

most serious problem in a polarised labour market is the wage gap between atypical and typical workers. According to the supplementary survey on the economically active population in March 2013, the wage level of atypical workers in Korea was 60%less than permanent workers on the average. Additionally, in terms of workfare benefits e.g. retirement allowance, over-time allowance, etc., the atypical employees got only about 50% of that of permanent workers on the average (*Statistics Korea* b)

2.4 Young Workers

The interpretation of job security depends on diverse factors in the labour market: (un-) employment to population ratio, labour force participation rates, job tenure, and so on.

Table 5-8. Employment rate by selected age groups (% of the total population)

	Youth (15-24)		Prime age (25-54)	
	2000	2012	2000	2012
OECD	45.5	39.7	75.9	75.6
Germany	47.2	46.6	79.3	83.2
UK	61.5	50.0	80.2	80.3
Sweden	46.7	40.0	83.8	85.2
Korea	29.4	24.2	72.2	74.7

Source: OECD Employment Outlook 2013

Based on the employment ratios in table 5-8, there are less young workers in Korea in the labour market than in the other selected countries. This stands out even more when comparing with their senior group who are more or less

comparable to the international average. Thus, we can assume that the unemployment rate is higher among the younger generation in Korea nowadays. It also appears that the unemployment rate of 9% of those aged 15-24 in 2012 does not appear to be a big problem as compared to the OECD average and to the other countries (see table 5-9). The rate in Korea even decreased from 2000 to 2012 whereas for countries, such as the UK and Sweden – there have been dramatic increases in the same period.

Table 5-9. Unemployment rates by selected age groups (%)

	Youth (15-24)		Prime age (25-54)	
	2000	2012	2000	2012
OECD	12.1	16.3	5.4	7.2
Germany	8.4	8.1	7.0	5.1
UK	11.7	21.0	4.4	6.0
Sweden	11.7	23.7	4.9	5.9
Korea	10.8	9.0	4.0	3.0

Source: OECD Employment Outlook 2013

Note: As percentage of the total labour force in each age group

With regards to labour force participation, we can infer that in Korea, there was a downturn from 52.5% in 2007 to 26.6% in 2012, in contrast to other selected countries where the figures have levelled off. In other words, the rate of participation in the labour force has been decreasing continuously in Korea while that of the other countries has remained high. This further implies that the falling rate of labour force participation is driving down youth employment by a large margin, though increasing unemployment is to be blamed to some degree.

It is also argued that the real number of job-seeking youth in Korea may be

much higher than the official figures because many of them who are discouraged in the labour market are excluded from the data (Freeman, Kim and Kŭm 2008). The key question is: where do those who are excluded from the labour market go? They may have entered tertiary education; remained unemployed or simply without education and/or training (NEET).

The percentage of young people attaining tertiary education has increased from 51% in 2005 to 65% in 2010 whereas the average of OECD has climbed from 32% to 38% respectively. Not only has their absolute number become bigger, the rate of increase is also much higher than the OECD average. This can account for the decline of youth participation in the labour force with the possibility that this will enhance their job security in the future. However, it is important to find out the extent to which tertiary education enrolment can offset the decline of active youth employment.

Table 5-10 Youth neither in employment nor education/training (%)

	Youth (15-19)		Prime age (20-24)	
	2000	2012	2000	2012
OECD	9.4	8.2	17.7	18.5
Germany	5.7	3.5	16.9	12.6
UK	8.0	9.5	15.4	19.1
Sweden	3.6	4.2	10.7	12.9
Korea	-	8.7	-	23.3

Source: OECD. Stat Extracts

Note: As a percentage of the population in each age group

In line with this, we should look at another key trend i.e. the increasing number of youth not in employment, education or training (NEET). As seen in table

5-10, this group seems to stand out vis-à-vis their counterparts in the other countries. Nearly a quarter of young workers aged 20 to 24 in Korea is in NEET, the highest among selected countries including the OECD average of 18.5%. This can become not only a problem for the individuals concerned but also for the nation as a whole in the long-run. It is however, unclear the extent to which the percentage of NEET in Korea has increased from 2000 to 2012 due to the unavailability of official data.

Considering the increase in the number of enrolment in tertiary education and in NEET, we can tentatively conclude that the Korean labour market as is currently unfavourable to youth employment. They are in fact, driven out of the labour market and are either absorbed by educational institutes or remain inactive as NEET.

According to the empirical study on job insecurity and re-employment by Nam, Lee and Choi (2012), youth aged 15 to 29 faces the greatest difficulties in employment stability and job security among all the age groups. Based on their research grouping, out of the three age brackets (aged 15-29, 30-54, and 55+); the youngest cohort turns out to have the least security in terms of jobs and in reality, they also have the shortest job tenure.

As an indicator of job security, job tenure with only twelve months and under indicates the extent of job insecurity faced by young workers and this accounts for 74.6% of Korean young workers (aged 15 to 24) in 2012. This is increased from 70.7% in 2000. In the meantime, the OECD average and that of many other countries have decreased in the same period. Although Korean workers at their prime (aged 25 to 54) are also very vulnerable in terms of job insecurity as compared to their counterparts in the other countries, the extent of

short job tenure among the Korean youth appears much more severe, based on available statistics.

In the domestic labour market, many young workers without tertiary education tend to fall into atypical jobs. While the share of permanent jobs by those aged 18-24 has decreased from 73.2% in 2000 to 61.5% in 2010, those aged 25-54 on the other hand, seem to enjoy an increase from 78.1% in 2000 to 78.7% in 2010. Even though the data shows that more young workers are obtaining full-time jobs in recent years, their share remains far less than those of workers at their prime. Therefore, Korean young workers do tend to end up in atypical contracts more than workers at their prime and the gap between them is becoming wider.

2.5 Summary

We have examined how the four new social risk groups are defined and also highlighted their vulnerability in the Korean labour market. Women's domestic and particularly, childcare responsibility in Korea largely contributes to their lack of job security in the labour market. They have a lower employment rate internationally and a higher poverty rate during their 30s. They tend to end up in more precarious jobs because of their gender.

Moreover, low-skilled workers tend to be excluded from the labour market. Traditional industries, such as manufacturing, are incapable of employing these workers like before, and/or they are being replaced by those with higher skills. Hence, instead of having secure contracts, they are more likely to become non-regular contract holders. Thirdly, there is a high incidence of atypical employment globally and these types of employment do not improve people's job security but

rather, keep people in dead-end jobs. This in turn, results in the widening of income inequality. Fourthly, the noticeably low employment rate of young Korean workers is verified by two factors internationally: there are a larger number of them in tertiary education or they simply fall into NEET. These trends reflect the deteriorating conditions of the labour market for those aged 18 to 24 who are still looking for jobs.

Their problem is aggravated by the fact that many jobs have become increasingly precarious over the years. The following section shall analyse the youth's performance in terms of pension coverage over a period of ten years through a bivariate analysis.

3. Trend in Pension Coverage for New Social Risk Groups: Bivariate Analysis

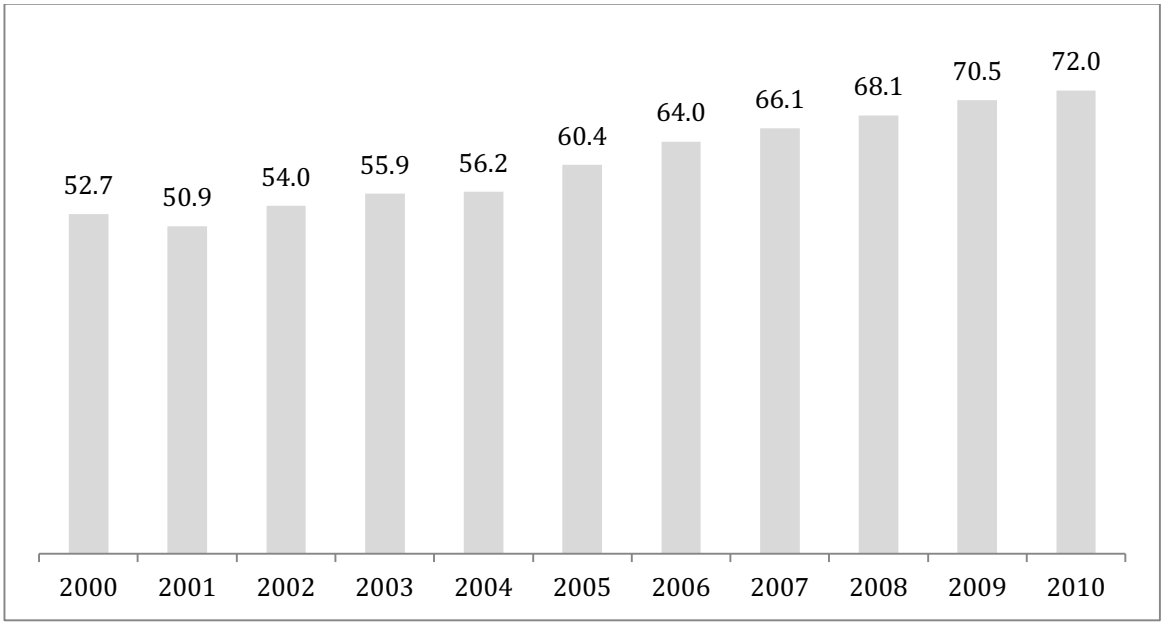
In analysing the employment trend, we shall examine whether there is any exclusion pattern for different years among the new social risk groups with respect to pension coverage. To put it differently, the main concern is whether or not, core workers are much more likely to be covered than others like the new social risk groups, and whether or not, pension reforms have taken on board the needs of the new social risk groups.

In addition, this section will highlight the absolute trends of pension coverage by variables over the years, as well as the relative trends, which are important because it can explain the realities of precarious groups in comparison to core workers. This is followed by an analysis about the new social risk groups. Before analysing by groups, an overview can be obtained by looking at the trend of the overall pension coverage during a specific period of time.

3.1 General Trends of Pension Coverage

Most of all, figure 5-3 represents the general trend in terms of coverage rate during the period analysed. It indicates an upward trend despite some exceptional years; in 2000, it began with 52.7% and ended with 72.0% in 2010, after a number of pension reforms in relation to coverage policy. Most important of all, only 52.7% of dependent workers in 2000 confirmed that they were participating in NPS. And then there was no significant improvement for a few years even though compulsory coverage policy was implemented from 1999.

Figure 5-3 Pension coverage rate of all dependent workers (% of the total employed)



Source: The KLIPS from 2000 to 2010

There are two reasons for the coverage trends as described above. First, people tend to under-report their job status at any given time. Since the full expansion of coverage policy in 1999, all workers including self-employed or workers at workplaces with less than five workers, must subscribe as an

individually insured person. However, many people did not comply because it is a financial burden and secondly, there is the fear that due to the expected depletion of fund, subscribers may not get their benefits in the end. The worry about fund depletion was decisive during the 1998 reform[36], which did bring about some negative perceptions about NPS. Consequently, people simply ignored or delayed their subscription or they defaulted in payment.

On the other hand, people might be confused with a pension-related question in the survey, so it may produce misleading results. Looking at KLIPS and the official data from NPS (see table 5-11), there is a clear difference between the two data sets even though the data from KLIPS is getting closer to NPS data year on year. Following this assumption, it is possible (as discussed in the previous chapter) that administratively, being insured simply refers to people who are obliged by law to subscribe, regardless if they contribute to the scheme (or not) in terms of coverage rate. Once a person is insured, there are only a few cases that are excluded by law.

In comparison, the questionnaire on NPS coverage might be interpreted by the respondents in two ways: whether or not they are insured, or whether or not they contribute. For some respondents, even if they are in the scheme by law, they may still indicate that they do not participate in NPS because they are not paying any contribution. However, the gap between the two sets of data is narrowing year on year because as NPS matures with an increasing number of subscribers, people are becoming more and more knowledgeable about the scheme and are paying more contributions to it.

[36] As a result, the entry age of pension benefits has increased from 60 years old up to 65 years old in a phased process.

Table 5-11 Comparison in coverage rate between the KLIPS and the official data (%)

	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
NPS (a)	72.4	71.9	74.8	72.9	72.1	73.9	75.4	75.3	76.3	77.7
KLIPS (b)	50.9	54.0	55.9	56.2	60.4	64.0	66.1	68.1	70.5	72.0
Gap (a-b)	21.5	17.9	18.9	16.7	11.7	9.9	9.3	7.2	5.8	5.7

Source: The KLIPS from 2000 to 2010 and NPS Silver Book (2012)

Note: As in the data of NPS, the figure is the ratio of the insured persons to the economically active population, aged 15 or more. For KLIPS, it is % of the total number of persons employed.

However, this difference does not impair this research. Simply put, the KLIPS in which people have answered, depending on their contribution could reflect more of the fact that it is supposed to identify which groups of people are less covered by NPS. After all, people are anything but 'covered' if they do not contribute, according to the principles of social insurance. Ultimately, if there is no contribution to the insured period, the benefits will not be computed later. Thus, the data from KLIPS is appropriate for the purpose of this study.

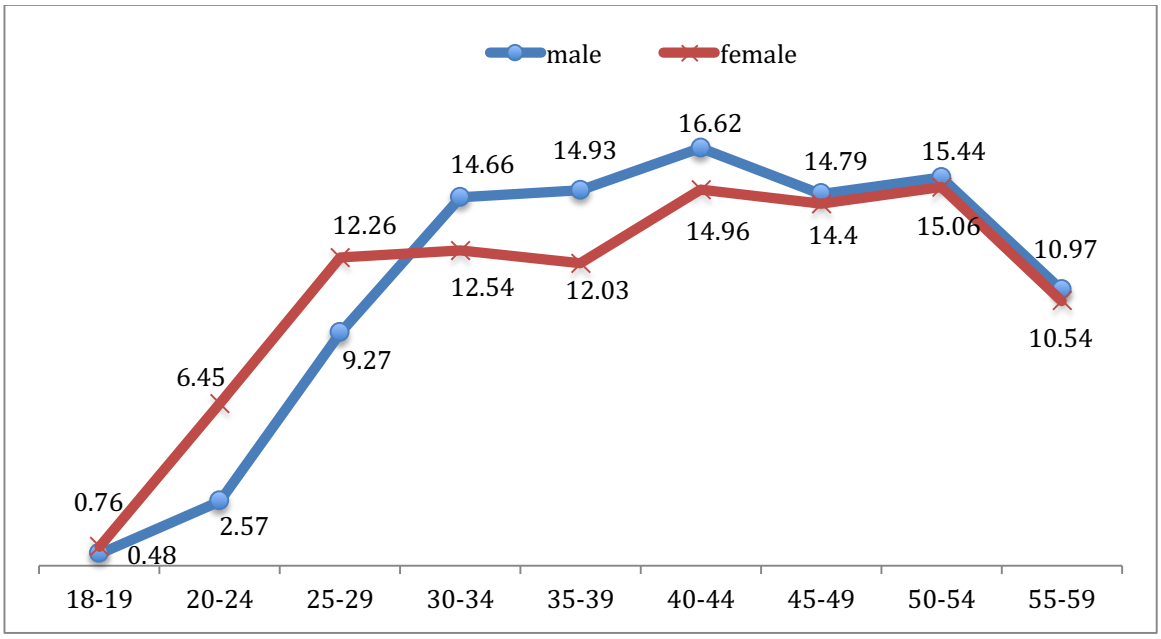
3.2 Women with Care Responsibility

Women with care responsibility are believed to be a vulnerable group when it comes to gaining and retaining decent jobs.

Figure 5-4 describes the ratios of insured persons by gender and age. This gives a good idea of one's life cycle in relation to NPS coverage. First, the female ratio in the 20s age group obviously surpasses the male ratio by a large margin. This is not least because of Korea's mandatory military conscription for men,

which forces men to enter the labour market later. While the male entrance into the labour market begins from their early 30s, the female exodus from the labour market also begins when they are in their 30s. Many women have to disrupt their career due to child-bearing and child care responsibilities. Even if they retain jobs and are fully or partially paid by their employer or by Employment Insurance during their maternity or parental leave, they are exempt from compulsory contribution to the pension scheme.

Figure 5-4 The share of insured persons by gender and age groups (% of each population)



Source: National Pension Statistical Yearbook 2012

Therefore, the order of the two ratios is in reverse as seen in figure 5-4. This trend changes as soon as women return to the labour market in their late 40s. This is the time when they no longer need to care for young children of school age. The KLIPS data generally confirms this gender-based life cycle (see table 5-12). The table also reveals that women in their late 30s forms one of the smallest groups in

relation to the total number of dependent workers. Due to this intermittent exit from and re-entry into the labour market, women by and large, struggle to build an adequate pension or other forms of entitlement for their retirement, which has important consequences for their livelihood and security in their old age.

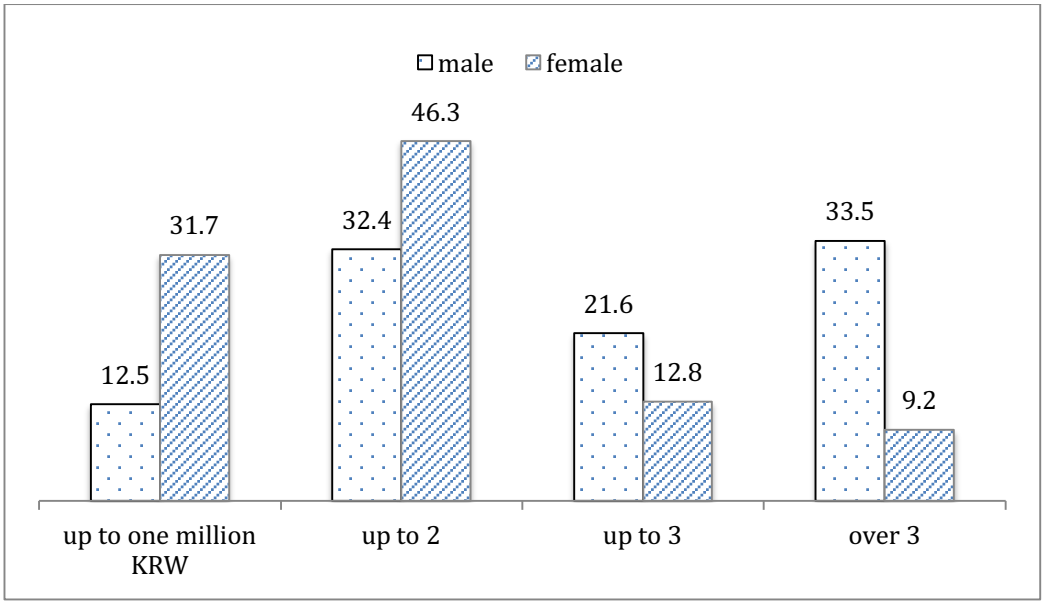
Table 5-12 The proportion to all dependent workers by age (%)

	18-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	Total
Male	0.3	2.5	14.1	18.1	17.4	15.9	12.8	11.5	7.4	100
Female	0.4	7.5	17.5	**15.2**	**11.1**	14.1	15.6	11.7	6.9	100

Source: The KLIPS (2010)

This is not the only issue that women face. Even if women fulfil the requirement for minimum contribution to the pension entitlement, the level of income of the insured is also an important factor. Income level is one of the two main factors that determine pension benefit level, as discussed earlier. Figure 5-5 tells us the percentage of insured persons differentiated by income groups and gender. Of all insured women, nearly 80% earn less than 2 million KRW (equivalent to 1,000GBP) per month whilst more than 33.5% of all insured men earn over 3 million KRW (equivalent to 1,500GBP). Given that this income trend continues during one's working age, the pension benefits that women are entitled to after their retirement will be so little that they have to depend on other source(s) of income to survive. Without additional support, they are very likely to become impoverished pensioners. This is in sharp contrast to male workers with higher income who would enjoy better pension benefits in their old age.

Figure 5-5 The distribution of income groups amongst the population insured by gender in 2010 (%)



Source: National Pension Statistical Yearbook (2010)

Note: The unit of a million KRW per month (equivalent to 500 GBP)

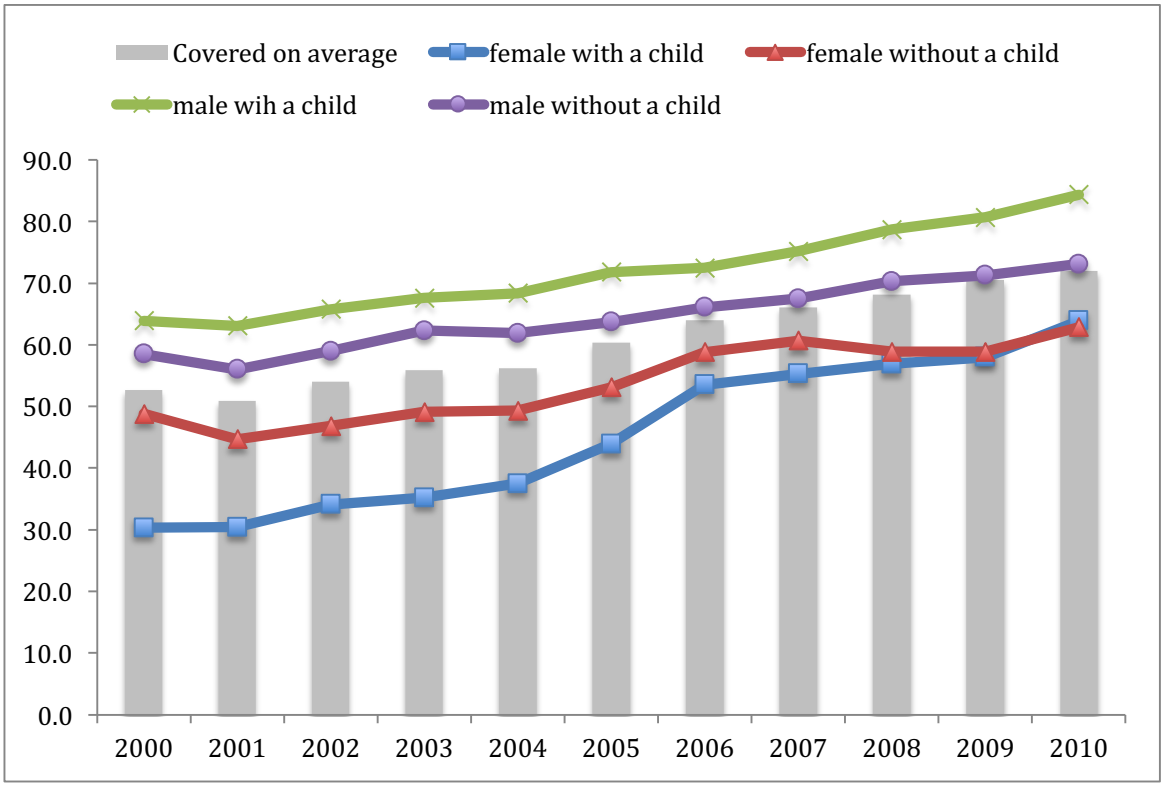
We also need to look at the differences within the same gender, in addition to differences between genders. In respect of women's working cycle, Nam, Lee and Choi (2012) argue in their empirical research that most of the female labour force has interrupted careers due to child birth and child care. So they are much more likely to struggle with long-term unemployment or job insecurity even after their re-employment. By contrast, women without such disruption in their careers tend to enjoy high job security with longer contracts or tenure. This therefore, leads to polarisation even among women in the labour market.

Figure 5-6 shows the difference within the same gender, as well as between genders. It highlights the trend of pension coverage according to whether or not; the workers have a child (or children) over a period of ten years. Expectedly, the

general pension coverage rate of men overwhelms that of women throughout the whole period. There are two important observations from this trend; first, having a child seems to mean different things to men and women. Male workers with a child tend to be more privileged than their counterparts who have no child, and this disparity has become even bigger recently. Assuming a male worker who has a child is likely to be in his 30s to late 40s, they are also likely to be the primary/principal workers at their workplaces. They are also most responsible for the future of their families, which can in turn lead to a higher pension coverage rate by male workers of this category.

On the contrary, child birth and child care seem to prevent women from being insured in general, unlike their male counterparts with a child (or children). Women are more likely to land in non-standard jobs either involuntarily or voluntarily, not to mention that they tend to spend most of their salaries on their children's education, rather than saving for their old age. Figure 5-6 below shows that, only 30.3% of women with a child were covered by NPS in 2010, as opposed to 48.8% of women with no child and this trend has continued until recently. However, the gap between these two groups of women in terms of pension coverage has narrowed over time. In 2000, the gap between the two is 18.5% but this has dropped continuously up to 2010. The rates have then converged so that the difference became negligible with 63.9% for women with a child, versus 62.9 % for women with no child.

Figure 5-6 Pension coverage rate by whether or not they have children (% of the total employed)



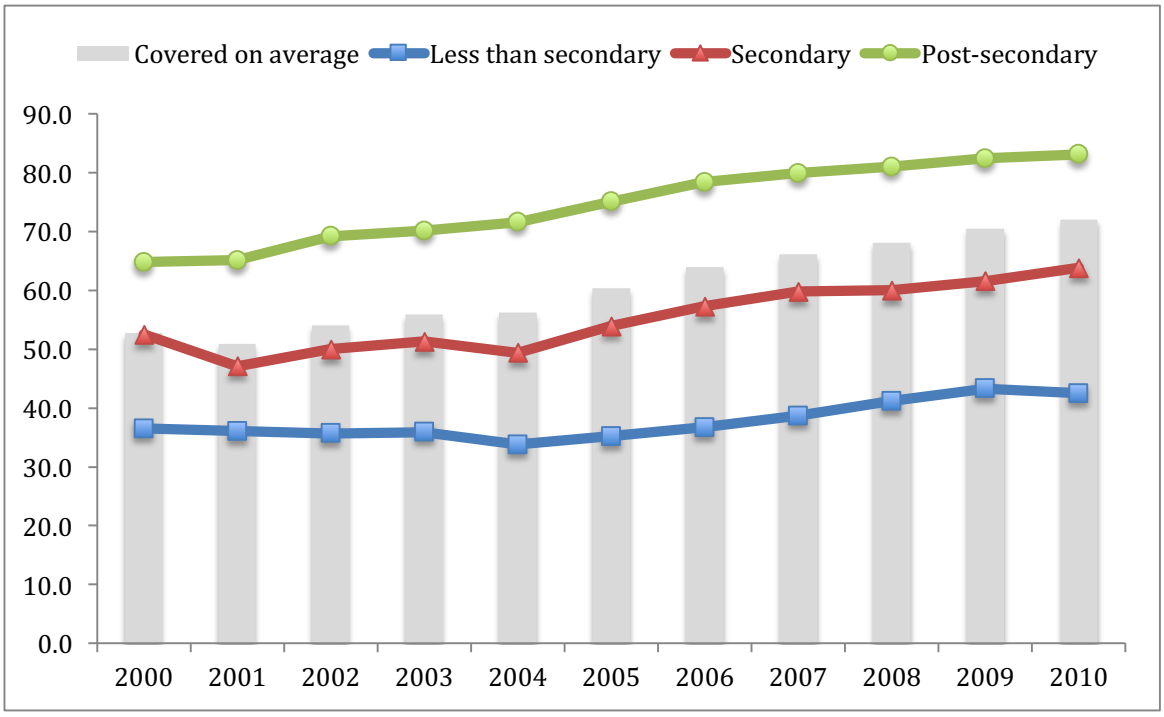
Source: The KLIPS from 2000 to 2010

The reasons for the above-mentioned trend between the two women groups are not apparent. We may assume that there are two conditions for this trend; one is the consecutive expansion in coverage policy, and the other is the pro-pension campaigning by women who favour the scheme. These two shifts may play an important role in increasing their coverage rate (detailed description will be discussed in the following section of logistic regression analysis). As women with care responsibility struggle to attain a decent pension in their old age, their position in the labour market has also improved for various reasons, according to this trend analysis, even though they are still far from catching up with their male counterparts.

3.3 Low-Skilled Workers

This study defines one's education by the level of skills achieved and, specifically, those with lower than post-secondary education are defined as low-skilled workers in this research. Having looked at the coverage trend by educational attainment over a decade, it is possible to differentiate between educational groups; the pattern of exclusion seems to correspond to one's educational achievements (see figure 5-7). This simply proves that educational attainment is a strong determinant of one's job security. The more education one has, the better he or she is covered by pension. In fact, the pension reforms do not seem to increase the pension coverage among the lower-educated.

Figure 5-7 Pension coverage rate by educational attainment (% of the total employed)



Source: The KLIPS from 2000 to 2010

Nevertheless, the pension reforms have made some significance difference on the general trend even though it is not extensive. From 2000 to 2004, the number of people with lower than post-secondary education has levelled off, i.e. the fluctuation is slight and it is below the average rate in pension coverage. It is in 2005 that low-skilled workers began to bounce back from their entrenched status. Therefore, it is evident that the phased coverage expansion[37] aimed at including workers of workplaces with less than five employees has provided the lower educated workers slightly better security since most of them tend to be hired by small businesses. In reality, better coverage for low-skilled workers can be attributed to the expansion programme as discussed previously. How then has the expansion programme worked for them?

Transferring individual-based to workplace-based coverage in NPS has led to a more seamless coverage application for the vulnerable group(s). This is supported by the percentage of workers at workplaces with less than five employees in relation to the expected number of workers covered by the expansion (see table 5-13).

Table 5-13 The percentage of workers at workplaces with less than 5 employees (% of the total employed)

	2003	2004	2006
Less than post-secondary	72.5	68.4	63.8
Post-secondary	27.5	31.6	36.2

Source: The KLIPS from 2000 to 2010

As can be seen, when the expansion programme was being implemented,

[37] From 2003 to 2006

low-skilled workers accounted for about two-thirds and up to three- fourths of all micro businesses. The expected number of workers in table 5-18 tells us that this expansion programme would necessarily cover many low-skilled workers in micro businesses.

Nevertheless, the extent of increase in coverage rate does not look as substantial as anticipated. Even though low-educated people are predominantly employed in micro businesses, there has not been an expansion by a large margin. Rather, as shown in the figure, the coverage rate for those with post-secondary education has been rising gradually. Since 2005, the higher educated group also shows a stronger upward movement than in previous years. The result can be partially traced to the three-step expansion programme in 2005; approximately one-third (from 2003 to 2006) of these businesses accounts for the employment of higher educated workers (see table 5-14). The benefit from the expansion programme definitely goes to a third of the higher educated workers, which in turn, accelerates their ever-increasing trend in coverage rate. This further reiterates that the increase in coverage is not as big for the lower educated despite the expansion programme.

Table 5-14 The expected number of workers to be covered by the three-step expansion programme

2003 (1st step)	2004 (2nd step)	2006 (3rd step)
0.46	0.62	1.41

Source: Ministry of Health and Welfare

Note: This is in the unit of a million

The unexpectedly low coverage rate for low-skilled workers also points to another reason: the low-skilled workers are very often hired in atypical

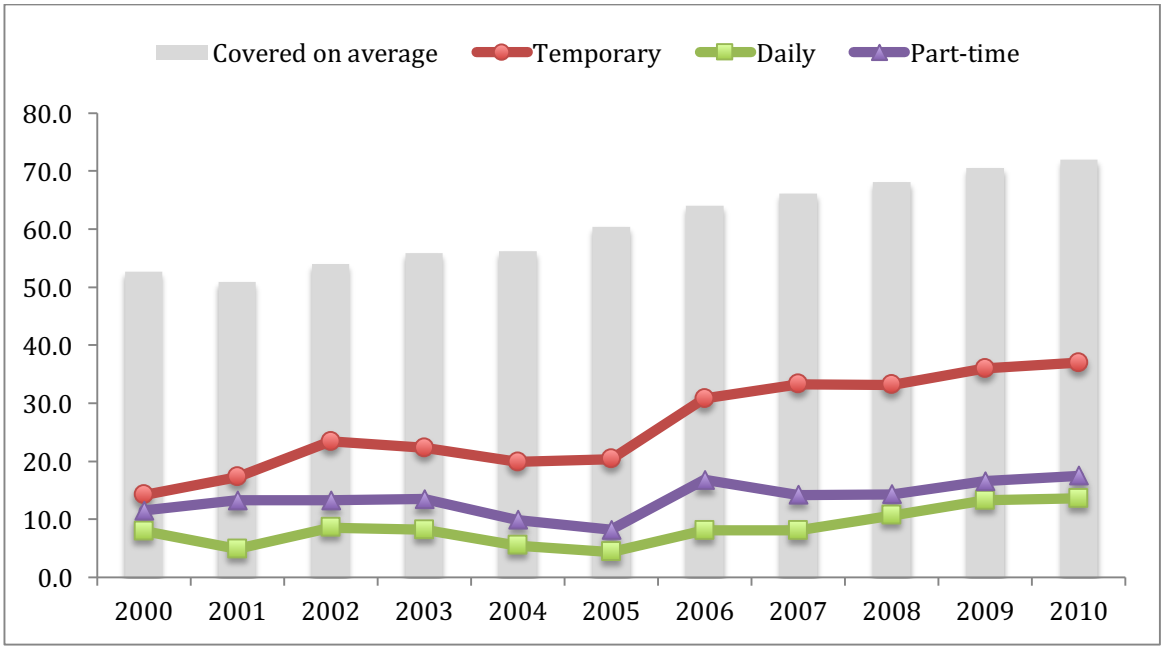
employment with low wages. Atypical contract holders tend to face disincentives at workplaces, such as the lack of provision of corporate fringe benefits and social insurance. In addition, they tend to stay out of pension schemes in order to save on disposable income.

Consequently, we can assume that until 2003, the expansion programme has helped to alleviate institutional discrimination caused by differential policies, such as company size. Previously, people in micro businesses could only register as individually insured persons and pay the pension contribution themselves, without employers' subsidy. All these factors have depressed their coverage rate before the expansion programme. In short, many low-skilled workers employed by small businesses, whose right to be insured under NPS was previously deprived, were expected to come into the social safety net after the expansion. However, the outcome was much less promising than expected because of a combination of realities they face; atypical contracts and low wage. In conclusion, the expansion programme did not fulfil its purpose as a practical and useful policy for low-skilled workers.

3.4 Atypical Workers

In the theoretical chapter, the process of dualisation in the labour market in which more atypical workers were produced was discussed. This has occurred partly because employers are attracted by lower labour costs (removing corporate fringe benefits and social insurance fees). Ironically, social security programmes can unintentionally polarise the labour market into segments that lead to less positive outcomes than expected.

Figure 5-8 Pension coverage rate by employment contract status (% of the total employed)



Source: The KLIPS from 2000 to 2010

Note: a) 'Temporary workers' refer to those with work contracts of more than a month but less than a year b) Daily workers refer to those whose work contract is less than a month c) Part-time workers refer to those who work on a part-time basis

The trend from the sample population in figure 5-8 supports the arguments above to some extent. The substantially low level of coverage rate in these groups merits closer examination. Before 2006, all atypical worker groups were in a downward trend even though the universal pension policy from 1999 had required all citizens to be insured individually or collectively. Even though the workers were required by law to have pension coverage, the rates remained far below the average. As highlighted by the trend of the low-skilled workers, however, the three-step coverage expansion from 2003 was expected to help these workers get more social security, as shown in figure 5-8.

It is important to examine the impact of pension expansion on the different

workers' groups. In 2006, all groups showed the same upward trend even though the degree of increase in coverage rate for daily workers is less than the other groups. This is, without doubt, because of the nature of the pension coverage policy since it is not mandatory to include daily workers by law. The transition from 2000 at 8.0% to 2010 at 13.6% indicates that the pension policy has not benefitted daily workers to date. Unlike part-time workers who work more than 80 hours a month, they became included in NPS since 2003 by law. As a result, the group's coverage has soared dramatically in 2006. Whilst the lack of full coverage policy[38] for part-time workers may be to blame, the coverage rate for this group of workers had dropped, in conjunction with external economic difficulties right after the 1997 financial crisis, before the rate slowly picked up again in 2009.

On the other hand, there seems to be a dramatic increase among temporary workers from 2006. Even though this increase has been held back slightly since, temporary workers soon returned to an upward track, albeit at a gentler speed. Due to the more inclusive policy[39] from 2003, the number of temporary workers has increased as much as the part time workers because of the expansion programme even though the combined effect did not look as positive as expected. Nevertheless, their coverage trend managed to weather the economic crisis well into the late 2000s. The reality of the independent effect of temporary employment can be better understood through a multivariate analysis.

In reality, atypical workers are very unlikely to be covered by pension schemes or to contribute to social insurance, such as NPS and NHI. They tend not to be covered by social insurance at their workplaces because of their frequent

[38] Those who work less than 60 hours a month are exempted from NPS.
[39] Since then, those who work for more than a month in the same workplace must be insured on a workplace basis.

switching between jobs that have limited tenure. The coverage rates of atypical workers and permanent workers in table 5-15 show the stark reality faced by atypical workers. According to Statistics Korea, as of April 2013, only 16.7% of atypical employees are properly covered under NPS, 21.4% under NHI, and 18.8% under EI. By sharp contrast, permanent workers are nearly fully covered, at 97.0%, 98.9%, and 96.5% respectively.

The rate of NPS is even less than the other two insurances because of NPS' short history. It is also because NPS benefit is only dispensed in the distant future, whereas the other schemes dispense their benefits during one's working age. Those who are likely to be unemployed may benefit more from, for example EI, whereas those who are more likely to be sick but cannot afford the risk of medical costs will benefit from NHI. In a nutshell, workers with low or limited salaries tend not to prioritise NPS.

Table 5-15 Coverage rates by employment contract status, 2013 (% of the total employed)

	Atypical employment	Permanent employment
NPS	16.7	97.0
NHI	21.4	98.9
EI	18.8	96.5

Source: Statistics Korea

Note: a) The definition of atypical employment here refers to temporary and daily workers b) NHI =National Health Insurance, EI = Employment Insurance

Assuming that there is no apparent discrimination in the pension law, why is there still a big difference in coverage rates among workers as a result of their employment types? Firstly, there exists significant discrimination at various job

levels and of different job types. Atypical workers are previously examined in this study by limiting the corporate fringe benefits pay out to only around 10% for atypical workers. There are several reasons for this; the social insurances may be a burden to employers because they have to pay half or more of the contribution to each scheme i.e. both employers and employees contribute 4.5% of his/her average income to NPS and 2.995% to NHI. In the case of EI, employees contribute 0.65%, and employers top it up from 0.9% to 1.5%, depending on the company size. In addition, low-waged workers tend to avoid paying into social insurance because of their lack of disposable income. Consequently, it can be assumed that there exist many under-reported cases of atypical workers.

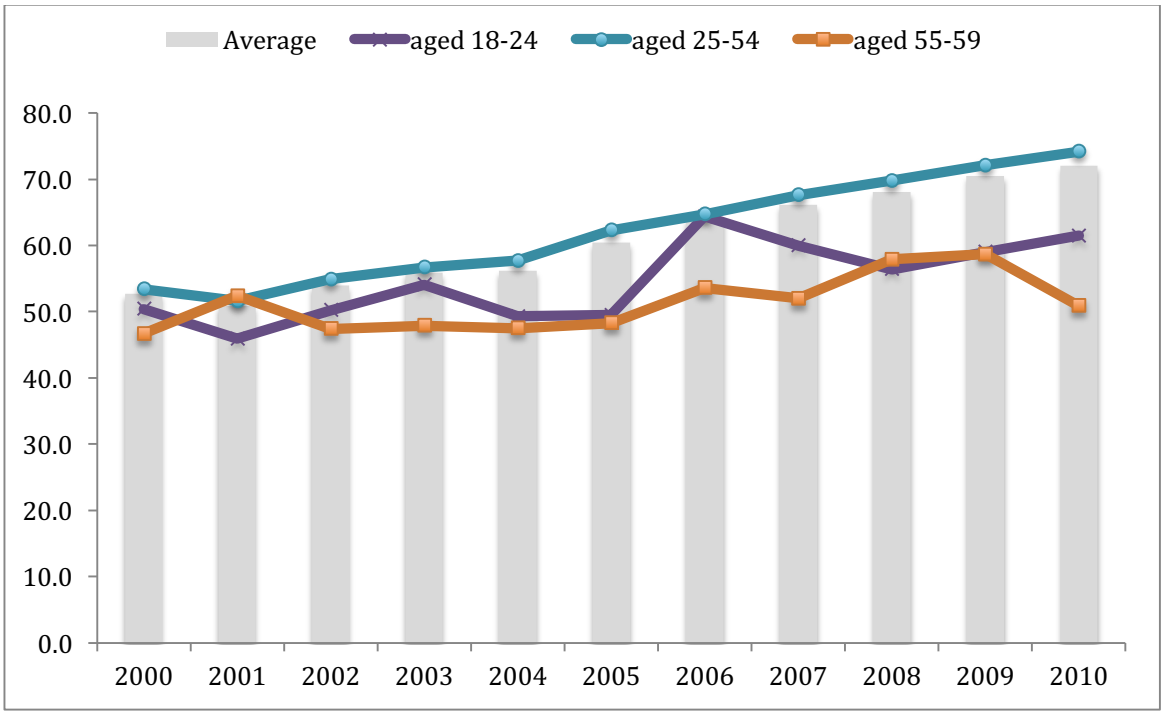
To sum up, atypical workers are vulnerable in the job market and also because of their lack of pension coverage. The exclusion policy in pension schemes is largely to blame for their vulnerability. Given that even the coverage expansion programme seems to be short-lived and produces less positive outcomes than expected, workers' concern about having less disposable income in conjunction with employers' interest to save costs inevitably lead to low pension coverage for certain categories of workers, such as atypical, low-waged, low-skill and daily workers.

3.5. Young Workers

Figure 5-9 explains that young workers are less protected in terms of their pension coverage compared to prime workers aged 25-54, and even more so than old workers aged 55 to 59. There are some exceptional moments in which the coverage for young workers seems to climb, as in 2003 and 2006. The phased coverage expansion programme between 2003 and 2006, where the coverage

policy was extended to those who work in micro businesses may be a factor for this. Another significant factor is the rise and fall among the non-prime workers over the years.

Figure 5-9. Pension coverage rate by age group (% of the total employed)



Source: The KLIPS from 2000 to 2010 (for old workers, see coefficients change)

During the same period, however, prime workers' coverage rate has been stable and showed an upward movement without much fluctuation. This implies that non-prime workers are more exposed to circumstantial factors around them, e.g. economic difficulty, pension reforms and so on. So, when there were changes in the conditions of their coverage level, they responded according to external factors. For example, the worldwide financial crisis in 2008 had greater influence on non-prime workers. In the graph, two marginal groups (aged 18-24 and 55-59) have shown a noticeable drop or level-off trend since then. This is in contrast to

the trend of the prime age group, which showed a steady increase.

Nevertheless, with regards to samples and methodology, the limitations of assessing trends by comparing year-to-year variations need to be considered since particularly small changes in small groups may dramatically change the significance of coefficients.

Table 5-16 Comparison in pension coverage rate between young workers (aged 18-24) and young prime workers (25-34, % of the total employed)

Age	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010
18-24	50.4	45.9	50.2	54.1	49.3	49.5	64.4	60.0	56.4	59.0	61.5
25-34	59.7	59.3	63.3	65.3	65.8	72.2	75.8	80.0	79.6	81.0	83.2
Gap	9.3	13.4	13.1	11.2	16.5	22.7	11.4	20.0	23.2	22.0	21.7

Source: The KLIPS from 2000 to 2010

When the prime age group is divided into different age brackets, the gap between groups brings about even greater contrasts. Comparing the young workers to adjacent age groups (aged 25-34) is a case in point (see table 5-16); although both groups experienced an upward trend in terms of pension coverage during the whole period, the young workers (aged 18-24) could not catch up with the speed of increase among young prime workers (aged 25-34). The gap between the two groups in terms of coverage rate has also increased up to 21.7% in 2010 from just 9.3% points in 2000.

As seen from this trend, it can be inferred that there is segmentation among young people (aged 18-34) by some other traits. For instance, the share of young prime workers in table 5-21 describes the extent to which they achieve educational performance. In 2010, about 80% of this group had post-secondary education. This indicates that a large share of young prime workers with post-

secondary education had a very high coverage rate of 83.2% in 2010. The reason for this big difference is that those in the labour market between the ages of 18-24 tend to have lower education or they work part-time alongside their education. This is completely different from among those ages between 25 and 34. It is also interesting that the extent of coverage for young prime workers has changed over the years, along with their enrolment in tertiary education (see table 5-17). Hence, we need to examine the direct impact of age on the coverage rate in a multivariate framework.

Table 5-17 Share of young prime workers aged 25 to 34 (% of the total employed)

	2000	2005	2010
Less than post-secondary (A)	49.6	30.2	20.2
Post-secondary (B)	50.4	69.8	79.8

Source: The KLIPS from 2000 to 2010

Many young workers who are not in education but who take part in the labour market between the ages of 18-24 also have far less stable jobs (see table 5-18). In terms of temporary job share in each age group, for example, young workers have climbed up to one third in 2010 from around a fifth in 2000, whilst young prime workers have remained at approximately 10% over the years. In the case of part-time jobs, the share of young prime workers has seen a constant decrease whereas young workers' share of part time work has increased from around two to three times as many as that of the prime age group.

In addition, there were less stable jobs among the group aged 18-24 than in the prime age group. For instance, as compared to 2000, temporary workers in the

group aged 18-24 have increased by 1.5 times whilst those in the group aged 25-34 have only increased by 1.3 times. Ultimately, the gap between the two groups is widening. Therefore, young workers who tend to retain atypical jobs, inevitably end up with lower coverage rates as compared to young prime age groups who are in the same situation. Thus, it can be deduced that young workers with less education tend to get involved in more disincentive jobs, which cause them to be less protected by insurance or pension.

Table 5-18 Share of atypical jobs by age group (% of the total employed)

		2000	2003	2007	2010	2010/2000
Temporary	Aged 18-24	22.3	23.2	22.3	33.6	1.5
	Aged 25-34	9.5	8.3	9.2	12.4	1.3
Daily	Aged 18-24	4.5	3.3	7.1	4.9	1.1
	Aged 24-34	4.2	4.2	2.3	1.8	0.4
Part-time	Aged 18-24	16.0	15.7	16.8	15.2	0.9
	Aged 25-34	7.2	6.7	3.5	3.6	0.5

Source: The KLIPS from 2000, 2003, 2007 and 2010

To conclude, young workers certainly show a lower coverage trend than that of prime workers in general. Being young seems to imply low educational attainment and holding down atypical jobs in the labour market. Moreover, their vulnerability in the labour market has become widespread over the years. Nevertheless, it is also important to ascertain if they are over-represented by their atypical employment in the labour market and if being young really affects their pension coverage. Then we can figure out the way to cope with the issue or to ascertain if there is a need to do anything about it.

3.6. Summary

The overall trend of coverage has increased over the years even though the rate in the early 2000s was substantially lower. However, there were also slight differences with each new social risk group at the micro level. As noted earlier, it is important to be cautious when attributing changes at the small-group level.

Firstly, there has been improvement in the pension coverage among women with care responsibility in recent years even though they still lag far behind the men. Most of the official data confirmed that women in their 30s have little access to the labour market and even if they do enter the job market, their income is low. This is true even for women with tertiary education when compared to their counterparts in selected countries. This trend in pension coverage has been consistent for over a decade. Ten years ago, women with care responsibility were in a much inferior pension position among themselves, let alone when compared to men. By 2010, even though there is no such difference among women, the difference between men and women still remains.

Secondly, education level is a decisive factor for one's pension coverage. Based on the official data, low-skilled workers seem to be very vulnerable to changes brought on by economic troubles. This group of workers tend to end up in atypical jobs during an economic crisis. Considering that more of them tend to end up in small businesses, it is not surprising that the expansion programme for pension coverage did not help them much in accessing the scheme. There remains a big and persistent gap between low-skilled and high-skilled workers in terms of their pension coverage since the last decade.

Thirdly, in today's highly flexible labour market, atypical employment has replaced typical employment by a large margin, much more in Korea than in any

other OECD countries. In this regard, income inequality between groups is a critical issue that must be addressed, in spite of the fact that legal coverage has already been extended to nearly all citizens through a series of pension reforms. Hence, it can be said that the coverage expansion programme from 2003 has not been as effective as expected; it only provided temporary relief. One important reason is the lack of effective law enforcement for daily workers, who are the most vulnerable.

Lastly, the trend in pension coverage of the last ten years confirms that young workers face much more insecurity than any other groups in today's labour market. They are low in participation in the labour market but high in tertiary education enrolment. Additionally, their high rate of 'NEET' is also a concern. All these reflect to some extent that the Korean labour market is not favourable to young people. They are often forced to choose between tertiary education and being NEET. Not to mention that they are more likely to take on atypical employment than the prime workers.

In reality, these new social risk groups do overlap in the labour market e.g. temporary workers with low skills also tend to be young. Thus, we need to examine how new risks can affect the workers' pension coverage in a multivariate framework. This shall be elaborated in the next chapter.

CHAPTER 6 ANALYSIS (ii)

1. Introduction

In this chapter, multivariate analysis using logistic regression is used to compare the relative strength of independent variables. One example is, to compare which groups are more likely to be covered by pension schemes than the others so as to assess the effectiveness of Korean pension schemes in dealing with new social risks. This chapter will also discuss this study's hypothesis and the contribution of its empirical work to the theories used.

2. Probability in pension: Logistic regression analysis

2.1 Test for Multi-collinearity

This section will investigate the outcomes of logistic regression analysis based on the research model selected for this study. We shall first examine whether there is a high correlation between predictors that is the test of multi-collinearity in terms of data. Since low levels of collinearity mean high credibility for the analysis, a good diagnosis is important in order to draw a trustworthy conclusion.

In table 6-1, a correlation coefficient between two variables (occupation and education) is slightly high at -0.554 ($p<.01$), because workers with high occupation status also tend to be also highly educated. However, multi-collinearity between variables is assumed if correlation coefficients are more than 0.8 in any direction. Hence, all variables are employed in the model as predictors because there is no serious concern about correlation.

6-1 Correlation test between variables

	A child exits (2)	Education level (3)	Employment contract (4)	Type of work hours (5)	Age (6)	Income level (7)	Industry (8)	Occupation (9)	Type of company (10)	Size of company (11)	A u e
*											
*	-.033**										
:	-.004**	-.259**									
:	.047**	-.006**	.328**								
*	.006**	-.259**	.084**	-.068**							
*	.152**	.287**	-.265**	-.261**	.157**						
:	-.117**	.220**	-.031**	.096**	-.045**	-.013**					
*	.018**	-.554**	.298**	0.001	.192**	-.303**	-.306**				
:	-.001**	-.025**	.262**	.110**	.050**	-.067**	.242**	.020**			
*	.006**	.209**	-.224**	-.131**	.021**	.316**	-.074**	-.160**	.066**		
:	-.023**	-.177**	.215**	.109**	.004**	-.291**	.061**	.121**	.028**	-.484**	
*	.082**	-.045**	-.040**	-.098**	.232**	.364**	-.063**	-.014**	.080**	.220**	-.2

* p < .05, ** p < .01

2.2 Outcome of Logistic Regression

Table 6-2 shows the outcome of logistic regression in terms of factors affecting pension coverage for new social risk groups. Before analysing, we need to gauge the fitness of the model as a whole. The overall fitness of the model can be assessed using the log-likelihood statistics, as discussed in the methodology chapter.

In terms of -2LL, the lower value in the model compared to that of the baseline with only the value of constant indicates that the model is more accurate in predicting the outcome. In the model, for example, the value of -2LL in 2000 is 6337676.7, which is lower than the baseline of 11617257.63 when only the constant is included. Converting to the value of a chi-square distribution, the value (11617257.69 – 6337676.7 = 5279580.99) is significant at a 0.001 level. Likewise, all the other years display more or less the same good fit for the data. Thus, this model fits the data well in general. The outcome of logistic regression tells us that nearly all variables have meaningful values and demonstrate the adequacy of the model for research purposes. The significance of the valid variables is all at the level of 0.001. This implies that the selected predictors do have a strong effect on pension coverage for dependent workers.

One notable factor of multivariate analysis is the value of constant over the period. This is the coverage rate of reference group when all variables are zero. As seen in Chapter 4, the reference groups are as follows: male workers without a child, with more-than-secondary-education, with a full-time and permanent contract, at the prime of age i.e. 25 to 54, work in the manufacturing industry, managers or professionals, in private companies, in big companies with 300+ employees, and in companies with a union (see table 4-5). Most of all, the

likelihood that these reference groups will be in the pension scheme increases significantly as time passes. It started at the odds ratio of 8.769 (p<.001) in 2000, but went up to 21.772 (p<.001) in 2003 and to 40. 856 (p<.001) in 2007; although it dropped slightly to 38.302 (p<.001) in 2010.

For a better interpretation, the odds ratio can be changed to probability changes. The probability of the reference groups equal the value of 'Exp (B)[40]/ (Exp(B)+1)'. For example, the value of constant in 2000 is 8.769, so its probability is 89.8% (8.769/ (8.769+1)). This implies that the reference groups are 89.8% likely to be covered by the NPS in the year 2000. Likewise, if we calculate the likelihood of the reference groups in the rest of the analytical years, it shows some noticeable results; this increased in 2003 by a large margin, so that the reference groups had 95.6% likelihood to be covered in the NPS. This continued to 97.6% in 2007 and 97.5% in 2010. This implies that the reference groups have benefitted to a large degree from pension policies over the period, during which the other groups have suffered much in terms of coverage. However, this is not surprising, given that the current reference group is the most privileged in the Korean labour market.

From this point, we will examine the outcome of regression in detail of mainly new social risk groups.

[40] Exp (B) refers to the odds ratio in the SPSS.

Table 6-2 Outcome of Logistic Regression

Variables		2000		2003		2007		2010	
		Exp(B)	Sig.	Exp(B)	Sig.	Exp(B)	Sig.	Exp(B)	Sig.
Women with care responsibility	Female with a child	0.446	***	0.397	***	0.999		0.932	***
	Female without a child	0.779	***	0.553	***	0.933	***	0.923	***
	Male with a child	0.967	***	0.729	***	0.901	***	0.873	***
	Male without a child	< A reference group >							
Level of education	Less than secondary	0.776	***	0.487	***	0.410	***	0.603	***
	Secondary	0.829	***	0.571	***	0.563	***	0.773	***
	More than secondary	< A reference group >							
Work hours	Full-time	< A reference group >							
	Part-time	0.267	***	0.329	***	0.187	***	0.279	***
Employment contract status	Permanent	< A reference group >							
	Temporary	0.112	***	0.262	***	0.226	***	0.163	***
	Daily	0.065	***	0.081	***	0.039	***	0.036	***
Age	Aged 18-24	1.581	***	1.323	***	0.950	***	1.188	***
	Aged 25-54	< A reference group >							
	Aged 55-59	1.765	***	1.553	***	1.028	***	0.704	***
Level of incomes		2.065	***	1.539	***	1.751	***	1.491	***
Industry	Agriculture	0.378	***	0.231	***	0.413	***	0.260	***
	Manufacturing	< A reference group >							
	Construction	0.474	***	0.386	***	0.491	***	0.471	***
	Wholesale	0.401	***	0.484	***	0.428	***	1.313	***
	Accommodation	0.251	***	0.564	***	0.246	***	0.211	***
	Transportation	0.508	***	0.727	***	0.883	***	0.750	***
	Financial	0.396	***	0.253	***	0.305	***	0.327	***
	Other services	0.639	***	0.532	***	0.544	***	0.549	***
Occupation	Manager/Professionals	< A reference group >							
	Clerks	2.761	***	2.309	***	1.795	***	2.029	***
	Service workers	1.072	***	0.467	***	0.584	***	0.747	***
	Skilled workers	1.280	***	1.073	***	0.750	***	1.120	***
	Elementary	1.368	***	0.827	***	0.766	***	1.050	***
Company type	Private	< A reference group >							
	Govt./Public	1.820	***	2.139	***	2.420	***	2.889	***
	Corporation/NGO	1.988	***	1.607	***	0.943	***	2.514	***
Company Size	1-4 employees	0.102	***	0.192	***	0.126	***	0.134	***
	5-9 employees	0.404	***	0.425	***	0.352	***	0.348	***
	10-299 employees	1.426	***	1.844	***	1.154	***	1.116	***
	300 or more	< A reference group >							
Union	Union exists	< A reference group >							
	No union	0.131	***	0.127	***	0.136	***	0.260	***
Tenure		1.034	***	1.035	***	1.015	***	1.000	

Constant	8.769	***	21.772	***	40.856	***	38.302	***
-2LL	6337676.7		7609540.9		7035327.3		7554111.9	
χ^2	5279580.99		5567087.31		6143015.77		6215020.09	
Nagelkerke R-square	0.623		0.590		0.623		0.596	
Cox and Snell R-square	0.467		0.440		0.450		0.414	
df	29		29		29		29	
N	3194		3555		3680		4401	
Missing cases	158		137		131		126	

Source: The KLIPS in 2000, 2003, 2007, and 2010.

Note: a) Method = Enter. b) * p < .05, ** p < .01, *** p < .001.

2.2.1 Women with Care Responsibility

Women who experience conflict between paid work and child care is the first new social risk group to be examined. The assumption is that child care responsibility may cause them to be at risk of losing pension coverage or the lack thereof. The regression outcome shows clearly how well they have performed in terms of pension coverage.

Firstly, women without a child are less likely to be covered by the NPS at the odds ratio of 0.779 (p<.001), compared to a male without a child. The odds ratio of being in the scheme becomes much lower when they have a child to care for, as anticipated; its odds ratio decreases to 0.446 (p<.001). Men are similarly affected by care responsibility but to a much less extent. The group comprising of males with a child shows the value of odd ratio to be 0.967 (p<.001). Therefore, having care responsibility does reduce the likelihood of pension coverage for both genders after taking into account other factors. However, the impact is much bigger on women than on men in 2000, which is confirmed by the bivariate analysis.

Throughout the period analysed, the four different new risk social groups

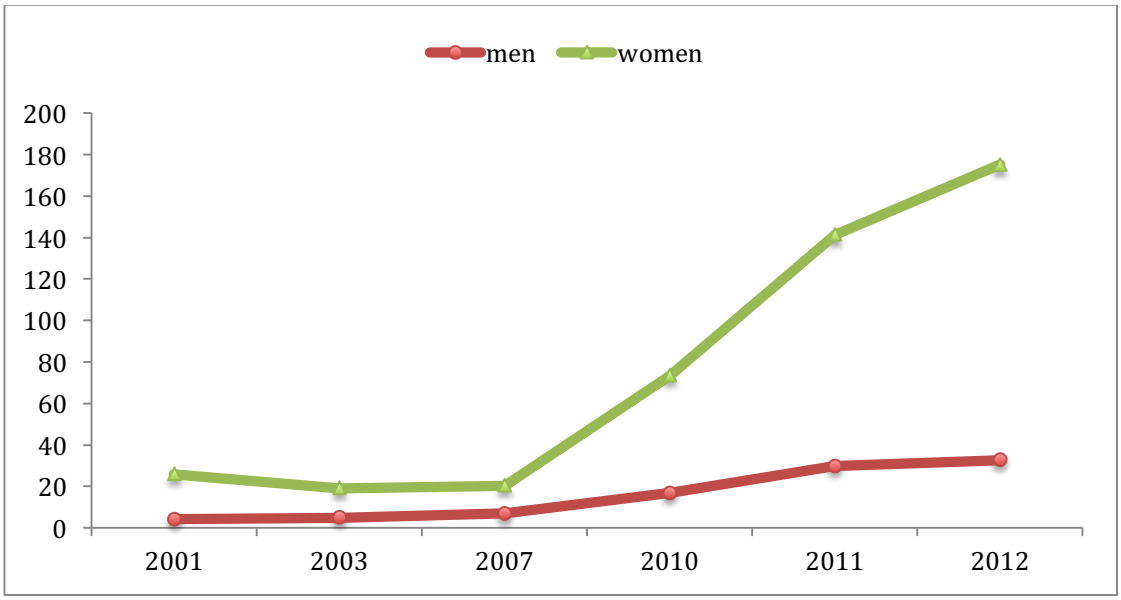
show more or less the same trend. The odds ratios of all groups dropped simultaneously in 2003 but soared in 2007, followed by a slight decrease in 2010. This may be interpreted as follows; the 1998's pension reform in which universal coverage policy was enacted was inadequate in increasing coverage rate of the groups mentioned. However, from 2003, the coverage expansion programme targeting workers in micro businesses did elevate their coverage rate until the effect of the economic crisis fully kicked in and the rate was reduced slightly by the late 2000s.

Nevertheless, the group whose result stood out the most was women with a child. Although they had the least odds ratio of being covered in 2000 by a large margin, its increase was substantially more than any other groups. In 2010, women who have one child as a group are comparable to the reference group with the odds ratio of 0.932. One cannot tell for sure why this has happened but there are possibly two factors; the first is the coverage expansion policies that took place consecutively. Along with the 1998's reform, the phased expansion programme from 2003 has been quite favourable to women workers. The programme targeted mainly workers in micro businesses that hire less than five employees and where the majority of them are female. This seems to be the case especially for women without children as their odds ratio did improve dramatically in 2007. By 2007 after the effect of the expansion programme has kicked in, there was improvement in pension coverage for all the groups. However, the world financial crisis had affected all the groups negatively as compared to our reference group, as seen from the decline of odds ratio in 2010.

What could be the reasons for such an increase in coverage rate among women who have one child? This may be attributed to the increased public

awareness of the need to prepare for old age and retirement. The data collected confirms that more women, especially those who were married were contributing to their pension fund.

Figure 6-1 The number of Voluntarily Insured Persons



Source: National Pension Statistical Yearbook 2012

Note: This is in the unit of a thousand

Figure 6-1 indicates the trend of Voluntarily Insured Persons in number. The Voluntarily Insured persons refers to 'persons who acquire insured status by their own application, even though they are not subject to mandatory coverage' (*National Pension Service* a). One example is 'a non-income earning spouse of those covered under public pension scheme or a public pensioner', the majority of whom were female spouses (*National Pension Service* a). Once they are insured, they have to pay all their contributions themselves, unlike dependent workers. The number of 'Voluntarily Insured Persons' has soared in recent years because of increased public awareness in favour of the scheme and also as a result of a rapidly ageing society. This explains the increasing number of female workers with child care

responsibility that is covered by pension schemes. They have become acutely aware of the importance of pension as a form of protection for their old age. Hence, even after the 2007 economic recession, this group still remains at the high odds of being covered (Kim 2009b).

To conclude, the responsibility of child care has made women more vulnerable and less likely to be covered by pension schemes, particularly in the early 2000s. Care responsibility is negatively correlated to better coverage, and there is gender difference too. This confirms the hypothesis of this study that women as a group faces new social risk (when reconciling paid work with child care) and are in turn, less likely to be insured in the NPS. However, reforms in NPS policies have improved their position. This is due to the fact that the coverage expansion programme targeted at this group has produced significant result. Secondly, the change in attitude as an ageing society, whereby income security has become a critical factor to reckon with in old age has also contributed to the increase in pension coverage. The two factors combined have led to more coverage and higher contributions to the scheme by the first new social risk group i.e. women with child care responsibilities.

2.2.2 Low-Skilled Workers

In the previous bivariate analysis, the exclusion pattern in coverage trend over the decade appears to be strongly determined by one's educational attainment, i.e. the higher the educational level of a person, the higher the likelihood that he or she is covered by pension and the better the coverage seems to be.

It also appears to be the case that low-skilled workers are more likely to

work in SMEs (Small and Medium Size Enterprises), such as workplaces with less than five employees. Since these workplaces were not obliged by law to contribute to employees' pension, it was only after the tripartite committee's enactment of mandatory coverage for all workers in 2002 that led to the expansion programme of compulsory coverage from 2003. This directly increased the pension coverage of SME workers.

With regards to this, we need to look at the variable of company size before examining the variable of education. As expected, there is a sharp distinction between big and small companies (in terms of the number of employees) when it comes to pension coverage. First, the odds ratio at workplaces with less than five employees is just at 0.102 of the odd ratio ($p<.001$) in 2010. At this point, knowing how much the predictor may contribute statistically to the prediction of outcome is as important as knowing the overall fitness of the model for the data (Field 2009). The Wald statistic[41] of a group of workers at micro businesses is 308304.741 ($p<.001$) that come from the equation, -2.284 (the coefficient value) divided by 0.004 (the standard error)[42]. Given that this is one of the greatest Wald statistics among all predictors, we can say that this individual predictor contributes more statistical significance to the prediction of outcome than any other predictors.

Meanwhile, the next predictor of workers at workplaces with five to nine

[41] It is the Wald statistic that enables us to understand how significantly a predictor contributes to the outcome (Field 2009). The Wald statistic is calculated as simply dividing the coefficient of a predictor by its standard error. It indicates 'whether the coefficient for that predictor is significantly different from zero' (ibid: 270). With it we can assess the contribution of specific predictors to the model: the greater the Wald statistic, the more significant contribution the predictor makes in a statistical term.

[42] In SPSS, the Wald statistic is actually quoted squared (*ibid*.)

employees is less unlikely to be covered at the odds ratio of 0.404 (p<.001) than those at micro business. On the contrary, workers at workplaces with 10-299 employees are more likely to be covered than the reference group: its odds ratio is 1.426 (p<.001). There was fluctuation in this trend during the said period except for the group 10–299 workers employed in workplaces, which shows an obvious decline in the probability of coverage. All in all, the size of company is one of the most important variables when predicting pension coverage. In particular, the small businesses show a decisive significance of low odds ratio in the pension coverage over the ten-year period analysed and it has remained so over the past ten years for SMEs.

As for the variable of education, less educated workers are less likely to be covered by the NPS. Workers with secondary education marks at 0.829 of the odds ratio (p<.001) in 2000, while workers with less than secondary education are even less likely to be covered, at 0.776 (p<.001). Since 2000, the odds ratios of these low-skilled groups have not increased but have rather decreased to 0.571 (p<.001) and 0.487 (p<.001) respectively in 2003. This downturn continued from 2007 to 2010. Then as the coverage among the reference group significantly increased, an upward shift also occurred with the low-skilled workers in the same year.

In conclusion, external factors such as, the size of their workplaces, seem to have a significant influence on their likelihood of seeking pension protection as compared to their personal circumstances and characteristics, such as education level. In fact, the education predictor falls into a low group of the Wald statistics among all predictors; indicating that the variable is not as important as the variable of company size. Meanwhile, the size of companies is statistically significant in influencing one's pension position, more than any other factors; the

odds ratio of micro firms with 1-4 employees at 0.102 (p<.001) in 2000 has virtually remained whereas it was up to 2010 at 0.134 (p<.001). Nevertheless, it is important to note that the less educated the workers are, the more unlikely they are covered by pension, and their odds ratio has even decreased as compared to a decade ago. This confirms the hypothesis posed in Chapter 4, and the theories set forth in Chapter 2. In short, low-educated workers are becoming more vulnerable due to low pension coverage as the Korean labour market becomes increasingly knowledge-centred.

2.2.3. Atypical Workers

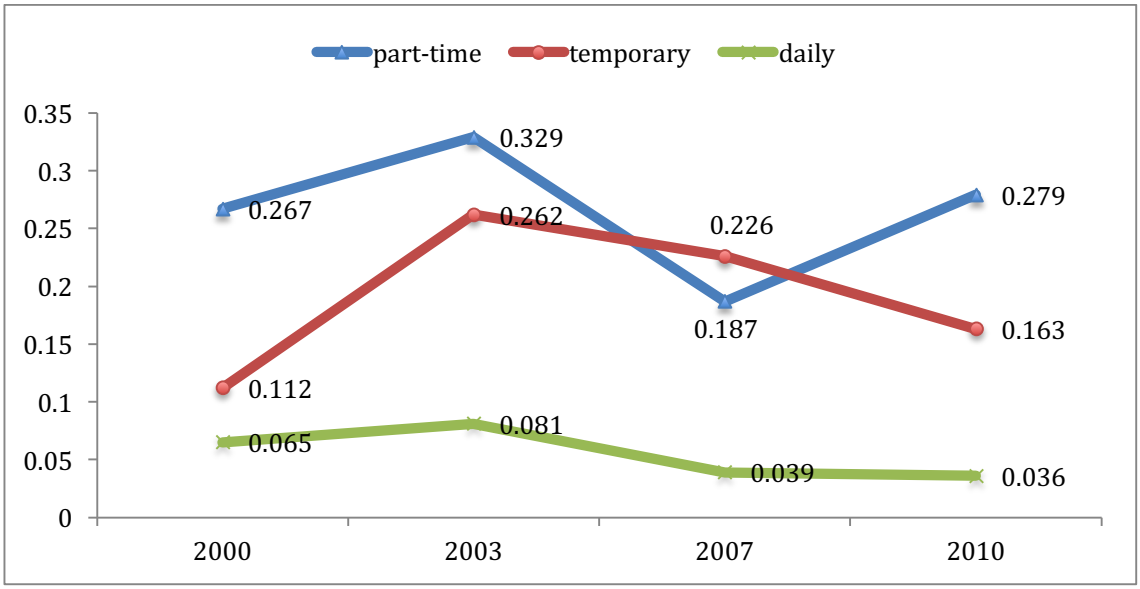
Based on the bivariate analysis in this study, atypical workers are largely excluded from pension schemes as compared to the reference groups. Even though there was a momentum of steady increase around 2006, their coverage has so far remained at about half of the mean or even far below. Their low coverage profiles are corroborated by their regression outcomes.

The statistics of daily workers are distinctive among groups. Having as high a Wald figure as the company size variable, we can understand that this is a very strong factor explaining Korea's pension coverage. In addition, its strong predictability has not changed during the period studied nor did its odds ratio for daily workers in the model; after showing some improvement at 0.081 (p<.001) in 2003, the values of odds ratio have reduced to 0.039 (p<.001) in 2007, and then to 0.036 (p<.001) in 2010, which was even much lower than that of 2000.

This trend however, is slightly different from that of bivariate analysis. In the previous chapter, it was shown that the coverage of daily workers improved since 2005. On the other hand, the multivariate analysis tells us that the pure and

negative impact of daily contracts on the coverage is the biggest of all variables. As seen from the chapter on policy, this is to be expected because to date, it is not mandatory for daily workers to be covered by pension, although there are exceptions. This exclusion inevitably keeps them out of the NPS.

Figure 6-2 Comparison between temporary and daily workers in odds ratio



Source: The KLIPS in 2000, 2003, 2007, and 2010

It is interesting that there is a great resemblance between the trend for daily workers and that of temporary workers (see figure 6-2). In 2003, the odds ratio of both had increased at the same time but declined to some extent in 2007 and further in 2010. Beyond this, however, both groups have very different degrees of movements at each point.

In other words, when the odds ratio of temporary workers fluctuated, so did the daily workers. However, the increase for temporary workers is higher than that of daily workers; the odds ratio of temporary workers had increased from 0.112 ($p<.001$) in 2000 to 0.262 ($p<.001$) in 2003 while that of daily workers was

much less; from 0.065 (p<.001) to 0.081 (p<.001) each year.

In fact, the decrease among the temporary workers was greater than the daily workers; for the temporary workers, the odds ratio dropped to 0.223 in 2007 whilst daily workers did much better at 0.039 (p<.001). Based on this, it can be assumed that temporary workers benefited more than daily workers from the expansion programme that took place around mid of 2000.

This movement came about because of the type of groups that were prioritised by the pension reforms. The daily workers remained excluded institutionally whereas temporary workers were prioritised for coverage expansion. It was in 2003 that the law required all temporary workers who are employed for more than a month to be covered by the scheme. This 2003 reform has improved the coverage of temporary workers but not so much the daily workers. However, since then both groups have shown decreasing odds ratio and the decline has been even more severe during the economic crisis in 2007.

Therefore, it is possible to deduce that firstly, the circumstances of daily workers are not as flexible or changeable as temporary workers because they are generally not protected by law. Their odds ratio of being covered is too small to be as changeable as that of temporary workers. Secondly, temporary workers, not to mention daily workers, are becoming more vulnerable relative to the reference group as far as pension protection is concerned. The transformation of the conditions of temporary workers in 2003 was a leap but their situation quickly worsened afterwards. This implies that the probability of pension coverage for permanent workers has been improving relative to the other groups, and that the pension scheme and its reforms are still inadequate in improving the situations of atypical workers.

In the case of part-time workers, their overall odds ratio is low and fluctuating during the period analysed. In 2000, part-time workers were very unlikely to be insured at the odd ratio of 0.267 ($p<.001$) and in 2003, the odds ratio increased a little to 0.329 ($p<.001$) but it dropped substantially to 0.187 ($p<.001$), followed by a rebound to 0.279 ($p<.001$) in 2010.

Therefore, the outcome of these groups supports our hypothesis that atypical workers face new social risks, which can be translated into a very low coverage rate in the NPS. The variables are statistically significant in predicting the odds ratio of whether or not; they are covered in the NPS. And this study has proven that they are all very vulnerable in relation to pension protection. Among all the variables, they have in common the least odds ratio of getting covered. More importantly, the pension reforms appear to have addressed this issue temporarily, but not completely. The coverage trend in the previous bivariate analysis shows some improvement for these groups over a decade but the outcome in the multivariate analysis proves that the genuine odds ratio of these variables are reverting to what it was before, which is even lower for daily workers than a decade ago. This implies that although their coverage rates may have increased over a decade, the increase has not been as fast as the permanent workers. As seen from the regression analysis, the relativity factor vis-à-vis the reference group is an important factor for policy makers to consider.

2.2.4. Young Workers

Generally speaking, we assume that young age would influence adversely their odds of being covered in the regression analysis. However, the actual effect of age, after controlling all other variables, is far from our assumption.

To begin with, the odds ratios over the years fare at high level compared to prime age group (aged 25 to 54), except in 2007 at 0.950 (p<.001). This is the case for the group aged 55 to 59 with only one exception in 2010 at 0.704 (p<.001) over a period of ten years. Interestingly, two groups have experienced dramatic decrease at different times. The odds ratio of the young workers have dropped by a large margin in 2007, but even after the global financial crisis, they recovered their odds to 1.188 (p<.001). This rebound is in contrast with the trend of workers aged 55 to 50. Beginning with the odds ratio of 1.765 (p<.001), the old workers' odds ratio declined to 1.553 (p<.001) in 2003, 1.028 (p<.001) in 2007, and way further to 0.704 (p<.001) in 2010. In a nutshell, it can hardly be said that young age on its own, more or less impacts adversely on the pension coverage for the period analysed. Although there was a moment when they became lower odds in 2007, as compared to the reference group, they have improved in recent years. Meanwhile, the security of old workers is rapidly deteriorating over the years.

Why does the young workers show different outcome in multivariate analysis from the bivariate analysis? The bivariate analysis shows that the coverage rate of young workers is generally lower than the prime workers. Yet, the outcome of regression indicates that they are superior in odds ratio to the prime workers except in 2007 (in fact, their odds ratio in 2007 is nearly the same as prime workers). Based on the outcome of the bivariate analysis, young workers aged 18 to 24 seemed to be over-represented by atypical jobs and low education. Therefore, they are vulnerable in terms of coverage rate, as opposed to prime workers aged 25 to 54 years old (as the reference group).

In addition, the young workers appeared to be far more affected by changing external factors, such as pension reforms and financial crises. However,

as the effect of these variables are somehow controlled (employment contract, education level, etc.), the pure effect of age is manifested more clearly; indicating that it does not have a negative effect on pension coverage as presumed, but rather a positive effect. In short, young age on its own does not affect the pension probability negatively. Thus, it is questionable if they should still be considered as a new risk group.

2.2.5 Control Variables

Apart from the variables we have examined above, it is worth looking at some other variables that presumably, are very likely to affect one's pension coverage. These are namely, the levels of income, types of industry, occupation, company and union.

Overall, the effect of earnings on the model has been reducing over the years, although its influences remain positive. Its odds ratio marks that people with higher incomes are more likely to be covered. In industry-related variables, nearly all industries during the entire period show very low odds ratio as compared to the manufacturing sector (as a reference group).

In particular, sectors like hospitality and food services, as well as agriculture appears to have the lowest odds ratio and these have even worsened over time. Only the wholesale and retail trade sectors show movement at last, from less-likely-to-be to more-likely-to-be in 2010. Yet the reason behind all these is unclear. When it comes to the occupation variable, there are a few different patterns. The variable of clerks indicates that this group is very likely to be insured, as compared to the reference group (managers/professionals) over the same period of time. Meanwhile, service and sales workers were less likely to be insured

except in the year 2000. The group of elementary workers were also less likely to be insured; from 1.368 (p<.001) of odds ratio in 2000 to 0.766 (p<.001) in 2010, but it recovered in 2010 at 1.050 (p<.001) even though the effect was not as strong as expected.

In terms of company type, the majority of private companies (as the reference group) did not show high odds ratio of being covered, and in fact, their situation even worsened over the years. Government or public companies show much from an odds ratio of 1.820 (p<.001) in 2000 to 2.889 (p<.001) in 2010. So did corporations and NGO but to a lesser extent.

Last but not least, the variable of union in workplaces appears to be very predictable and significant in the model. Being part of a union did increase one's odds of being covered by the NPS. In fact, union membership may not be considered as a new social risk even though in the context of Korean labour market, being unionised (or not) is a decisive factor for better (or not) pension coverage among the workers.

Further consideration of other control variables would be very interesting, for example, multiplicative interaction terms. However, this is beyond the current study and not of its core interest. This can be taken up in a follow-up research later.

3. Summary

To sum up, the first new social risk group had proven that their odds to pension coverage did improve in the multivariate analysis. This group is most developed among all the comparable new social risk groups. The odds ratio in 2010 was more than that for women without children, as well as for men with

children. This could be due to the combined effect of the expanding coverage programme from 2003 and the changing social attitude in favour of pension policy. Therefore, future pension policy should prioritise the issue of narrowing the benefits gap between genders, which is caused mainly by the income gap during one's working age.

With regards to the second new social risk group, lower education has had a negative effect on pension coverage but the degree of which is decreasing recently. Based on the result of the regression analysis, the variable of education on its own is not a strong determinant for pension coverage, contrary to expectation. The expectation comes from the bivariate analysis outcome in which the gaps between the various groups of different education-levels are quite distinct. Consequently, other factors like skills levels, need to be considered when evaluating a particular factor that affects pension policy (e.g. company size), much more than just the education levels. Nevertheless, the education variable does have a negative effect, even though it has improved since 2007.

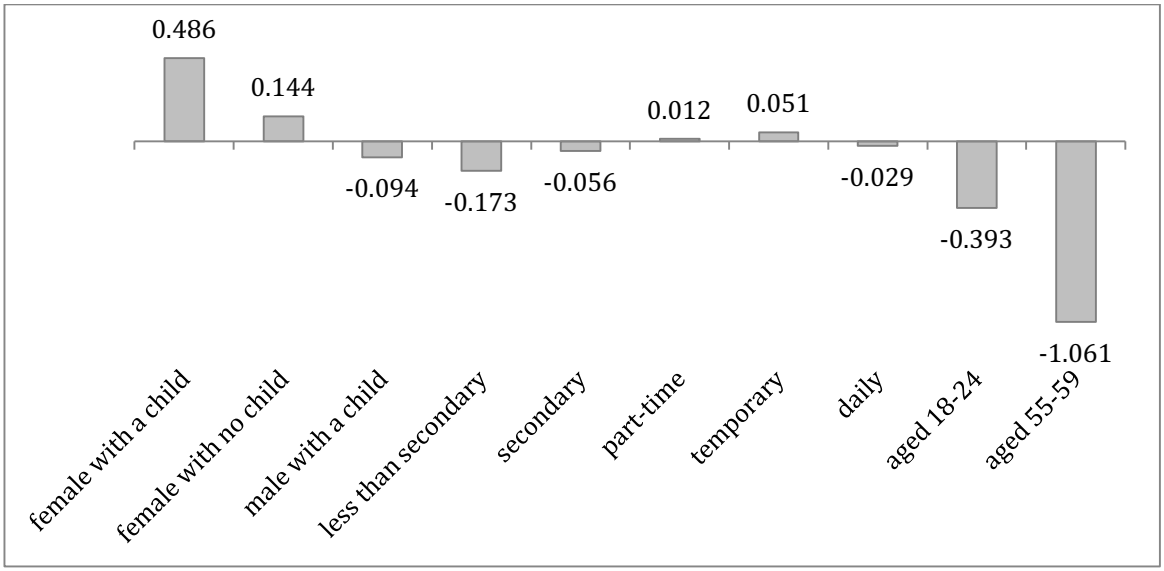
As for the atypical contract holders, this is the most vulnerable group when it comes to pension coverage, apart from the workers in SMEs and in workplaces with no union. This is an indication to policy makers that more inclusive and aggressive coverage policies must be implemented in the near future. On top of that, there is a need to attract workers who are currently out of the scheme, such as temporary contract holders.

With regards to the young workers, being young per se, such as the group aged 18 to 24, does not necessarily mean they are more likely to be excluded from pension coverage. In the logistic regression analysis, the genuine effect of age is not as negative as expected. When taking other factors into account, young age itself is

not a determinant of one's vulnerability in terms of pension coverage. Therefore, rather than developing policies that focus only on youth, policy makers need to consider other factors that land people in precarious jobs, like atypical contracts.

In order to determine the extent, pension coverage has improved for the new social risk groups over the decade; a direct comparison between 2000 and 2010 would indicate their vulnerability clearly. Although by comparing the two years cannot fully explain all the changes that have occurred in the mid-term, it is worth identifying the difference between the two end years so as to illuminate the practical outcome of the policies and the reforms.

Figure 6-3 How much each group has improved in the odds ratio of coverage (core variables)



Source: KLIPS in 2000 and 2010

Note: This is the difference of the odds ratios between the two years (the value in 2010 minus the value in 2000)

In line with that, figure 6-3 shows how each new social risk group has improved in the odds of coverage over a decade. The group of women with child

care responsibility stands out in terms of their odds ratio, which has changed by a large margin from 0.446 (p<.001) in 2000 to 0.932 (p<.001) in 2010. This improvement contrasts starkly with the group of women without children.

Next is the group of temporary workers whose pension coverage has improved but to a much lesser extent. Revision of related regulations and coverage expansion efforts could be attributed for this progress. However, it is noteworthy that temporary workers are very unlikely to be insured in 2010 with an odd ratio of 0.168 (p<.001). In fact, they show better mark in 2003 and 2007, but their relative odds seem to have slowed down as compared to that of permanent workers. Perhaps, they are forced into increasingly less secure jobs.

On the other hand, for the group of daily workers, there has been a steady decrease. It is quite striking that daily workers have only the odds ratio of 0.036 (p<.001) in 2010, compared to the permanent workers. Without any fundamental revision of the law in their favour, their situation is unlikely to improve. Similarly, low-skilled workers did not fare well in their odds and the young workers seemed to perform badly, as compared to 2000. However, as long as they remain in the higher odds of being covered with an upward drift since 2007, the young age group will not become the main target of Korea's pension policy.

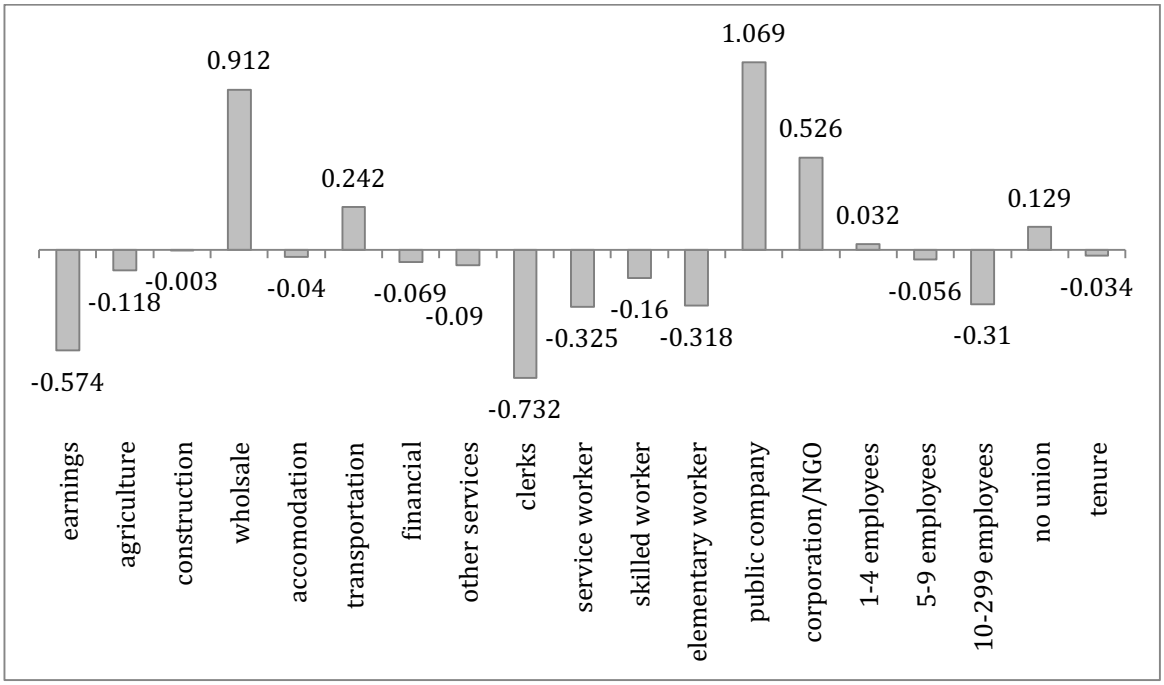
Relatively speaking, the old workers have experienced the worst decline in odds ratio among all the groups. The rest of the groups have stayed more or less where they were ten years ago. This can mean that reforms towards greater inclusion may have failed to produce the expected outcome.

To conclude, other than the group of women with care responsibility and the young workers, all the other new social risk groups were, and are, unlikely to be insured in the NPS despite the few programmes that were put in place to attract

them.

Figure 6-4 indicates that all control variables have improved over a decade. Among all dummies of control variables, workers in government and public companies vis-à-vis those in private companies have shown the most improvement during the same period. The group that has also improved is the wholesale industry, where workers have stronger odds as compared to those in manufacturing over the same ten-year period.

Figure 6-4 How much each group has improved in the odds ratio of coverage (control variables)



Source: KLIPS in 2000 and 2010

Note: This is the difference of the odds ratio between the two years (the value in 2010 minus the value in 2000)

In contrast, the occupational group of clerks has seen the most deterioration by - 0.732 in odds ratio. In spite of that, it is still one of the most

highly covered groups for pension among all the others at 2.029 (p<.001) in 2010.

The variable that is next most in the negative direction is the variable of earnings and service workers. While earnings have remained high at 1.491 (p<.001) of odds ratio in 2010, the likelihood of pension coverage for service workers has deteriorated. Last but not least, workers in micro businesses and at workplaces without unions seem to stay at the lowest odds without any progress in the same decade. This is the most outstanding finding of this research.

4. Implication for New Social Risk Theory

The transition towards a post-industrial society calls for new welfare states that are different from those established in the post-war era. This is because social and economic changes as a result of the transition have led to new kinds of social risk that traditional welfare states do not consider important.

In particular, welfare states have been experiencing stagflation since the oil price hike in the 1970s. Consequently, the policy of assuring full-employment that underpins the traditional model of welfare states was abolished. In addition, due to falling birth rate and increasing life expectancy, the society is ageing. This implies that fundamental reforms of pension schemes based on an inter-generational stable supply of labour force are needed. In this regard, four new social risk groups have been identified. They are namely, women with care responsibility, low-skilled workers, part-time and temporary contract holders, and young workers.

This study has tried to ascertain if the definitions of these new social risk groups are applicable to the Korean context. The Korean pension scheme has the twofold mission of providing adequate benefits for old social risk groups and sufficient coverage for new social risk groups. So by analysing the extent new

social risk groups are covered by pension schemes in Korea will indicate the kind of policy required to cope with new social risks.

When it comes to the pure impact of variables on the coverage, the position in pension schemes of women with care responsibility tends to be considerably inferior a decade ago but this is no longer the case today. The pension condition for the young in the Korean labour market is also not very different from the prime workers in the same period of time. As for low-skilled workers, they do not seem to fare as badly as expected.

However, the conditions faced by the group of atypical workers are the worst. The realities for both the daily workers and temporary workers have worsened over time. Moreover, contrary to the theories on new social risk groups, working in micro companies turn out to be the most important determinant of one's pension coverage (or not). Another important determinant is union membership. Thus, in the context of Korea, a new social risk group that constitutes both old and new social risks has emerged.

5. Conclusion

So far, we have discussed new social risk groups from the perspective of their vulnerability in the labour market, their trends in pension coverage, and their odds in pension coverage. And we have found that atypical employment, jobs in micro firms, and union membership are the most important factors in deciding one's pension coverage. Interestingly, the pension reforms over the last decade have not directly influenced new social risk groups but rather, small companies or atypical jobs. While women and young workers are better off today in terms of pension coverage, workers in small companies and in atypical jobs have shown

little sign of improvement. In particular, the coverage expansion reform of 2003 whereby small companies and atypical jobs were included seems to be short-lived and inadequate. A disincentive that involves low wages (that is, low disposable income) makes it difficult for these workers to hold on to their pension. And this is aggravated by other forms of discrimination at workplaces.

Besides the problem of insufficient contribution period for pension entitlement due to low coverage trend, those with low wage also inevitably get low benefits. It is still the case, for example, that women with care responsibility are likely to receive little pension payout in their old age, if any. This can cause other adverse results for them when combined with other public assistance programmes, such as the National Basic Livelihood Security System. Therefore, it is very important to address this problem of low benefits combined with the issue of low coverage. The conclusion chapter shall discuss a viable policy that can cope with these imminent problems.

CHAPTER 7 CONCLUSION: Policy Recommendation

1. Introduction

We have argued in the first chapter that Korea has a twofold mission to address at the national level: the construction of a welfare state and the need to adapt this to a new environment. Rapid societal, economic, and demographic changes inevitably cause new and different social risks to occur; women have a hard time reconciling between paid work and child care, low-skilled workers have trouble retaining their jobs, not to mention the struggle of atypical workers with unstable and precious working conditions, and young workers who worry about the possibility of long-term unemployment.

As for the new social risks groups, what comes to the fore is not only their current welfare, but also their future. One of the issues facing them is that they will not have sufficient income in their old age, in view of the realities of Korea's working-poor today. Hence, a functioning and sustainable public pension system is not only important but also urgently needed.

The National Pension Scheme (as a representative public pension scheme in Korea), also has two overlapping challenges to address at the institutional level; the adequacy of benefits and the seamless coverage for social risk groups, new and old. After two major reforms, however, the NPS has to a large extent, given up the mission of providing adequate benefits in order to delay fund depletion. The consequences of these reforms have impacted severely on social risk groups; they are not well covered, they pay less contribution whilst the size of the group is expanding. Therefore, Korea's pension policy needs to urgently address the issue of inadequate income these groups will face in their old age, as a result of lack of

coverage and low income during their working age.

The next section shall summarise the findings of this research and its contribution to the New Social Risk theory.

2. Summary and contribution to the theory

This research is to explore the increase in new social risk groups in Korea and the success of the country's pension scheme in addressing the needs of these groups in its coverage programme. This study has analysed the panel data of KLIPS for eleven years so as to ascertain the trend and possibility of pension coverage of new social risk groups during the same period. After identifying the four new social risk groups, thirteen predictors that will affect one's pension coverage were selected. The result was attained through bivariate and multivariate analyses, zooming in on some specific points, such as the year before and after pension reforms or financial crisis. From these results, groups that became covered because of policy change, and those not were highlighted. Overall, the empirical evidence has shown that many people are still excluded from the scheme even though by law, everybody is supposed to have pension coverage.

The research outcomes of this study are delineated as follows:

The key developments of Korean pension reforms (the first research question) are characterised by a policy of continuous expansion without due consideration of its substantiality. Since its introduction in 1988, the NPS has experienced an unprecedented expansion in its coverage policy; it was extended to the rural areas in 1995, urban areas in 1999, and to employees in micro businesses from 2003 and so on. Due to the politically-charged issue of fund depletion, an

unparalleled cut in benefit level from 70% to 40% took place within twenty years of the establishment of the policy. These rapid and dramatic developments have inevitably excluded many people from the scheme. This is particularly dire when combined with the increasing poverty level of the elderly among OECD countries. Without a sufficient and functioning supplement pension scheme, it is important to re-establish the NPS as a policy for old age income security, especially for those who suffer from both old and new social risks.

This research has also highlighted the fact that among the new social risk groups, the atypical contract holders in Korea are the most vulnerable. This is particularly true for daily workers who are least likely to have pension coverage; as can be expected, given the country's current legal milieu.

In fact, this study has identified temporary contract holders as a group that require particular and urgent attention. Although they are fully covered by workplace-insurance and pension, their probability of coverage is in fact, not much higher than that of daily workers. They are the most vulnerable new social risk groups in Korea today. Apart from them, the other biggest risk group are workers in small companies (i.e. with less than five workers) and in workplaces without unions. Even though they may not be highlighted in the new social risk literature, it remains a group that is consistently left out due to lack of policy support for them in Korea. And among them, workers in micro businesses have certain work characteristics that make them even more disadvantaged.

In contrast, pension coverage for women with care responsibility has shown promising progress over the years. They had lower probability than women without children a decade ago, but their coverage rate has soared to match those of other groups due to not only institutional changes that are in their favour but also

because public attitude about the scheme has become more positive.

Being young between 18 and 24 years old, does not necessarily mean lower probability in pension coverage, despite their poor performance in the labour market. On the contrary, there has been some improvement in their pension coverage.

Similarly, those with lower education may be less likely to have pension coverage but the recent trend for low-skilled workers has shown some improvement. Their likelihood of being covered by national pensions is not very low, as compared to the other risk groups.

The inadequate laws in Korea are responsible for the fact that daily workers have the lowest pension coverage. It is ironical that the scheme on its own is incapable of protecting those most desperate for its help. For those groups facing poverty in old age, nothing can be more urgent and important than being provided with income security through government policies. A nominal coverage expansion cannot be effective or successful if the reality of these people is not considered seriously. In the case of temporary workers, they have been fully covered from 2003 by the expansion programme but its impact did not last long. The lack of disposal income during working age has hindered the most vulnerable groups from saving for their retirement.

Therefore, we need to consider not only expansion of policy coverage by law but also the effectiveness of the implementation. This is proven by the fact that the coverage expansion programme of 2003 to 2006, which targeted workers in micro businesses, did not stay effective for long.

Women with care responsibility and young workers in Korea may no longer be social risk groups but they still need to be assessed differently in future policies.

For instance, their main challenge is their low wages so future government policies need to respond to that. As for the low-skilled workers, their situation remains challenging but not as much as the atypical workers. All in all, pension reforms have helped some of the new social risk groups so that they are now included in the scheme even though their vulnerabilities still remain high.

Some risk groups are excluded by a large margin due to the lack of policy support, both legally and practically. It is important to note that the atypical workers are not only low wage workers, they are also mostly women.

The findings of this research have contributed to the New Social Risk theory as follows:

Since the theory was developed from within a western context, it is understandably to some extent, euro-centric. It successfully highlights the most problematic groups: women with care responsibility, low-skilled workers, atypical workers, and young workers, assuming that they all have difficulties in finding or retaining gainful employment. The level of precariousness in these jobs has been increasing in tandem with lower wages. And the Korean labour market is of no exception. One of the critical issues faced by Korean atypical workers is their inadequate income in their old age. However, this study has also shown that they are not all equally vulnerable and without pension in the Korean context.

Even though their coverage rates look lower than the reference groups in the bivariate analysis, the genuine effects from the multivariate analysis tell a different story. Women with care responsibility and young workers are no longer as much excluded from pension coverage as before. The situation of the low-skilled workers is also not as urgent or dire. In fact, it is the atypical workers in the Korean labour market that is the most vulnerable. They need immediate remedial

attention.

This study has also highlighted the fact that workers of small businesses and workplaces without unions tend to have the least coverage. This new finding is more relevant to and more prominent in the Korean context, and less so in the original new social risk theory. Thus, one of the significant findings of this research is that Korea is facing an overlap of new and old social risks and they need to be addressed concurrently. This adds a new but critical dimension to the existing theory, when applying it to emerging welfare states, particularly in Asia. It is imperative that policies that address the findings of this study be made soon, especially since the existing legal system in Korea is inadequate in addressing many of the problems identified in this study. The next section shall discuss policy implications in greater detail.

3. Policy implication

We have examined the legal coverage programmes that have not benefitted certain social risk groups that are targeted by these policies. In fact, the groups most desperately in need of support have been further alienated by current pension policies. Moreover, the expansion programmes per se tend not to have a clear incentive structure to encourage more enrolment.

Given the trend of the last decade, changes are unlikely to come about soon. In fact, the current situation may worsen because the coverage policy is not comprehensive enough. Unless the scheme is made more favourable to workers most at risk of being excluded, these workers are more likely to stay out of the scheme. It is therefore, critical that future pension reforms make pension benefits, especially to social risks groups, more generous.

The next section shall highlight policy implications and recommendations based on the findings of this research. The Korean government should

a) Guarantee basic income for all pensioners

b) Reinforce the weakened re-distribution function of the scheme

The idea of basic income provision is only a suggestion at this stage of my research. More investigation and detailed work still needs to be done, along with more support from the government and the public.

Introduction of the Basic Benefit Programme

Based on the findings of this research, it is strongly recommended that a Basic Benefit programme be added to the NPS for the following reasons:

Firstly, the NPS has its limitation, as far as some of the social risk groups are concerned. Of the many reasons, uncertainty surrounding the NPS is an important one. The public perception has been skewed by the long-standing debate about the anticipated fund depletion. As a result, when the benefits level was substantially reduced through two reforms in the past decade, subscribers began to doubt if they will receive sufficient pension, or even get one at all. These doubts have been a critical factor for certain social risk groups to decide to stay out of the scheme. Therefore, it is urgent and essential to dispel such pervasive doubts by introducing an uncomplicated programme that will guarantee benefits provision.

As seen from this perspective, the Basic Benefit Programme will reduce potential subscribers' suspicion or doubt and increase their confidence in the scheme. Moreover, the programme if implemented well can attract many more potential subscribers. The findings of this research indicate that the trend of non-contribution remains widespread among the social risk groups in Korea. If the

programme is able to assure these groups that they will receive basic benefits, as long as they subscribe beyond the required contribution period, these groups of people will be more willing to participate in the scheme. An increased number of participants from these social risk groups will get the NPS back on track so that it can finally fulfil its function of social integration.

How does it work?

The principle of Basic Benefit Programme aims to secure a basic income for all pensioners and to strengthen the re-distributive function of the scheme. Figure 7-1 shows how the Basic Benefit Programme works among pensioners based on the assumption that people will fulfil the minimum contribution period before obtaining pension benefits[43].

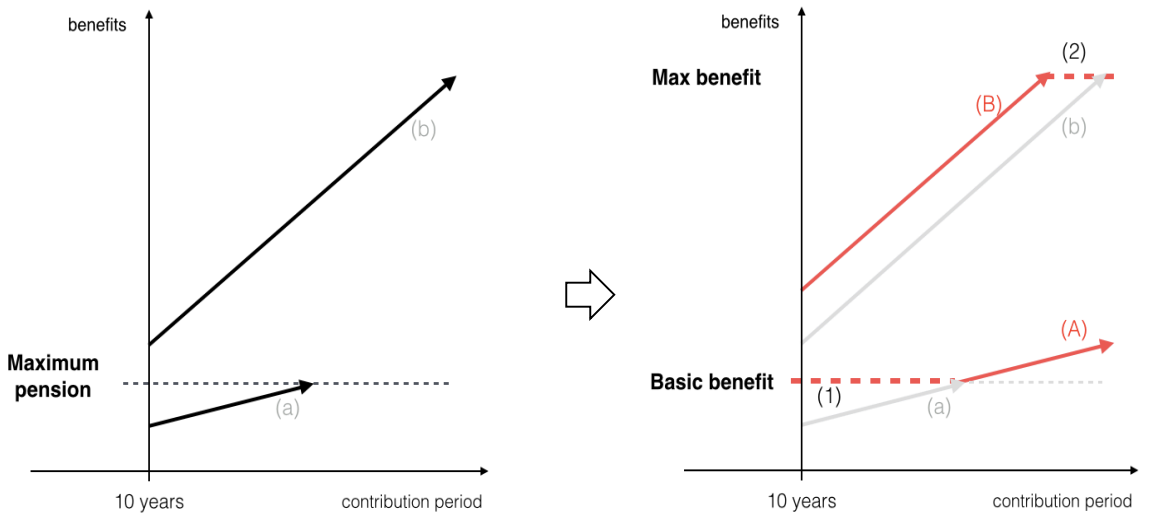
The area between the two lines, (a) and (b), in the current model refers to the scope of current benefits along with a contribution period. The (b) line marks the highest level of benefits that people can receive when they record the highest average of Standard Monthly Income. The (a) line marks the lowest level of benefit people can receive when they record the lowest average of Standard Monthly Income. The (b) line goes up proportionately according to the length of contribution period as we expect it to be. However, the (a) line looks different, let alone its gentle gradient in the early part; and they are supposed to reach the 'Maximum Pension Amount' as regulated when they record approximately 22 years of contribution period[44]. This implies that pensioners with the lowest income will not receive benefits accordingly. They will only get a fixed amount of money

[43]Persons ineligible for NPS due to lack of contribution must be covered separately by BOAPS.

[44] This is based on the condition that they are first insured in January 2013.

(0.25 million KRW) at best. As a result, there is a dramatic increase between the two groups.

Figure 7-1 The model of Basic Benefit Programme in comparison to the current model



< The current model > < The Basic benefit model >

On top of that, yearly indexation since the first pension benefit makes a bigger difference between the better-off and the worse-off. To elaborate, the design of the NPS provides all insured persons with more than one in cost-benefit ratios, irrespective of their income history during their working life. Due to the re-distributive factor in benefit formula, the cost-benefit ratios in the NPS are more generous towards the lower-income persons than those with higher-income. However, it is usually the case that pensioners with higher Standard Monthly Income on the average receive higher benefits in absolute terms. This is inevitably a critical advantage to those with higher pension benefits in the long term because of indexation in the NPS. Yearly indexing of the previous pension to prices of the

current year for a subsequent pension widens the gap between the rich and the poor pensioners, in terms of the absolute amount of benefits. Thus, it is crucial for pensioners to receive as much benefits as possible in the first place.

In the Basic Benefit model, two lines of (a) and (b) become two lines of (A) and (B) respectively. First, the (A) line represents the least benefit; same as the line (a). Yet there are two critical differences: the maximum pension amount regulation is no longer valid. Instead, the new threshold of the Basic Benefit (a minimum pension amount) in the dotted line replaces it. By doing so, persons with the lowest Standard Monthly Income on the average can enjoy more generous benefits as compared to the current model, regardless of the length of his or her contribution period. Once the ten-year contribution period is fulfilled, subscribers' basic benefits should be paid out (for example, 0.25 million KRW).

Next, the (B) line is comparable to the (b) line, but there are two points to consider here: the (B) line generally goes above the (b) line, which means that the Basic Benefit Programme is to increase the range of the Standard Monthly Income. The amount of contributions is based on Standard Monthly Income, which is also an important factor for the calculation of pension amounts (*National Pension Service* b). In other words, an employer or an insured person reports the monthly income within the scope of a minimum of 0.25 million KRW (equivalent to 125GBP), and not exceeding 3.98 million KRW (equivalent to 1,990GBP)[45]. For example, an insured person who earns more than the upper limit pays a monthly contribution based on the fixed amount (3,980,000 × 9%). If the upper limit is set higher than the current line like the (B) line, this means that higher earners need to pay more contribution, and they also receive more benefits.

[45] The range of a Standard Monthly Income is adjusted on July 1 every year.

At this point, we set the maximum benefits line for those who receive the most benefits in the new model in order to restrict their benefits to some extent. Basically, the saved money (that is the area of (2)) from this is to fund the additional expenditure (that is the area of (1)) needed by the Basic Benefit programme.

On the whole, the new model can narrow the gap between the rich and the poor pensioners by applying the range of benefits amount. Pensioners with lower Standard Monthly Income can still receive decent benefits through the Basic Benefit programme, which continues to take advantage of indexation in the long term. More importantly, the new Maximum and Basic benefit cut-off can perform effectively as strong re-distribution factors, in order to fix the institutional flaws of the scheme that are preventing it from alleviating inequality in the labour market. Now that new social risk groups with lower income and shorter contribution profile can easily fall into a lower pensioner group, the Basic Benefit Programme will benefit them more.

Another advantage of the Basic Benefit Programme is that the new model would not fuel the controversial issue of fund sustainability because it supplies additional budget for low pensioners on its own steam. In fact, after simulating the additional fund needed to operate the new programme, which is very affordable; as of 2012, we can see that the anticipated expenditure as subsidy for pensioners who receive lower than 0.25 million KRW a month is around 63 billion KRW per year. This is just approximately 0.68% of the yearly amount of benefit pay-out to the total number of old-age pensioners, and this can be supplemented to some extent, by the additional fund raised from the Standard Monthly Income ceiling.

All in all, the Basic Benefit model has two main advantages. One is the

security of a basic income to all pensioners in their old age and the other is the strengthening of the scheme's re-distribution role that has been undermined over time. Although the model per se does not cover all workers, it will play a critical role in attracting those most vulnerable to join NPS.

On the issue of financial sustainability, we need to take on a different perspective. Unless we begin to contextualise the issue of fund depletion within the NPS, any measurement of NPS' sustainability as a fund will only incur cost for the society in another way, just like the National Basic Livelihood Security System. Hence, it is important to recognise that the new model proposed is not about fund sustainability, it is more a model of social compromise.

Conditions for a successful model

Some preparation is needed for the proposed Basic Benefit model to work without difficulty. The legal amendment of the pension framework is one.

a) Soft obligation for excluded workers in terms of coverage

Daily workers are the most vulnerable in the pension scheme so far, and their conditions have been worsening in the last decade. This is because they are not required by law to subscribe to the policy. Moreover, the administrative difficulties of managing their peculiarity is immense, including their high job turnover (frequent entry to and exit from the labour market), and very short spell work life. If they were insured, the need to make regular pension contribution can be very taxing if they lack disposable income. Not to mention that the current law

basically prevents them from accessing the pension[46]. Thus, they are very likely to fall into the group which are without pension, or with low pension in the future.

Therefore, coverage policies should become more inclusive but not made compulsory by law. The law should automatically cover all daily workers[47]unless they want to opt out, which should be allowed. If necessary, government subsidies for both employers and employees will make the new programme more attractive. A good example is the UK's automatic enrolment programme for supplementary pension schemes, in which several millions of employees can benefit from workplace-based pension scheme (Natali 2012).

According to Natali (2012), pension reforms should alleviate the benefits gap that atypical workers are exposed to. Another example can be found in the NPS. In the case of the beneficiaries of the NBLSS[48], they are not mandatory subjects to the NPS until 2011. Even though they are employees but if their income is too low to pay the scheme's contribution, they can be excluded. This policy option gives potential subscribers some flexibility in opting out whenever it suits them. .

Such 'soft' obligation for workers in terms of pension coverage can enhance their coverage rate, even if the increase is not dramatic. A subsidy programme alongside for both employers and employees will attract more people to the scheme. More daily workers can and will increase their coverage period and once they meet the minimum period of contribution for benefits, they are at least secured with a basic income from the Basic Benefit Programme, which will help them to get out of the vicious circle of poverty.

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[46] To be precise, this is restricted to workplace-based insured persons

[47] Includes some part-time workers who are now excluded by law because their working hours is less than 60 hours per month

[48] The National Basic Livelihood Security System

b) Revision of Article 53 (Maximum Pension Amount) of the law

The current law limits the monthly pension amount to the larger of the following two amounts: the average amount of the Standard Monthly Income during the insured period, or the average amount of the Standard Monthly Income for the last five years of the insured period. It is believed that if pensioners have more income (pension) than they used to have during their working life, this may discourage them from working. In any case, only those with a lower income (less than 0.25 million KRW) are regulated by this limitation. Because of the re-distributive functions of NPS, payment to the insured that have a higher income shall never exceed either of the limits mentioned above. If an insured person has had the lowest income level for more than 22 years, then this article applies to them. Therefore, it is a nominal article that discriminates those with lower income. So, the article should be revised to be line with the Basic Benefit Programme.

c) Extension of pensionable earnings

Pensionable earnings refers to 'the amount equivalent to the monthly income reported by an employer or the insured person, within the scope of a minimum of 0.25 million KRW but not exceeding 3.98 million KRW' (*National Pension Service* b) and this range is adjusted yearly. We need to secure additional budget for the new programme so that we do not need to deal with the issue of fund sustainability again. To do so, the maximum criteria of the Monthly Income have to increase so as to be able to fund more; in other words, the higher income earners need to contribute more. This is a practical solution since most of them

who have to pay more contribution[49] as a result of the revised regulations will ultimately receive more benefits. Only a few with longer periods of contribution will reach the cut-off point of maximum benefits, so that the unpaid pension will subsidise those who do not meet the basic benefits amount. According to the Presidential decree of the current law in Korea, the scope of Standard Monthly Income can be adjusted by considering people's living standard, wages, prices, etc. In fact, this was not adjusted until 1995 but since then, it has been amended every year.

d) Revision of the article of DP[50]

Since its introduction, the DP helps people, particularly women, to get pension benefits, particularly as the divorce rate increases over the years. The DP currently divides the pension of 'the ex-spouse's Old Age Pension amount corresponding to the entire duration of the marriage into equal proportion' (*National Pension Service* b). However, for this to become an independent right to pension, the DP needs to meet a number of requirements. For instance, an ex-spouse should be a beneficiary of the Old-age Pension and the period of marriage during the insured period should be five years or longer. Moreover, the DP should be claimed within three years from the time when all requirements are met. If the ex-spouse does not fulfil the minimum contribution period for Old-age Pension, or the married period is less than five years, there will be no corresponding right to DP. If the DP is not claimed within three years, the eligibility will expire[51].

[49] Half of the raised amount of contribution is paid by employers
[50] It refers to Divided Pension
[51] An Old-age Pension has no such limitation in principle, though partial restriction can be applied after five years from the beginning of the benefit-pay out.

When it comes to DP as a genuine pension right that addresses the issues noted above, the concept of 'dividing' should be re-thought. We can divide the married period rather than the pension amount and there may be more possibilities without any interference from ex-spouse's pension. That means the restriction of five years or more married period and three years of claim of right, must be abolished to strengthen DP as an independent pension. Combined with the Basic Benefit Programme, divorced women in particular, will be entitled to better pension as a result.

4. Further Research Topics

The section below highlights research topics that may follow from this study:

Firstly, the sample group of dependent workers in this study can be expanded to all types of workers for more in-depth studies, and without the limitation of surveys later on. Questionnaires about participation in NPS were unavailable for workers who are self-employed and unpaid family workers until the 2008 survey. This has partially influenced the research model in that we focus only on dependent workers for their coverage over a period of a decade. Inevitably, the variables we chose were restricted accordingly, and there must be systematic limits of this study to explain the trend and probability of all insured persons under the coverage policy. With further accumulated data since the 11th wave in 2008, however, further studies that include non-wage workers can be conducted to give a more comprehensive analysis.

Researchers should be very careful in using the KLIPS for analysis. The survey focuses on whether the non-dependent workers pay pension contribution,

and then follow-on to ask respondents who answered in the positive on the categories they consider themselves to be in, be it individually insured or workplace-based. Given that the NPS covers more or less all citizens regardless of their affordability, the order of the two questionnaires should have been reversed.

In a nutshell, the current survey can mislead the outcome. For example, a person, who is covered but do not contribute (or is exempted from contribution), can be mistaken as an uninsured person. As this underpins a very important principle of the NPS, the survey needs to be improved.

Another important test that can be done in the future is longitudinal data analysis concerning lifetime working career. The most decisive factor in assessing people's vulnerability to pension benefits is 'the duration' of certain career during working life (Hinrichs 2012: 35). An insured person can be out of the scheme at some point in time and vice versa.

In this regard, we need to observe the length of time individuals maintain their employment profiles in the labour market. This improves our understanding of new social risk groups but cross-sectional studies do not necessarily exhaust the long-term effect of variables: that is, the duration of certain event and the individual-based tendency in the labour market, as well as the pension system. Tracking one's career over the working life in a longitudinal analysis can help us understand what the labour market looks like over the years and how it affects pension coverage among the new social risk groups. A longitudinal analysis in the future will reflect the reality of the labour market in relation to the suitability of the NPS more accurately.

Lastly, future research topics should include an analysis of the trend of the labour market at the macro level. If the labour market becomes more flexible by

having more atypical workers as mentioned in Chapter 5, how will this affect the pension policy? It is very important to examine how the current strong-earning-related pension scheme plays a role in ameliorating poverty in old age.

Hence, this study is only the beginning of further research to come so as to place South Korea on the map of New Social Risk Theories. The better we understand the Korean context from this framework, the more relevant it will become for emerging welfare states that are grappling with the same problems of an ageing society, which are only now beginning to strengthen and consolidate their pension systems so as to benefit as many people as possible.

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