



2016 EU-CHINA HIGH LEVEL EVENT ON SOCIAL PROTECTION REFORM

**PERSPECTIVE OF
EMPLOYMENT POLICY AND SOCIAL SECURITY REFORM
2016 – 2020**

BEIJING, 28-29 SEPTEMBER 2016

Vol. II – Assessment reports

On 28 and 29 September 2016, the EU-China Social protection reform project SPRP and the Chinese National Development Reform Commission organized in Beijing – Diaoyutai Hotel – a High Level Event to discuss Perspectives of Employment Policy and Social Security Reform in China and in Europe between 2016 and 2020. This period corresponds to that of the Chinese XIIIth five-year Plan, and to the horizon chosen for the Europe 2020 Strategy for smart, sustainable and inclusive growth. The EU Ambassador to China and Mongolia, Mr. Hans Dietmar Schweisgut, and Mr. Wang Xiaotao, vice-chairman of the NDRC, opened the meeting, where Mr Michel Servoz, Director General of the European Commission Directorate General for Employment, Social Affairs and Inclusion delivered a keynote address on the Perspectives of Employment policies and Social security in the EU. Over a hundred participants, at parity between Chinese and European specialists coming from 11 countries and international organizations, discussed a variety of crucial topics for the sustainability of social protection reform and its contribution to employment promotion including in times of financial and economic difficulties. In total, some 20 communications were made by renowned Chinese and European experts and decision-makers, over five sessions co-chaired by high level Chinese and European personalities.

This Volume II of the Event's Report presents the background assessment reports on topics at the core of the relations between Employment and Social security policies in Europe and in China. It is a cooperative production between the Chinese National Development and Reform Commission and the EU-China Social Protection reform

WHAT IS THE EU-CHINA SOCIAL PROTECTION REFORM PROJECT ?

As a successor to the EU-China Social security reform project (2006-2011), the European Commission and the Government of China have formulated the "EU-China Social Protection Reform Project", a new cooperation initiative aimed at promoting social equity and inclusiveness of economic development throughout Chinese society – as well as cooperation and dialogue between the EU and China in the same field. The Commission has decided to implement the action through a grant contract to be concluded with a consortium of specialized public authorities and mandated bodies of the EU Member States in the area of social protection. The consortium is led by Italy, and groups institutions from Belgium, the Czech Republic, France, Poland, Romania and Spain. The purpose of the EU-China Social protection reform project is to contribute to the improvement and inclusiveness of China's social protection system through strengthening the institutional capability for developing policies, for implementing legal and regulatory frameworks and for supervising systems of social insurances, social assistance and financial management in the area of social security. In particular, the Project's purpose will be pursued through the following three components, in relation to which specific Chinese government entities playing the role of partner of the consortium have been identified: Component 1: Consolidation of institutional capacity for social protection policy development and reforms in collaboration with the National Development and Reform Commission (NDRC); Component 2: Enhancing of institutional capacity for financial management and supervision concerning social security funds in collaboration with the Ministry of Finance (MoF); and Component 3: Improving of legal framework and policy for social assistance in collaboration with the Ministry of Civil Affairs (MoCA).

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INTRODUCTION

To help in the preparation for the high level event, the EU-China Social protection reform project solicited support from eminent European and Chinese specialists, who produced important reports assessing the situation and putting forward innovative reform proposals concerning the following key topic:

- Interaction between Employment and Social security policies in Europe (Mr Jean-Yves Hocquet) – page 6
- Relations between Labour market and Pension reform in China (Mr Zhang Juwei) – page 112
- Impact of Demographic ageing on social security policies in China (Mr Dong Keyong) – page 141
- Income redistribution through social security in China (Mr Li Shi) – page 191
- Financial sustainability of pension schemes in China (Mr Zhang Bingwen) – page 218.

The full text of these reports is hereafter reproduced, accompanied by a short biographical note on the authors.

Relations between Employment and Social Security Policies in Europe

Social Protection and Employment

“Partnership or Rivalry”

Jean- Yves Hocquet

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FRANCE



Jean-Yves Hocquet is a high level French civil servant in the social field with national and international experience in the design , implementation and monitoring of social policies both in employment and social security sectors .He has especially worked as French representative to several European task forces (directives, open method of coordination, peer review) and to the Social protection committee. He has headed various national agencies in the field of social coordination or social protection. He had also worked for charities and industry or services companies which gave him an actual experience of the implementation of public policies.

Jean-Yves Hocquet has a master in law and a master of economics from the University Pantheon-Sorbonne. He graduated from the Institut d'études politiques de Paris in public administration and from the Ecole nationale d'administration.

He lectures in various institutions (University Pantheon-Sorbonne, Institut d'études politiques de Paris, Ecole nationale d'administration, Ecole nationale supérieure de sécurité sociale, Institut national du travail, de l'emploi et de la formation professionnelle)

He has published several articles or contributions about national or European social policies and public management.

Foreword

The EU-China social security reform project (SPRP) Component 1 is committed to addressing in-depth, as part of its 2016 Programme of Activities, the factors and circumstances that may affect the sustainability of a reformed pension system, including the relevance, the efficiency and the equity of the schemes forming the system.

Both in China and across Europe, providing to the active population sufficient decent employment opportunities is at the core of the preoccupations of Government authorities at all levels, and the social partner. In China, these preoccupations are embodied in the XIIIth Five-year Plan, which was adopted in March 2016 by the National People's Congress (NPC). The period covered by the Plan – 2016-2020 - in fact coincides to that remaining for the European Strategy for smart, sustainable and inclusive growth, making the goals pursued by the two partners, China and the EU, absolutely compatible.

Having decided, with its NDRC partners and the support of the EU Delegation in Beijing, that the Component 1 2016 Programme of activities would include a Policy dialogue between NDRC and the Commission, an International Workshop and a High-level event devoted to the relationship between employment and social security policies both in Europe and in China, the Component team launched a research project to better apprehend the current state of this relationship Europe-wide.

After competitive bidding, the Research project was finally attributed to the EN3S – French National School for Higher Social Security Studies, represented by Mr. Jean-Yves Hocquet. On the basis of the Technical Note reproduced as an annex to this document, Mr. Hocquet produced the attached report. The SPRP Component 1 team is now proud to present this master piece, which we are convinced will provide researchers and decision makers, in China and in Europe, with very substantial materials and reflexions to design and conduct successful programmes promoting employment within the framework of full, efficient, equitable and sustainable social protection mechanisms.

Laurent de Lespinay,

Project Component 1 coordinator
EXPERTISE FRANCE
June 2016

Acknowledgement

Social protection was affirmed as one of the main objectives of European construction. However its place was limited in European law to the achievement of the single labour market. Because social protection is organized in the Member States according to very different models (level, funding, benefits) reflecting the national diversity, it offers to the third country policymakers a wide range of possibilities even if, in all the countries, there is a major trend towards adapting the post-World War II systems to the sociological changes taking care not to load the wages with undue charges (Part I). Through the development of social security coordination, Europe is trying to identify these changes (new risks, new forms of work) but also to fight against social fraud that can distort labour markets. The need for coordination is responding to adapting European Regulations, by improving the convergence of national social policies and by better bridging the employment and social policies through the Open method of coordination (Part II). The contribution of recent studies shows that social protection could have a direct although limited impact on employment. Its main added value to a sustainable growth and to employment lies in traditional social objectives as the reduction of inequalities in the search of a more employment friendly balance (Part III).

Special acknowledgement must be given to the experts who have shared their experience.

Jean-Louis Dayan former director of the Centre d'études de l'emploi (Centre for employment studies)

Laurent Caussat former general secretary for the Haut conseil du financement de la protection sociale (High council for the funding of social protection)

Colleagues of the EN3S (National School for Higher Social security studies) and of the FreSsco (Free movement of workers and Social security coordination)

J-Y H.

May 2016

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Executive Summary

Out of reconstruction after WWII and steady growth, full employment was achieved. Improvement of social protection and employment were tightly correlated. In any case it is important to stress that whatever model was used, the implementation of social protection was a strong commitment of the governments of most European countries. The European Union (EU) and the European social model are not only a market driven movement but also a political one. It could be an error to focus solely on the social protection/employment relationship. Social protection is not a by-product of growth subordinated to employment. Point 7 of the Community Charter of Fundamental Social Rights for Workers adopted on 9 December 1989 states that the completion of the internal market must lead to an improvement in the living and working conditions of workers in the Community. Opinion is still divided. At one end of the spectrum, social objectives are seen as central to the European project and as a good thing in their own right. At the other, the EU is considered fundamentally as an economic union and social policy should only be brought in to the extent that it is necessary to achieve those economic aims.

Since employment is one of the mains factors of social inclusion it is important to consider its contribution to social protection and conversely how the design of social protection could contribute to employment.

A large range of social protections systems in Europe

Social protection seeks to assist and protect people from disease, poverty and social exclusion by establishing safety nets in case of poor health in the event of job loss or retirement. By hedging risk it smoothens the vagaries of life that individuals or households are subject to.

The stabilizing role of the social protection system came into full play in Europe after the 2008 crisis, which was atypical, both in intensity and in duration but impacted European countries in different ways. The scale of the crisis was uneven across Europe and responses were varied. However this protective effect was attenuated over time due to the persistence of the crisis and reforms adopted to contain the widening public deficits.

With a slowdown in growth, full employment is more difficult to achieve and the question of the trade-off between social protection and employment could appear as a major issue. Since the beginning of the crisis, the European average employment rate for those aged 20-64 years within the EU 28 decreased (68.4% in 2013 versus 70.3% in 2008) and the unemployment rate rose from 7.0% in 2008 to 10.9% in 2013. These averages mask wide disparities. In Greece and Spain, more than a quarter of the workforce is unemployed. In Germany, only 5% are concerned. The rate of long-term unemployment has doubled between 2008 and 2013, reaching 5.1% of the workforce in the EU 28, nearly half of the total number of unemployed. Young people are particularly affected by the massive increase in unemployment, while senior citizens and women are relatively spared.

The concept of flexisecurity puts the question at the centre of the EU and Member States (MS) policies. Actually it leads more to a revision of the social protection (SP) management (funding and benefits) than to a challenge of the principles. The debate is not settled. On one hand a liberal approach tends to minimize the cost of social protection considered as a burden, on the other hand social protection is

seen as an asset for the well-being of mankind especially for those young or low-skilled people who are particularly hard hit by job insecurity. Flexicurity is a comprehensive approach to labour market policy that combines sufficient flexibility in contractual arrangements - to allow firms and employees to cope with change - with the provision of security for workers to stay in their job, or be able to find a new one quickly with the assurance of an adequate income in between jobs. This is possible through lifelong learning, active labour market policies and high levels of social protection¹. Beyond the global analysis it is important to consider several focal points. The average unemployment rate in the EU could be bearable if it affected all the population equally but the deviation from the average can be huge by country, skill, age, gender or even regional area and leads to unsustainable situations for some categories. Due to this context social protection takes place as a part of a global policy.

There are interactions with others levels:

- The tax system and job creation
- Wage moderation
- Investment in education and training
- Transition from school to work
- Reintegration of long term unemployed
- Better social dialogue

The EU offers a large sample of social protection systems. It is important to keep in mind these following remarks:

- The various European social protection systems are rather different regarding the level of spending, the kind of benefits and the sources of financing. So in most cases the design of the national social protection could be influenced mainly by national choices that are made in these areas. (Social protection spending in the EU: EU average 29%; Denmark 34%; France 33.6 %; Latvia 15.1 %.)
- The countries of Southern Europe dedicate about 50 % of their social protection spending to retirement benefits. Family or child benefits are highest in the Nordic countries and Germany and Ireland. Nordic countries tend to have a high coverage of the invalidity risk a high level of spending for housing and inclusion in the Netherlands and the UK

If we consider unemployment as measured by the unemployment rate and its relation to social protection there is no direct relation to the level of spending or the kind of model. The same level of performance could be achieved with very different social protection designs. If we move to more global indicators, the more affluent the countries are, the more they spend on social protection and if we observe the attractiveness of the countries it is not hampered by a high level of social spending. This situation actually gives policymakers a lot of room to tackle the question of unemployment. Benefits could be used to manage the consequences of economic trends and the origin of the resources gives the public authorities more or less opportunity to act on employment policy.

¹Commission Communication on flexicurity 2007

It is completely impossible to define one size fits all policy because of national differences but it is possible to find the mix that could achieve the objectives designed within the EU. The huge differences observed have not prevented the implementation of a European labour market.

A successful coordination of social security to achieve the single labour market

One of its first aims was the building of a European labour market and, from the beginning onwards, it has required an efficient, if perfectible, coordination of social protection. This coupling of social security and employment is one of the most interesting elements of the European experience. The MS have managed the diversity of national protection systems through social security coordination and they have implemented new mechanisms of coordination between employment and social protection policies without endangering national sovereignties.

- Discrimination on grounds of nationality is prohibited;
- Rules are laid down to determine which member country's legislation the person is subject to;
- Rights in the course of acquisition are protected through aggregation of periods of insurance and/or residence spent in each of the respective countries;
- Rights already acquired are protected by allowing certain benefits to be exported.

The material scope of social protection changes. Some measures such as active labour market policies (ALMP) are at the fringe but their introduction into the scope of social security coordination is on the way. Interactions between social protection policy and employment policy are better understood through the implementation of the Open Method of Coordination (OMC). It must be added that fight against frauds to social contributions or taxes is a major European countries because its effects of fraud on the fair competition.

Social protection has a rather limited impact at the macroeconomic level but is a condition of sustainable growth.

All the countries try to reduce the public spending in social protection but because the dynamic of health and long term care because of the ageing of the population. The shift to out the pocket spending does not imply a better allocation of resources. The example of the United States shows that a high level of spending in the GDP (for health) does not reduce the public spending with a rather limited efficiency. The charge of growing spending could be not sustainable even for private contribution i.e. insurance plans sponsored by private companies. As long-term care shows it, the voluntary coverage in developed countries is fragile and limits the shift to private funding. The positive effect of some voluntary funding as pension funds are indisputable through a direct effect on savings, investment and employment during the period they reach their expected level and less important after.

Limiting the cost on labour factor

The alleviation of employers social contributions has a limited impact on the employment except for low wages. It is currently used to safeguard the employment of low wage worker or as an incentive for the employer to hire special categories as long term unemployed people or young people. Actually in most of the countries employers' contributions are about zero at the lowest level.

Others resources could be more and more linked to behavioural criteria as described for employer experience based contributions or to the consumption habits in relation with the risks (tobacco,

alcohol, soft drinks) or to others expanding revenues as value added tax or environmental taxes. In a global approach every tax would have an effect on the employer or on the employee. Modulation of social contributions paid by employers may decrease dismissals or occupational hazards. The result on the employment would depend on the capacity of the households to accept a reduction of their purchasing power. Another path to explore is to decrease the spending by an active management of employer contributions.

Reducing the inequalities

The focus on the employment policy could divert social protection from what is its major playground to growth and therefore employment. Excessive inequalities lead to a long term discrepancy between those who enjoy long term employment with a quality work life, high wages and lifelong learning and those who are excluded and unable to maintain their human capital because of problems related to skills, health or others social dimensions. Furthermore inequality prevents a growing percentage of the population from contributing to growth because of the lack of purchasing power and the difficulty in contributing to savings and investment.

This contribution of social protection benefits (excluding pensions) to reduction of inequality ranges from 40% (Italy) to 84% (Sweden), and is close to 75% in France. Further information on the redistributive impact of the major categories of benefits by risk points out that effect arises from the progressivity of the benefit schedule, or from their weight in household disposable income and consequently the mass of income they transfer between individuals. In this regard unemployment benefits still appear as the primary contributors to the reduction of income inequality in most countries. This contribution is particularly large in Spain (45%), due to the high unemployment rate of the labour force in this country. Conversely, unemployment benefits play a weak role in redistributing the UK (4%), given their nearly flat amount and limited length of award.

In fact, the calculations made by the OECD assessing the impact of the monetary value of benefits in-kind services reach to 28% of average household disposable income. By themselves, they would contribute to a 22% reduction of income inequality, and of a 40% reduction in the risk of monetary poverty. Health and social services (health, aid for self-care for young children) represent two-thirds of the contribution of all in-kind benefits and services in the reduction of income inequality, with more than half for health services alone. This contribution of health and social services to income redistribution appears particularly substantial in Germany, Belgium and France, and more modest reverse the Netherlands. The study also points out that a more global perspective and long term, in kind benefits and services have a second impact, more indirect, on income distribution, improving employment opportunities and pay beneficiaries throughout their professional lives in particular through the links between health status and job retention or the impact of an adequate supply of care facilities for young children on female employment.

Social protection as a source for new employment opportunities

The number of care workers is a good indication of the size of the formal long-term care sector. In 2008, long-term care workers represented only 0.3% of the total working-age population in the Czech and Slovak Republics, compared to 3.6% in Sweden and 2.9% in Norway and Denmark. The difference

embodies the margin of employment available in this sector. Family and child care offers also job opportunities but also has longer term effects. The more women are able to work, the higher the fertility rate. Anyway women are ready to leave a job for parenting if they are convinced to come back easily. Too much parental leave could be an obstacle to returning to the workforce. That is why couples are encouraged to split parental leave so that neither of them spends too long off the job and benefits in kinds are redirected to sponsoring facilities for children of working parents.

From a passive to an active management of benefits

Regarding the effect of early or on-time retirement on the employment of young people, in most of cases the jobs offered, if any, are different and require skills that are not always available. It is possible to have a good impact in companies in growth with a human resource policy focused on precise qualification needs i.e. a very small percentage of businesses .It has also a negative side effect on middle aged workers, who have increasingly been regarded as unemployable. If early retirement has helped to maintain the competitiveness of businesses and therefore to safeguard some jobs, it has been detrimental to public and social accounts and sometimes even to the knowhow of the company itself, with a negative impact on social cohesion. Overall, the vacancy rate was decreasing at the worst of the crisis, but has increased in 2011 and remains steady since, reflecting a significant proportion of unfilled jobs despite rising rates of unemployment. The situation is not homogeneous between countries (the situation is more favourable in Germany than in most of the other EU member countries, including the UK, France, Italy, the Netherlands and Denmark) or between age groups. At the least, better adequacy must be attained through better education and vocational training.

At present, legal retirement age still exists but as a symbolic figure. Direct transition from work to retirement is becoming more and more rare. Most new retirees are unemployed or receiving disability benefits and relatively few of them start working again before they reach the statutory retirement age. As a result, some social insurance programs often work in practice as an arrangement to smooth the transition from work to retirement, alongside formal retirement programs. In the last decades of the twentieth century, almost all European countries had strong disincentives to work at older ages because of such social insurance programs.

Since the 1990s, many governments have started to reform welfare state institutions to reduce the disincentives to work as well as encouraging employers to maintain older workers (see the Delalande amendment in France). Hence, these reforms may have contributed to the increase in participation rates of older workers across Europe. Studies have concluded that generous social insurance- and early retirement programs lead to early labour market withdrawal. Furthermore, they have also found that high unemployment rates lead to lower participation rates among older workers in other forms. Part-time and self-employment were also used to counterbalance this trend with self-employment acting as safety net.

Measures to increase labour market participation for workers especially older workers

This is of particular importance for women. The move towards gender equality in the employment rate of older workers is not mirrored in a broader move towards more equal work patterns. Women, generally, have a lower participation rate, experience a gender pay gap, and more often interrupt their

working lives due to child rearing. Female pensioners have a higher risk of poverty than men and, as a consequence of these gender inequalities; women receive lower pensions than men and often fail to qualify for benefits. Therefore, first and foremost, active ageing measures which ensure equal outcomes for men and women are needed, as the lack of progress in activity and employment rates can often be explained by poor employment opportunities and working conditions for older workers which can undermine the incentives embedded in pension systems. Social protection systems which effectively contribute to maintaining the health of the population and provide adequate long-term care also play a key role in enabling participation in society and the labour market and ensuring independent living by older people. Beyond health services, working and living environments should also be better adapted to the needs of older people, including adapted housing and transport services and home support, which enable the elderly to live independently for longer retirement age.

An important part of ensuring sustainable and adequate pensions in the future, in view of the ageing population and the increases in retirement age, is related to guaranteeing adequate employment opportunities for older workers. This requires efforts related to retraining, life-long learning, improving working conditions to fit the needs of elderly workers, providing reasonable accommodation in the workplace in case of disability, among others. Reforming pension systems has consistently been an important element of the structural reforms agenda for a number of MS since Strategic Social Reporting was rolled out within the Social OMC and the European Semester. Increasing the retirement age has been a priority for all MS. Aligning it with life expectancy is in the process of being analysed or planned for by a number of countries in view of future measures but is not considered by all MS as a solution for raising the retirement age. Increasingly significant efforts have been focused by some MS on limiting early retirement options, among others through reviewing access to disability pensions and reforming work incapacity schemes in order to facilitate labour market participation and the accumulation of pension rights.

Globally active labour market policies could be included into the scope of social security for the purpose of social security coordination. Social protection benefits (e.g. disability or retirement benefits) are more and more linked to “work first” policies to reduce unemployment. On a European level, the divergence in national performance is often the product of differences in productive and social investment. The countries now experiencing the greatest difficulties are those where investment has been the lowest in research, development, and human capital in the 1990s and 2000s. Expenditure in social investment —health, early childhood, reconciliation of work and family life, education and training, other active labour market policies— are essential in order to stimulate potential growth and to ensure the sustainability of public finances. These differences have very significant cumulative consequences in the medium and long-term. So ALMP must be incorporated into a multidimensional approach which combines the social protection dimension with other policies designed to:

- Effectively activate and enable those who can participate in the labour market,
- Protect those (temporarily) excluded from the labour markets and/or unable to participate in it,
- Prepare individuals for potential risks in their lifecycles, by investing in human capital.

Jean-Yves Hocquet,
April 2016

Acronyms

ADL	Activities of daily living
ALMP	Active Labour Market Policies
ANI	National Interprofessional Agreement
AWOD	Accidents at Work and Occupational Diseases
CJEU	Court of Justice of the European Union
CSR	Country Specific Recommendations
DG EMPL	Directorate General for Employment, Social Affairs and Inclusion
Drees	Directorate for Research, Studies, Evaluation and Statistics
EC	European Commission
EN3S	National School for Higher Social Security Studies
ESSPROS	European system of integrated social protection statistics
EU	European Union
EU-SILC	EU Statistics on Income and Living conditions
EUD	EU Delegation
Eurostat	EU Statistical Office
FreSsco	Free movement of workers and Social security coordination
GDP	Gross domestic product
HCFi-PS	High Council for Social protection financing
HLY	Healthy life years
HSBC	Hong Kong and Shanghai Banking Corporation
IADL	Instrumental activities of daily living
ILO	International Labour Organization

INAIL	National Institution for Insurance against Accidents at Work
INSEE	National Institute for Statistics and Economic Studies
KELA	The Social Insurance Institution
LFS	Labour force survey
LTC	Long term care
MS'	Member States
NPC	National People's Congress
OECD	Organization for Economic Cooperation and Development
OMC	Open Method for Coordination
OSH	Occupational Safety and Health
PAYG	Pay-as-you-go
PDsA1	Personal declaration form A1
SP	Social protection
SPRP	Social protection reform project
TEU	Treaty for the European Union
TFEU	Treaty for the Functioning of the European Union
UBI	Unconditional basic income

Introduction

Had this study been done some 60 years ago the exercise would have been quite easy. Between reconstruction after WWII and steady growth, full employment was achieved. Those were the days when Keynesian policy with a demand-oriented market was enough to cushion the small weaknesses of the economic situation. Improvement of social protection and employment were tightly correlated. In any case it is important to stress that whatever model was used, the implementation of social protection was a strong commitment of the governments of most European countries. After two conflicts in Europe policymakers were due to deliver a promise of better life and peace to the populations either in Eastern or in Western Europe. The European Union (EU) and the European social model are not only a market driven movement but also a political one, even if today the memory of the conflicts is fading while extensive coverage of the basic risks has been achieved². It could be an error to focus solely on the social protection/employment relationship. Social protection is not a by-product of growth subordinated to employment. Point 7 of the Community Charter of Fundamental Social Rights for Workers adopted on 9 December 1989 states that the completion of the internal market must lead to an improvement in the living and working conditions of workers in the Community. Opinion is still divided. At one end of the spectrum, social objectives are seen as central to the European project and as a good thing in their own right. At the other, the EU is considered fundamentally as an economic union and social policy should only be brought in to the extent that it is necessary to achieve those economic aims.

Since employment is one of the main factors of social inclusion it is important to consider its contribution to social protection and conversely how the design of social protection could contribute to employment. Today social protection is a component of a sustainable development. Average standards of living in the various countries are improving and the social protection floors promoted inter alia by the International Labour Organization ILO contribute to a better coverage of the world population against the social risks³. Social protection actually has different aims, first and foremost the development and strengthening of individuals' human capital, this from cradle to grave. Social protection seeks to assist and protect people from disease, poverty and social exclusion by establishing safety nets in case of poor health, in the event of job loss or of retirement. By hedging risk it smoothes the vagaries of life that individuals or households are subject to.

The stabilizing role of the social protection system came into full play after the 2008 crisis, which was atypical, both in intensity and in duration but impacted European countries in different ways. The scale of the crisis was uneven across Europe and responses were varied. However this protective effect was

² The European Community for Steel and Coal in 1950 was based on the idea that pooling coal and steel production should 'make it plain that any war between France and Germany becomes not merely unthinkable, but materially impossible'.

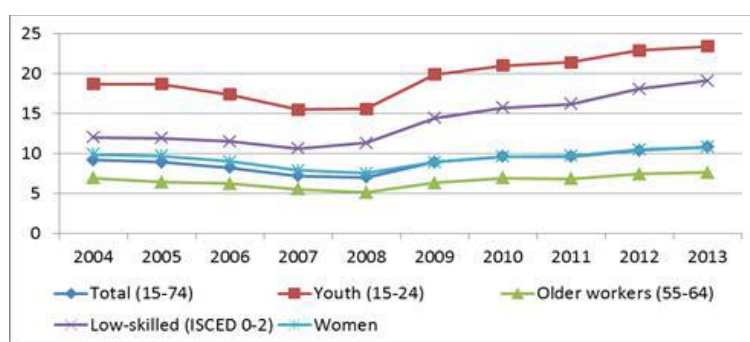
Article 3(e) of the Treaty of Paris said that 'the institutions of the Community shall, within the limits of their respective powers, in the common interest [...] promote improved working conditions and an improved standard of living for the workers in each of the industries for which it is responsible, so as to make possible their harmonization while the improvement is being maintained'.

³ "The recent economic crisis has demonstrated the importance of structural progress towards extending social protection in a coherent and coordinated manner at national and local levels. Social protection measures have cushioned the impact of the crisis among the vulnerable population, served as a macroeconomic stabilizer fuelling demand and enabled people to better overcome poverty and social exclusion in developing and developed countries." Bachelet report, Social protection floor for a fair and inclusive globalization <http://www.social-protection.org/>

attenuated over time due to the persistence of the crisis and of reforms adopted to contain the widening public deficits.

With a slowdown in growth, full employment is more difficult to achieve and the question of the trade-off between social protection and employment could appear as a major issue. By its scope and duration, the financial and economic crisis of 2008 is the hardest suffered by Europe since the 1930s. Since the beginning of the crisis, the European average employment rate for those aged 20-64 years within the EU 28 decreased (68.4% in 2013 versus 70.3% in 2008) and the unemployment rate rose from 7.0% in 2008 to 10.9% in 2013. These averages mask wide disparities. In Greece and Spain, more than a quarter of the workforce is unemployed. In Germany, only 5% are concerned. The rate of long-term unemployment has doubled between 2008 and 2013, reaching 5.1% of the workforce in the EU 28, nearly half of the total number of unemployed. Young people are particularly affected by the massive increase in unemployment, while senior citizens and women are relatively spared.

Graph 1 Unemployment trends 2004-2013 in the EU



Source: Eurostat, Labour Force Survey

The concept of flexisecurity puts the question at the centre of the EU and Member States (MS) policies. Actually it leads more to a revision of the social protection (SP) management (funding and benefits) than to a challenge of the principles. The debate is not settled. On one hand a liberal approach tends to minimize the cost of social protection considered as a burden, on the other hand social protection is seen as an asset for the well-being of mankind especially for those young or low-skilled people who are particularly hardly hit by job insecurity. Flexicurity is a comprehensive approach to labour market policy, which combines sufficient flexibility in contractual arrangements - to allow firms and employees to cope with change - with the provision of security for workers to stay in their job, or be able to find a new one quickly with the assurance of an adequate income in between jobs. This is possible through lifelong learning, active labour market policies and high levels of social protection⁴. Beyond the global analysis it is important to consider several focal points. The average unemployment rate in the EU could be bearable if it affected all the population equally but the deviation from the average can be huge by country, skill, age, gender or even regional area and leads to unsustainable situations for some categories. Due to this context social protection takes place as a part of a global policy. The contribution of social protection policy to employment policy is mainly to:

⁴Commission Communication on flexicurity 2007

- facilitate labour market participation
- prevent and protect against risks from cradle to grave

There are interactions with others levels:

- the tax system and job creation
- wage moderation
- investment in education and training
- transition from school to work
- reintegration of long term unemployed
- better social dialogue

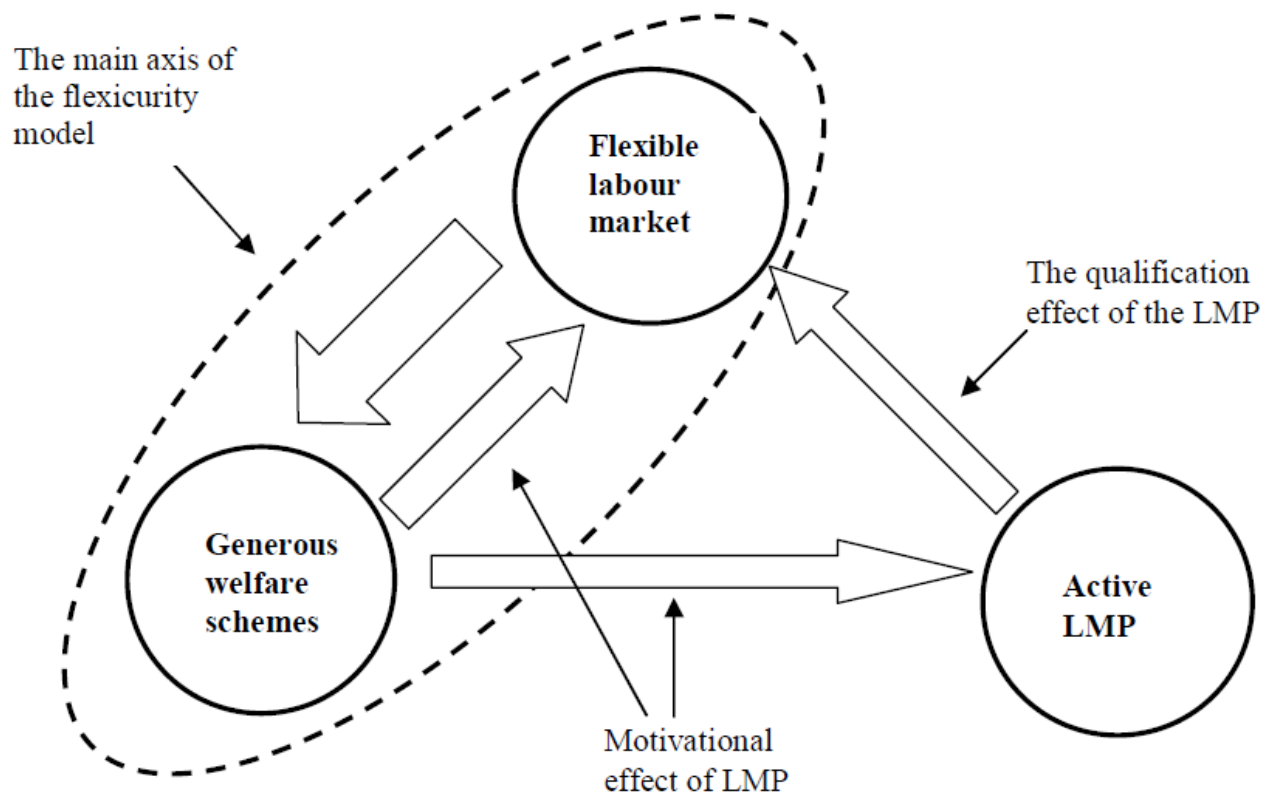
The EU offers a large sample of social protection systems. One of its first aims was the building of a European labour market and, from the start, it has required an efficient, if perfectible, coordination of social protection. This coupling of social security and employment is one of the most interesting elements of the European experience. It is one of the reasons that, while there are common principles of flexicurity there is no one-size-fits-all for the approach of the flexicurity pathway. Because of the Chinese context it is useful to recall how the MS have managed the diversity of national protection systems through social security coordination and how they have implemented new mechanisms of coordination between employment and social protection policies without endangering national sovereignties.

Finally this document aims to give Chinese policymakers an insight into the question of the relationship between employment and social protection from an operational point of view through direct answers to specific questions.

Some choices had to be made. Because of the complexity of social protection by definition and the difficulty in obtaining significant data, the European situation is privileged to enable national comparisons. The material scope covers the main risks that constitute the core of social protection. Some measures such as active labour market policies (ALMP) are at the fringe but their introduction into the scope of social security coordination is on the way. It was not possible to deal with all the employment policy.⁵ That is why this report will focus on the interactions between social protection policy and employment policy, which are better addressed through the implementation of the Open Method of Coordination (OMC). Without jumping to conclusions it seemed important for the conception and the implementation of policies in the two sectors to stress that social protection has a rather limited impact at the macroeconomic level but is a condition of sustainable growth.

⁵ Such an integrated approach should cover the four main components of flexicurity: flexible contractual arrangements, comprehensive lifelong learning strategies, effective active labour market policies and modern social security systems.

Graph 2 The flexicurity model



I - Various European models with contrasted situations related to social protection but some common trends in the Member States

There is no global study of the various social protection systems in Europe including the various components of financing. The objectives of the EU with the European system of integrated social protection statistics ESSPROS⁶ are to provide “a comprehensive and coherent description of social protection in the MS in an integrated system of social protection statistics which allows a coherent comparison, between European countries, of social benefits to households and their financing : covering social benefits and their financing; geared to international comparability; harmonized with other statistics, particularly the national accounts, in its main concepts. “

As defined by ESSPROS, social protection encompasses all interventions from public or private bodies intended to relieve households and individuals of the burden of a defined set of risks or needs, provided that there is neither a simultaneous reciprocal nor an individual arrangement involved. The list of risks or needs that may give rise to social protection is, by convention, as follows⁷:

1. Sickness/Health care
2. Disability
3. Old age
4. Survivors
5. Family/children
6. Unemployment
7. Housing
8. Social exclusion not elsewhere classified.

Social benefits are transfers to households, in cash or in kind intended to relieve them from the financial burden of these risks or needs. The risks or needs of social protection refer to the ESSPROS functions that are comprehensive, but do not include education unless it is a support to indigent families with children. Social benefits are made through collectively organized schemes by government and/or collective agreements. The schemes do not necessarily refer to institutions, although they are in many cases. These schemes can be defined only for ESSPROS as a classification of schemes exists, where schemes are grouped by criteria. All schemes that are solely based on individual arrangements or where simultaneous reciprocal agreements exist are not regarded as social protection.

⁶ <http://ec.europa.eu/eurostat/documents/3859598/5917481/KS-RA-11-014-EN.PDF/ee86d517-3348-4c20-94ee-a37c330755b1>

⁷ The ILO Global Jobs Pact specified as core components of the social protection floor “access to health care, income security for the elderly and persons with disabilities, child benefits and income security combined with public employment guarantee schemes for the unemployed and working poor” (ILO, 2009a, p. 6). The OECD uses a larger definition than ESSPROS including education.

ESSPROS does not take into account some tax or social contribution rebates e.g. for children or for long-term care. The inclusion of these rebates would reduce the differences between countries. Even on the financing side ESSPROS does not give a complete representation of national pictures. These categories, which are used for statistical comparisons, are just one way to organize social protection risks. For the social security coordination Regulations that will be examined later the scope is slightly different and also marked by a continuous change:

Sickness, maternity and equivalent paternity benefits ; benefits in respect of accidents at work and occupational diseases ; death grant ; invalidity benefits ; old-age and survivors' pensions ; unemployment benefits ; pre-retirement benefits ; family benefits ; special non-contributory cash benefits.

An important discussion remains about benefits located in the border area between exportable and non-exportable benefits. This is often related to questions about classifying certain benefits as social advantages that fall outside, at least, the Coordination Regulations. The current fear of social tourism feeds this debate. This borderline issue between hybrid benefits, social security benefits and social assistance benefits falling outside the scope of the Regulations therefore remains a challenge.

However, several reports also show the growing problem of keeping social assistance excluded from the Coordination Regulations' material scope of application. What differentiates these social assistance benefits from other social security benefits? A somewhat related issue is the problem of long-term care benefits. This issue is still unsolved under the present Regulation, but it is currently fully recognized on a European level as a sector in need of a better coordination mechanism. There is indeed a growing recognition that an ingenious solution is necessary, as the classification of these benefits as sickness benefits in kind is far from convincing. Several reports state how difficult it is to define which of their national benefits could be considered as long-term care benefits, and even how difficult it might be to describe some of these benefits as social assistance benefits.

This means that the classification is not the same for the administrative needs as statistical ones. In any case the ESSPROS data allow us to make out some of the major features of the European situation. Even for unemployment benefits the definition is so variable that it is just about impossible to make a perfect assessment of the comparative situation that could lead to definitive conclusions. Cross-country comparisons must be assessed with due caution because of the diversity of concepts and underlying definitions. The OECD uses another definition, but the larger the scope is, the more complicated it is to use data for comparison. It is interesting to note that the addition made by the OECD (public spending, mandatory private spending, and voluntary private spending) does not change much the hierarchy of the countries but largely levels the differences among them.

The comparison of the various systems within the EU is all the more complicated if you want to take accounts of benefits and services, institutional provisions based on political , economic and social history. One of most quoted systems is Denmark with 5.6 million inhabitants. It enjoys a rather privileged situation but as an academic once said:" in our country we know each other. "The various European institutional or cultural particularities matter also.

However the data confirm the validity of the division of countries into two main groups:

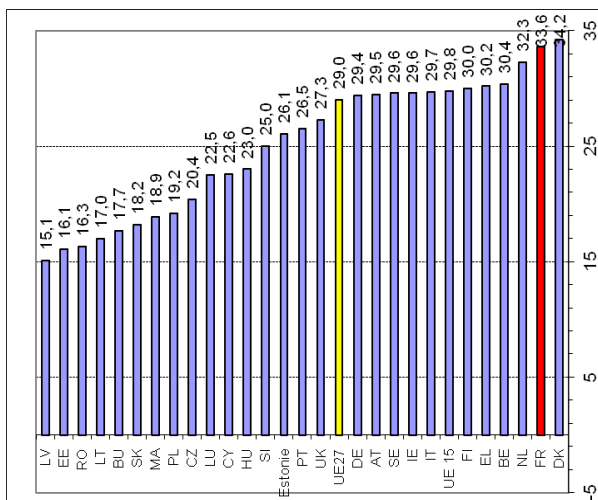
- Bismarckian countries, as the six first members of the European community were, whose social risks are covered mainly by social insurances based on an employment and principally funded by social contributions.
- Beveridgian countries, which guarantee social rights to the resident population without regard for the professional activity and which are mostly funded by taxes. They entered the EU through the first enlargement with the UK and Eire and later with the Nordic MS. The MS from Middle and Eastern Europe fell into the two models.

This classification remains rough. Even the Beveridgian model could be split into a social democrat one with a high level of benefits (Nordic countries) and a liberal one where benefits are targeted to the very less favoured recipients (UK, Eire). Intuitions are also often false. Social insurances do not always mean autonomous administration; the breakdown of the management is not clear-cut but a mix of state and local authorities, of public and private bodies.

I-1 A wide range of percentage of the gross domestic product (GDP) dedicated to social spending with no direct relation to employment or attractiveness

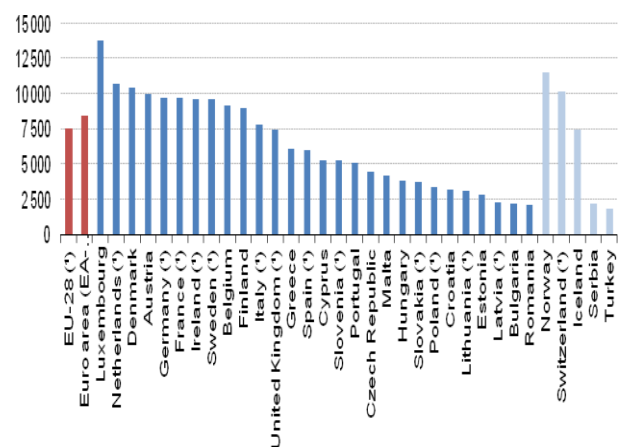
There is a large scope of the social protection spending in the EU: EU average 29%; Denmark 34%; France 33.6 %; Latvia 15.1%. The information comes from the national sources with different bases. For example France includes employer benefits that are not mandatory. Variability also depends on demographic factors and mutualisation. So a ranking per inhabitant will give a slightly different picture. France, which is at the top with Denmark for the social protection spending/GDP ratio, will be behind other continental countries for the spending per capita, because of its larger and relatively younger population in comparison with Germany. Since these data do not include private spending they underestimate the charge directly paid the recipient especially for health expenditures and do not give the total expenditure devoted to the coverage of social risks.

Graph 3 SP spending in the GDP



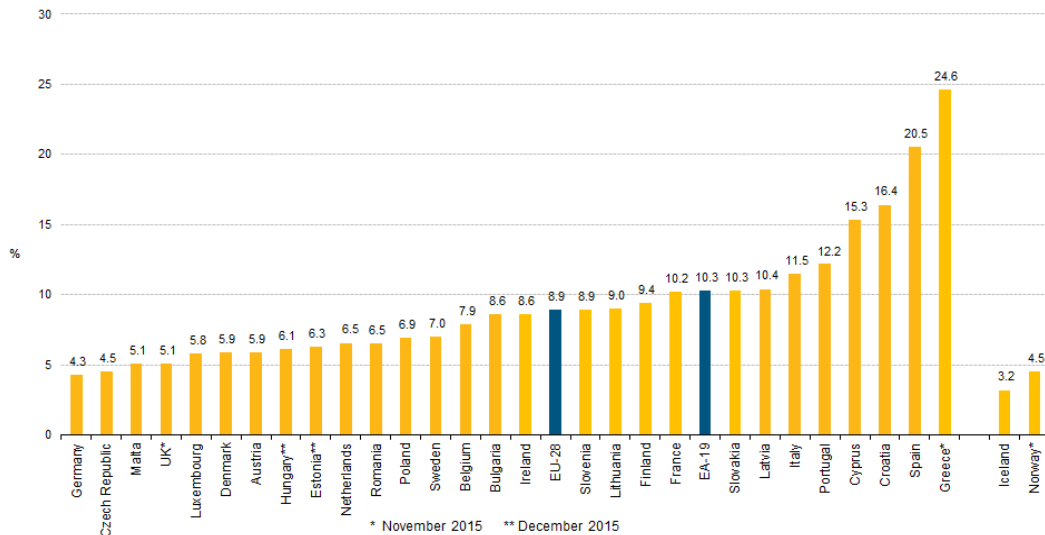
Source : Haut conseil du financement de la protection sociale

Graph 4 SP Spending /inhabitant (euros)



To find a correlation between unemployment and social protection spending is not possible. For example Denmark which ranks at the top for social spending with a 34,2 % rate had a 6.6% unemployment rate versus the UK which had a 27.3% social spending rate and 6.1 % for unemployment and Germany with 29.4 % for spending enjoys the lowest unemployment rate in the EU with 5%.

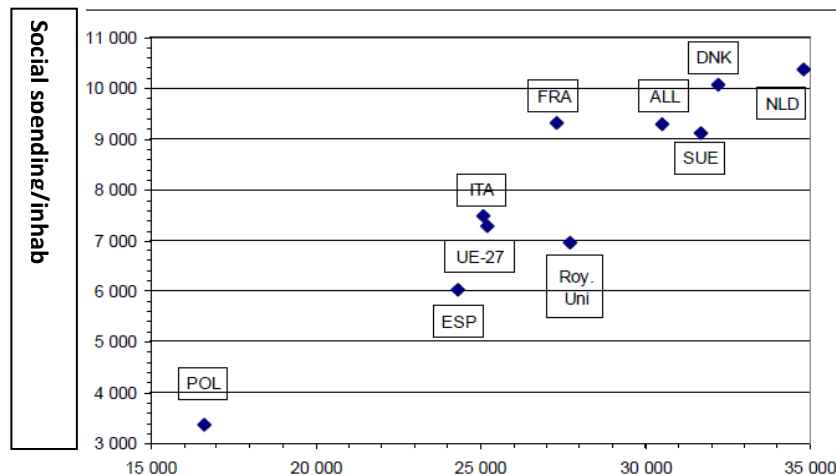
Graph 5 Unemployment rate across the EU



Source Eurostat





















If one considers the situation of the various countries through global indicators it is still difficult to find a clear relation. The countries that spend the most on social protection are also those that enjoy the highest level of wealth per inhabitant. One reason is that it is easier for more developed countries to dedicate a larger proportion to social protection plus the fact social protection services such as health are a growing part of the GDP in affluent societies.

Graph 6 Social spending /inh. GDP/inh. (Source Haut conseil du financement de la protection sociale)



When one considers the international ranking for foreign direct investment it appears that the level of social protection is not the cause of a lack of attractiveness. In any case this ranking introduces the concept that labour costs matter and there is still a visible advantage for Eastern Europe countries in terms of job creation.

Graph 7 Ernst and Young⁸ European attractiveness survey 2015

Top 10 countries by FDI projects					Top 10 countries by job creation				
		2015	2014	Percentage change		2015	2014	Percentage change	
	UK	1,065	887	20%		UK	42,336	31,344	35%
	Germany	946	870	9%		Poland	19,651	15,485	27%
	France	598	608	-2%		Germany	17,126	11,890	44%
	Spain	248	232	7%		Russia	13,672	18,248	-25%
	Netherlands	219	149	47%		France	13,639	12,579	8%
	Belgium	211	198	7%		Romania	12,746	10,892	17%
	Poland	211	132	60%		Hungary	11,741	4,868	141%
	Russia	201	125	61%		Ireland	10,772	7,306	47%
	Turkey	134	109	23%		Serbia	10,631	5,104	108%
	Ireland	127	106	20%		Slovakia	9,564	8,012	19%
	Others	1,123	1,032	9%		Others	55,788	60,620	-8%
	Total	5,083	4,448	14%		Total	217,666	186,348	17%

Source: EY Global Investment Monitor, 2016

I-2 Social spending has acted as an automatic stabilizer against the economic crisis for the whole EU

The deterioration of the labour market tipped many people at risk of poverty or social exclusion.

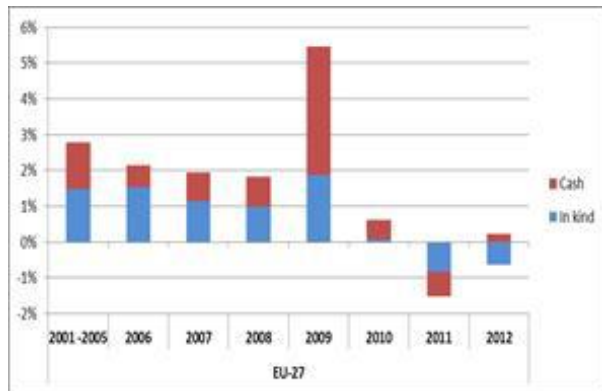
In this highly degraded macroeconomic context, social protection systems played their traditional role as shock absorber. At the start of the crisis in 2009, social benefits were the main contributor to the stabilization of household disposable income. But as the crisis went on, social protection became less efficient to protect incomes, especially in countries hardest affected. The stabilizing effect weakened in many MS in 2012 when revenues contracted again.

Social expenditure growth rates have been negative. Since 2011 an increase in social expenditure has been driven mainly by unemployment expenditure, but also, to a lesser extent, by other functions (notably pensions and health). Social expenditure growth weakened in 2010, reflecting a combination of fiscal stimulus measures expiring and the standard path of phasing out automatic stabilization in countries experiencing recovery. Since 2011, social expenditure declined particularly

⁸ Ernst and Young is a [multinational professional services](#) firm that provides [insurance](#) (including [financial audit](#)), [tax](#), [consulting](#) and [advisory services](#) to companies.

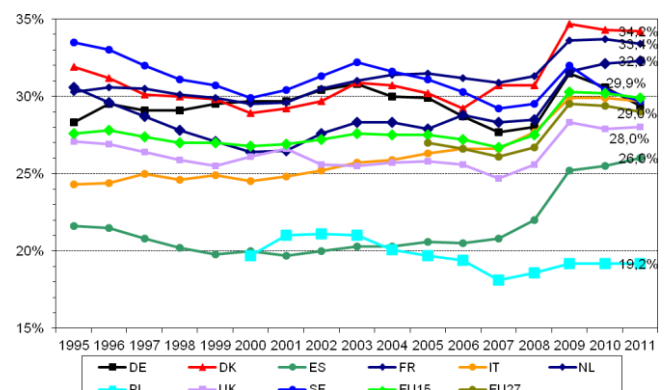
on in-kind benefits and services, despite the further deterioration of the economic and social backdrop. The decrease was earlier in Germany and Sweden.

Graph 8 Contributions to growth in real public social expenditure of cash and in-kind benefits in the EU



Source: National Accounts, (DG EMPL calculations).

Graph 9 Evolution of SP spending in a sample of EU countries

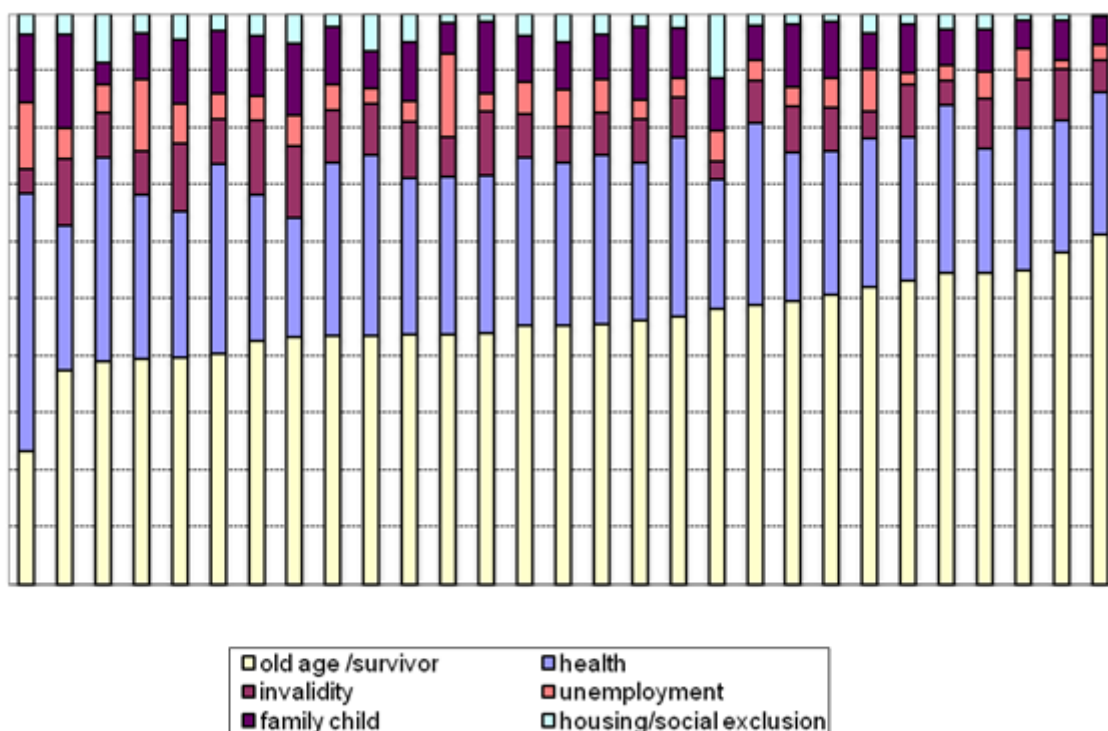


In any case it is more difficult to properly assess the impact of social spending on employment. In an open economy part of the spending is on import goods, a phenomenon that has a limited effect on national job creation.

I-3 Beyond the portion of the GDP dedicated to social spending the breakdown of the social spending varies from country to country.

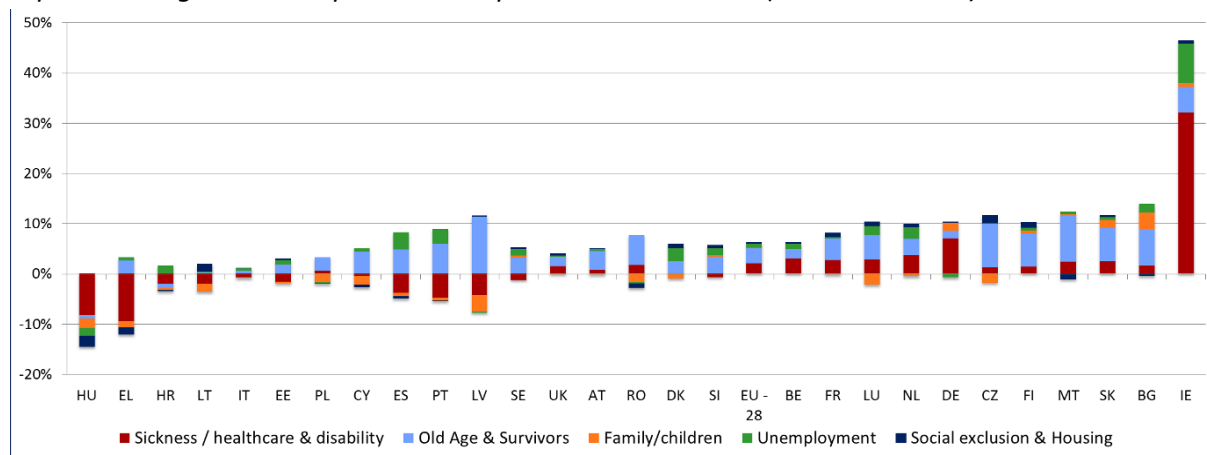
- The countries of Southern Europe dedicate about 50 % of their social protection spending to retirement benefits
- Family or child benefits are highest in the Nordic countries and Germany and Ireland.
- The Nordic countries tend to have a high coverage of the invalidity risk, a high level of spending for housing and inclusion in the Netherlands and the UK

Graph 10 National breakdown by risk



If we take a dynamic approach, the structure of social protection spending has also been altered by the crisis. Between 2008 and 2012, (real) social protection expenditure per inhabitant has increased by 8 % in the EU-27. The strongest contributions to the increases have occurred in the areas of pensions (increasing old age and survivors benefits accounted for around 48% of the total increase) and sickness, healthcare and disability (32%). Conversely, in the areas of unemployment and social exclusion, increases in social protection expenditure per inhabitant have been modest despite the surge in unemployment. The differences across MS are thereby substantial, as between 2008-2012 the rise in total social protection spending per inhabitant was below 4% in eight MS, while increases amounted to more than 10% in five MS (Ireland, Bulgaria, Slovakia, Malta and Finland). Social protection expenditure per inhabitant decreased in four MS between 2008 and 2012 (Hungary, Greece, Croatia and Lithuania).

Graph 11 Changes in social protection expenditure 2008-2012 (Source Eurostat)

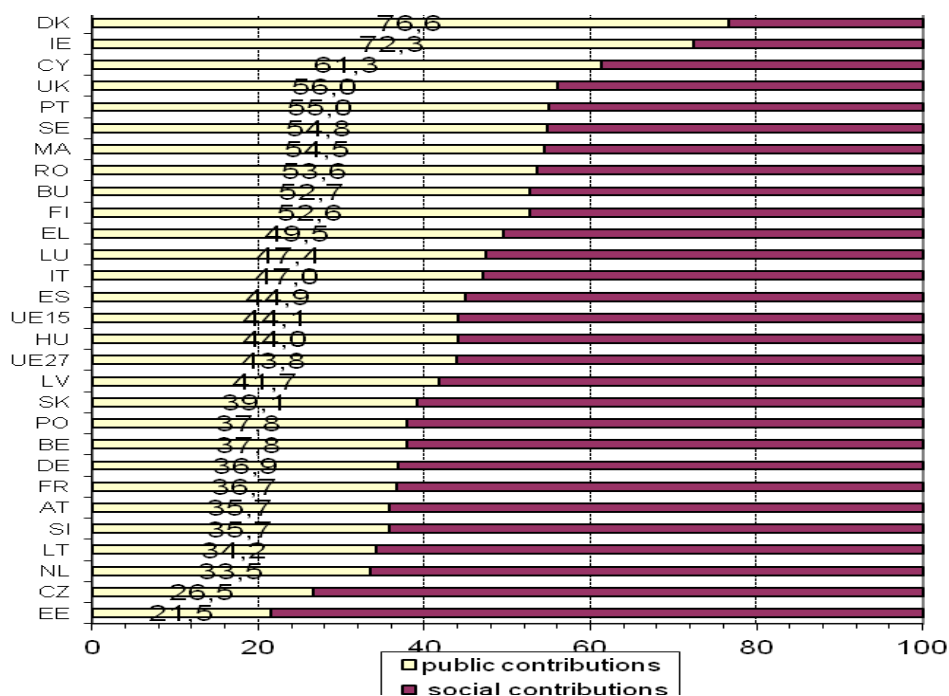


So the global effort for social protection is not only different among the MS but the ranking of the risks is not the same nor is the dynamic. All in all each country addresses the question of social protection according to its own set of priorities. It also means that it is necessary to respond to the question of the social protection as a whole. The fact that unemployment expenditures have not soared as it could normally have been expected means that others benefits have been used to compensate the conditions put onto unemployment benefits. This could be the case for people taking long sick leave or are entitled to disability or invalidity pensions. Even if the trend is toward increasing the retirement age, some people could choose to receive a lower- rate old age pension, which does not prevent them to come back on the labour market at a later date. In most of the cases, restrictions on one benefit induce a communicating vessels effect.

I-4 A partition in the field of resources

A first problem is that of different financing methods. MS are free to decide how to finance their social security scheme(s). There is no comparable approach. Some MS finance their systems in a traditional way, mostly via taxes, while others focus more on contributions. Yet, there are no absolute models; no MS relies exclusively on taxation or on contributions. Usually there is no problem as long as one and the same MS levies taxation and contributions. The question, how much a single person has to pay in total (contributions and tax) is a carefully balanced and sensitive issue in all the MS. In average, social contributions are still the main resources of social protection. A clear split is still visible between Continental, Central and Eastern Europe on the one hand and the UK, Ireland and Northern Europe on the other. In the first group the proportion of social contributions is over 60 % (73.5% in the Czech Republic 66.5% in the Netherlands, 63.3% in France and 63.1% in Germany). In the second group social contributions are a minority part (45.2% in Sweden, 44 % in the UK, 23.5% in Denmark).

Graph 12 Breakdown of social protection resources



With regard to employment there are still two models, one based on professional logic (the so called Bismarckian model), one on a universal approach (Beveredgian) or residence-based approach with almost as many sub models as countries. In this regard there is also a kind of hybrid because of the extent of public contributions growth in all the countries. If the professional model is more responsive to this shift because it is more suited to a full-employment situation (and less suited to durable unemployment), it is a trend that is applicable to all the countries. The main reasons for this are:

- Efforts to reduce the cost of labour that will be examined later
- Better coverage of non-working people because of the decrease of the traditional family with a husband as the breadwinner, a wife and two children; single parent households are more frequent. Non-marital relationships and lone parenting have become more widely accepted. Single-parent households are relatively common e.g. In Estonia and the UK (in both cases above 20 %)⁹.
- Childless (married or unmarried) couples and same-sex partnerships are no longer novelties. Although in some countries the participation of women in the labour market was already quite high, this is being promoted and growing in many countries.

Due to all these changes in family structures, large families that would be able to provide security to their family members, no longer exist (or at least are becoming rare). Modern social and family policies tend to achieve a greater individualization of rights.

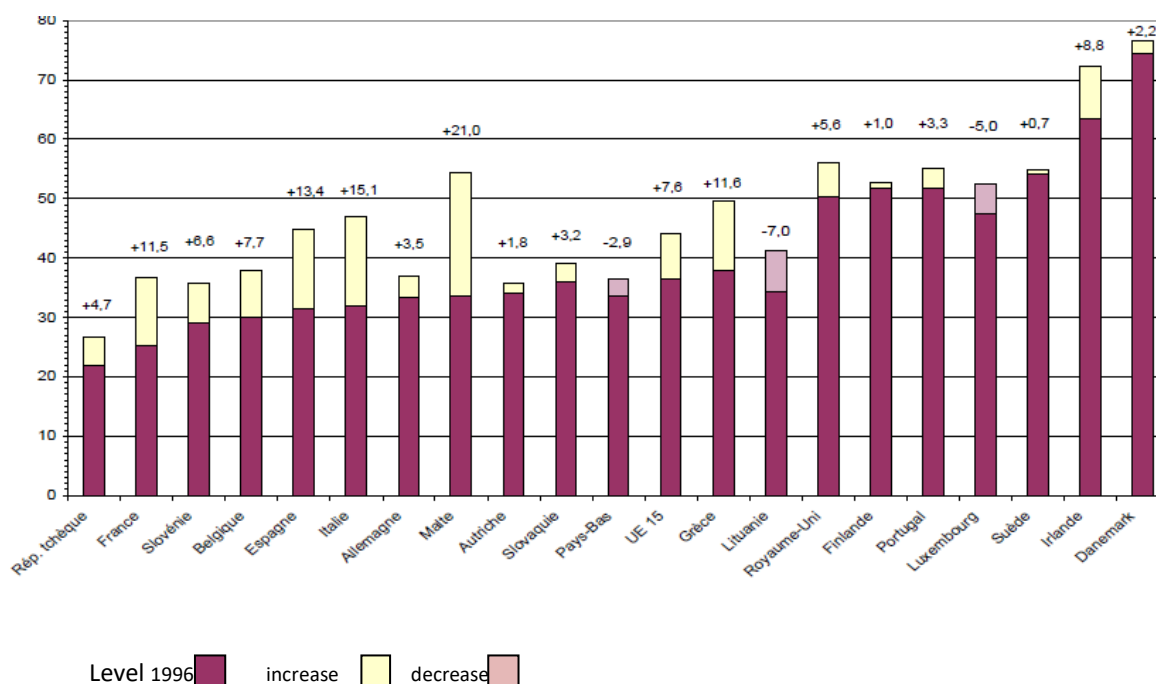
Ageing is an important factor. The population of the EU is growing older. According to the EU's Demography report 2010, the MS' population aged 65 years or over accounted for 17.4 %, with its peak in Germany with 20.7 %, followed by Italy at 20.2 %, of the entire population, and is expected to rise. One of the reasons is an increasing life expectancy.¹⁰ According to the report, life expectancy shows an increasing trend. It was estimated at 80.4 years in 2011 (83.2 years for women and 77.4 years for men). In a relatively short period of ten years since the start of this millennium, life expectancy thus has increased by 2.3 years for women and 2.9 years for men. Another element in the ageing of the population is a low level of fertility. Fertility rates are increasing, although they are still rather low. The fertility rate in the EU was 1.6 in 2009 (the lowest in Latvia with 1.31, followed by Hungary and Portugal with 1.32, and Germany with 1.36). In many countries this is far from the required 2.1 or 2.2 births per woman to enable a normal renewal of the population (not taking into account various migration flows). In addition, women are postponing childbirth for various reasons (including education, career and/or housing concerns). The ageing of population, which is a long-term trend, is expected to continue. The share of persons aged 65 or more is projected to increase from 17.4 to 30 % in 2060 in the EU (at the same time it should be noted that the reliability of such long-term projections might be questioned; some countries as Sweden have experienced dramatic turns related to birth rate through an ambitious policy to reconcile work and family life with 3.2 % of the GDP dedicated to child and family policy). In the absence of any unpredictable events, ageing is a fact that has to be taken into account when reforming social security systems and their coordination. An increased life expectancy implies welfare and quality

⁹ Demography report 2010 ('Older, more numerous and diverse Europeans', March 2011)

¹⁰ 'EU Employment and Social Situation Quarterly Review March 2013 – Special Supplement on Demographic Trends'

of life, which should also be maintained at the highest attainable level in old age, when the primary social risk of reduction of work capacity and income due to old-age is accompanied especially by risks of sickness (higher costs of health care) as well as reliance on Long term care (LTC) and other social services (of general interest). Dependency and reliance on LTC is not exclusively but nevertheless predominantly a phenomenon related to the reduction of personal autonomy due to old age. The problem might be linked to a lack of family and household members at the time the elderly or disabled members of the family have an increased need for LTC. Because of the relative novelty of this new challenge the risk is still mostly covered by public contributions. A recent international survey from the bank HSBC notes that the world population is rather optimistic and does not feel spontaneously the need for protection in this area.

Graph 13 Trends in the proportion of public contribution devoted of social protection financing 1996-2011

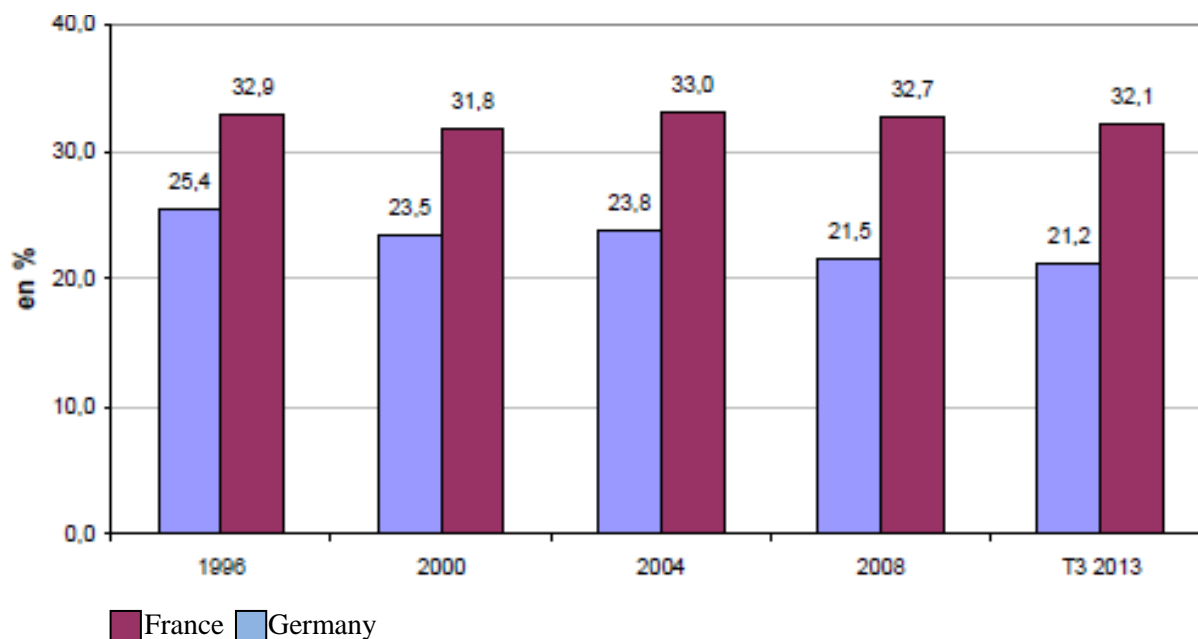


Source: Eurostat – Sespros, calculation Drees.

If we go deeper into the analysis of the breakdown between employers' and of the employees' contribution the average in the EU was about 61% for the former with 55%-45% in Germany and 70%-30% in France. In France if you add all the taxes related to the salaries it is about 72% of social protection resources that are directly or indirectly linked to the salaries. In this matter two conceptions are debated: either contributions paid by the employers are *in fine* sustained by the companies and are labour costs, or they are a part of the salaries which could be arbitrated with the overall wages if employees are ready to accept a decrease in their net wages. So the effect of a reform of the social protection financing by substituting budget or tax resources for employer contributions could be very different. The performance of Germany in comparison with France is for a part in its capacity to keep relatively stable wages during the last period. At the beginning of the 1990s' the hourly cost of labour in

France was about 10% lower than in Germany. In 2010 the relationship was reverse because of the stability of wages and the introduction of Mini jobs¹¹ which was possible because of the lack of minimum wage.

Graph 14 Trends in the employers' social contribution in the labours costs France /Germany



Two remarks could be added. First, part of the decrease in the social contributions could be related to a limited increase of wages in the GDP; and, second, even for the part which is transferred to tax, the base could be still the salaries.

So to conclude this first part we can keep in mind these following remarks:

- The various European social protection systems are rather different regarding the level of spending, the kind of benefits and the sources of financing. So in most cases the design of the national social protection could be influenced mainly by national choices that are made in these areas.
- If we consider unemployment as measured by the unemployment rate and its relation to social protection there is no direct relation to the level of spending or the kind of model. The same level of performance could be achieved with very different social protection designs. If we move to more global indicators, the more affluent the countries are, the more they spend on social protection and if we observe the attractiveness of the countries it is not hampered by a high level

¹¹. Mini jobs were introduced in 2003 in Germany. €450 a month tax-free "mini jobs." Workers (and their employers) whose mini jobs are their main job contribute to the national retirement pension insurance in Germany. The employee pays 3.7% and the employer pays 15%. They do not contribute to either the national health insurance funds or for unemployment coverage. They can either be covered by the health insurance of the higher earning partner (or parents for students up to 25 years of age) or they can contribute on a voluntary basis (at a flat rate of 140 euro per month).

of social spending. This situation actually gives policymakers a lot of room to tackle the question of unemployment. Benefits could be used to manage the consequences of economic trends and the origin of the resources gives the public authorities more or less opportunity to act on employment policy.

- It is completely impossible to define one size fits all policy because of national differences but it is possible to find the mix that could achieve the objectives designed within the EU. The huge differences observed have not prevented the implementation of a European labour market.

II - Social security coordination as an indicator of employment challenges

One of the challenges of the European Economic Community was to achieve freedom of mobility for goods, services and workers. Workers mobility was one milestone towards European citizenship but also a way to open opportunities for work due to differences in growth rates, demographic trends or labour market situation in those years. Free movement of workers is a fundamental principle of the founding Treaty enshrined today in Articles 39 and 42. A single labour market could only be achieved if national social protection systems were not an obstacle to mobility.

Because **social protection systems were and still are a major dimension of national identity** it was and it is not possible to speak about harmonization but about coordination.” It is necessary to respect the special characteristics of national social security legislations and to draw up only a system of coordination as confirmed in Recital 4 of Regulation 883-04.

So it is interesting to complete the picture by introducing a few words about the open method of coordination (OMC). As said before the founding fathers of Europe rapidly gave up the idea of a harmonizing social security. There is not even a European definition of social security but with more ambitious objectives as such the Lisbon strategy¹² it was more and more difficult to keep to a limited conception of social affairs. The OMC introduces the possibility of deepening the cooperation in social protection and introducing a better coupling between social and employment policies

II.1. Social security coordination as a cornerstone of the European labour market

Regulations 3 and 4, which date back to 1957, at the very beginning of the European construction, were a prerequisite for the workers mobility and have undergone a permanent process of updating till regulation 883-04 in 2004. Not only modifications in family structures, but also demographic changes influence how national social security systems are shaped and coordinated (internally and supranationally).

The material scope has changed due to trends in risks (for example long term care or early retirement) while other measures as active labour market policies (ALMP) could be regarded as social security benefits in the near future. An additional issue is that the boundaries of the Coordination Regulations are being increasingly tested. There are a growing number of non-statutory benefits based on, for example, contractual (collective bargaining) arrangements. This may cause problems, since non-statutory benefits do not fall within the material scope of the Regulation because the funding of social protection does not have the same definition in each country.

The personal scope has changed since it now covers the European citizen from students to retirees but workers have changed too. Lessons of experience are of particular value for the Chinese people because

¹² The original Lisbon Strategy was launched in 2000 as a response to the challenges of globalization and ageing. The European Council defined the objective of the strategy for the EU "to become the most dynamic and competitive knowledge-based economy in the world by 2010 capable of sustainable economic growth with more and better jobs and greater social cohesion and respect for the environment"

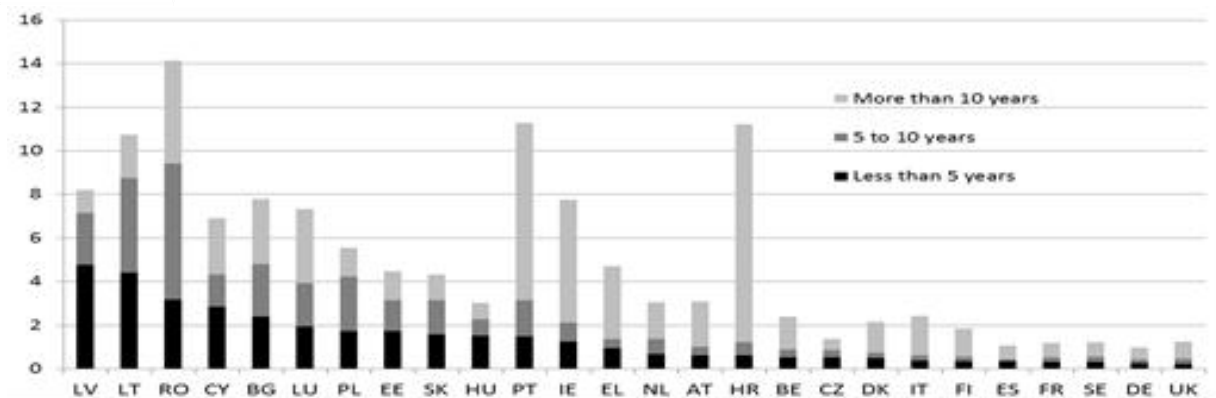
of the regional differences regarding social security in China and it illustrates the changes in working conditions. Workers have changed in Europe. 50 years ago most of the mobile workers were migrant workers who settled in another country at least for their working life and eventually retired in their home country.

Today the mobile worker is more a border worker who comes back home every night or who in the same year, can alternate, periods in the home country or abroad as a wage earner, self-employed, be jobless or with two of these status simultaneously. New forms of work organization are helping to shake the traditional model. Aircraft pilots could live in France with an Irish contract, fly in several European skies during the day with a jet listed in Portugal by a Swiss company. As the result of the widespread use of computers and of communication and data-sharing networks, for a growing number of workers, employment no longer assumes that the worker is permanently present at the workplace.

Furthermore, the result of this intellectual, manual or mixed activity is presented electronically. As the place of work may be located outside the company premises or may be itinerant, working time and personal time relate to each other differently for a person who works with information technology and mobile communication tools; the electronic work may be delivered at all times and from anywhere: the boom in telecommuting from home allows cross border relations between employers and employee even if nobody moves while IT helpdesk and development services are being outsourced. Will surgeons, who will soon perform or assist operations remotely, be considered as working at the place where they are during these operations or at the place where the tools are working which they are remotely operating?

As growth rates or labour market conditions are not the same in the various countries, cross borders movement are important. EU citizens could satisfy workforce shortage. Durable intra-EU labour mobility remains limited, especially in proportion of the overall size of the EU labour market. While one out of four EU citizens say they would consider working in another EU country in the next ten years, until 2013 only 3.3% of the EU economically active population resided in another Member State. Cross-country differences are quite sizeable though. Due to substantial differences in unemployment rates between EU MS, the rising number of persons wanting to move has partly materialized in increased mobility since 2011 but only to a limited extent and not as much as would be needed to have a real equilibrating role against the huge imbalances across EU labour markets with only about 3% of the EU workforce that is 10.3 million workers to which 1.5 million posted workers could be added.

Graph 15 Mobility rates by sending country — mobile EU citizens living in another EU Member State, by years of residence (age group 15-64, 2012, in % of working-age population of country of citizenship)



Source: DG EMPL calculations based on Eurostat-EU-Labour force survey

Social protection must not be an obstacle to workers' mobility. The EU provides common rules to protect social security rights when moving within Europe ([EU 28 + Iceland, Liechtenstein, Norway and Switzerland](#)). The rules on social security coordination do not replace national systems with a single European one. All countries are still free to decide who is to be insured under their [legislation](#), which benefits are granted and under what conditions. The original basic principles are aggregation of periods, equal treatment, export of benefits, only one applicable legislation at a time and administrative cooperation:

- Discrimination on grounds of nationality is prohibited;
- Rules are laid down to determine which member country's legislation the person is subject to;
- Rights in the course of acquisition are protected through aggregation of periods of insurance and/or residence spent in each of the respective countries;
- Rights already acquired are protected by allowing certain benefits to be exported.

So an EU national is entitled to take up work or look for a job in another EU country, work there without needing a work permit, reside there for that purpose, stay there even after employment has finished and enjoy equal treatment with nationals in access to employment, working conditions and all other social and tax advantages. EU nationals who return to their country of origin after having worked abroad are also covered as well as the family members. Rights may differ somewhat for people who plan to be self-employed, for students, and for retired or otherwise economically non-active persons.

II.2 Cross border worker mobility emphasizes the need for a sound application of social provisions to protect employment: the risks of frauds related to posting.

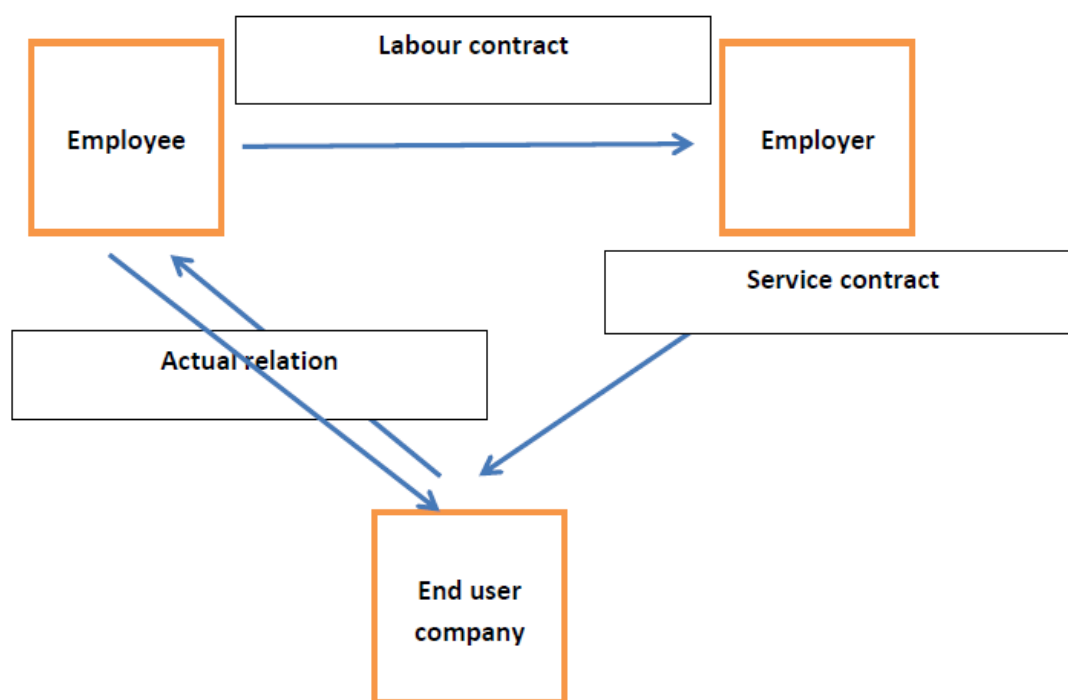
The founding fathers introduced however a kind of exception to these principles (and especially that of *lex locus laboris* – applicable law is that of the working place): posting. A worker is "a posted worker" when he is employed in one EU MS but sent by his employer or by himself as a self-employed worker on

a temporary basis to carry out his work in another MS. This category does not include migrant workers or frontier workers who go to another MS to seek work and are employed there.

The use of posting may allow companies in different States to take advantage of differing levels of social security contributions and, in some cases, differences in compensation between European countries, and thus to modify the impact of national systems of social protection on the cost of labour and the competitiveness of local businesses since, contrary to other mobile workers, posted workers continue to be subject to the labour and social security legislation at their place of origin.

Graph 16 Posting workers

A worker has a contract with a company which is in relation with a third party which is the actual employer. For example a Polish worker has a contract with an employer from Cyprus which delegates him on a construction site in France where he works for a French company which is linked to the Cyprian employer by a service contract



This labour mobility is also increased because of the development of new itinerant activities, which are a consequence of both globalization and electronic performance of certain tasks and works, such as consultancy and expertise. In addition, apart from networks of businesses being created, globalization causes networking or intra-groups to flourish. This leads to triangular labour relationships, meaning that authority is divided between the 'nominal' business, which the employee is linked to, based on an employment contract, and the principal business, which often holds part of the economic decision-making power. The role of the employer is broken up; the workforce is fragmented. This system has two levels. The first level is a level of authority over the activity and the worker, for example divided

between the employer-principal contractor and the employer-subcontractor who executes the task requested. The second level is the triangular level including the employee, the business that is the employer 'nominally', and the business, which gives the assignment, or the company the employee is connected to. Consequently, the existence of networks of businesses creates network or intra-group mobility. Within the networks, at a certain point in time and in the course of their careers, employees seem to have multiple links with different businesses; their career pattern forces them to go from one member of the network to another.

This concept of networking could also cover posting. Posting is defined as most often a three-player game (including the worker; the employer-service provider; and the company of temporary activity, the buyer of the services), but is presented as a static and unique situation in the Coordination Regulations. Reality shows that many businesses that have posted workers do so frequently and for several workers. Furthermore, a posted worker may be posted at least once in his or her professional career, but may very often also be posted repeatedly depending on his or her profession, the type of business he or she is working for and the opening up of different markets, accompanied by the lifting of limitations to the free movement of services. So, there are continuous and unique network activities within the community of businesses who are clients of the business employer, and intra-group activities if all or part of these businesses-clients and the business employer belong to the same network. The search for the best revenue-to-costs ratio and the need to constantly adapt to technological development, to competition and to the availability of production factors leads these business networks to adopt a strategy to manage their human resources on two levels:

- The localization of human production resources depending on their availability at the location and on their wage, social and tax cost, next to the availability and cost of other production factors (capital, raw materials, energy, transport, joint venture offers etc.);
- But also the internationalization of part of the human resources for production needs and their mobility, depending on the qualifications of the workforce concerned and their relative cost. This second level is shown in several developments. Firstly, it can be seen in the development of intra-group mobility for managerial staff and highly qualified personnel or in an increased number of members of personnel being posted. Secondly, in the search for the most flexible and least costly social and tax link combined with social protection by companies or groups (pension funds, insurance groups etc.), which allows the business networks to level out the differences in national protection and to offer their mobile workers protection that is on the whole considered attractive and fostering loyalty. So there is quite a paradox trend with some workers getting social security coverage by companies as part of their corporate social responsibility while adding to tax and social contribution evasion in the country where the work is really performed.

To guarantee that the rights and working conditions of a posted worker are protected throughout the European Union, and to avoid "social dumping" where foreign service providers can undercut local service providers because their labour standards are lower, the European Community law has established a core of mandatory rules regarding the terms and conditions of employment to be applied to an employee posted to work in another MS. These rules will reflect the standards of local workers in the host MS (that is, where the employee is sent to work).

The idea is that where a MS has certain *minimum* terms and conditions of employment, these must also apply to workers posted to that State. However, there is nothing to stop the employer applying working conditions that are more favourable to workers such as, for instance, those of the sending MS (that is, where the employee usually works).

It is interesting that posting and the risks involved are addressed through two legal approaches, one through social security coordination and one through work regulation. This means that a comprehensive approach to the effect of the social protection towards employment could be not studied without taking into account the influence of working conditions at large (safety regulation, working time). It is worth mentioning because it illustrates the trade-off between principles when it comes to social security, which sets the applicable legislation as that of the workplace, and the possibility of temporary exceptions.

These exceptions must be monitored to prevent misuse. Each employer or self-employed individual who wants to benefit from the posting provisions must send a form (portable document A1) to the national competent body that forwards it to its foreign counterpart so that the conditions can be verified (fixed term). Fight against fraud and error is a major issue for the relation between social protection and employment. Posted workers could be a way to avoid fair competition.

There is a rapid increase even if the absolute number is still limited with 1.9 million portable documents A1 in 2014. Compared to 2013, the overall number of postings has increased by 8.5%. Roughly 8% of the posted persons were self-employed. Approximately 86% of the forms were issued to perform work in an EU-15 Member State. In absolute terms the three main sending MS were Poland (266.745 PDs A1 issued), Germany (232.776 PDs A1 issued) and France (119.727 PDs A1 issued) and the three main receiving MS were Germany (414.220 PDs A1 received), France (190.848 PDs A1 received) and Belgium (159.753 PDs A1 received). In 2014, on average an equivalent of 0.7% of the employed population was posted to another Member State. Three main groups could be identified:

- Western continental Europe Germany France Italy Austria, Belgium, Netherlands, Luxemburg. These countries have mutual flows of posted workers
- Flows from central Europe to Western Europe mostly to Germany
- Flows between the Scandinavian countries and from Baltic States to Scandinavian States.

43.7% of the PDs A1 was issued to posted workers in the construction sector of the receiving MS. Also, 32.9% of the forms were issued for activities in the service sector. Construction and industry account for the majority of workers coming from Eastern Europe and services account for most of the posted workers coming from Belgium, Iceland, and Finland. The two main grounds of posting are to go with the internationalization of businesses and trade and to reduce the labour costs between countries with high differences of wages.

There is abuse of posting when there is no real link between the posted worker and his country of origin or when the service provider is an empty shell or when posting is for the sole purpose of violating the regulation of the host country or to evade the country of origin. Even if posting amounts to a small percentage of the employment it has a major effect on construction or on the meat industry, with heavy

job losses in the receiving country because of unfair competition on wages and social protection costs. This example embodies the need to tackle taxes and social contributions evasion both at the national level and at the international level to prevent the endangering of employment by fraud or unfair competition.

II.3 Active employment programmes: The social security coordination illustrates the challenges confronting the various MS in this regard

The lack of synchronization between social security and taxation as well as labour law added to the fact that only contributions and not taxation are coordinated can lead to enormous differences in cross-border situations. Other EU instruments adopted to solve some of these problems do not, however, take away all of these disadvantages:

- Technical developments, digitalization, data exchange, new technological developments and electronic means of work change the way contributions or taxes could be raised
- Changes in the way of living, family situation, aging population, dependency on LTC and demographic trends as said before.

These changes have various implications related to employment

- They have direct effects on labour costs regarding the ways of funding and the level benefits;
- They can induce irrelevant movements of workers or of non-working persons burdening the cost of social protection systems of one MS.

Eligibility conditions to social security benefits cannot always be coordinated. As an example, the introduction of active employment programs as a condition for an invalidity pension which would be granted only to people who are willing to undergo rehabilitation measures aiming a reintegration into the labour market. In one MS the legislation actually links entitlement to invalidity benefits with additional rehabilitation measures. If the person concerned was subject to the legislation of this MS and now resides far away in another MS, which has not implemented a comparable concept of rehabilitation program, rehabilitation measures cannot be applied there. Can the benefit be denied or does it have to be granted also without rehabilitation measures (which would put persons abroad in a much better situation than the resident population)?

The main problem with such active employment programs is that they usually have to be regarded as benefits in kind and that the EU Regulation only provides provisions for the coordination of benefits in kind concerning sickness or accident at work benefits in kind. Which branch of social security is concerned by such active employment programs (obviously not only unemployment) and is there an equivalence of such measure under other systems? As long as the Regulation does not contain specific rules on such active employment programs there will always be uncertainty and gaps that could be filled by new Court of Justice of the European Union (CJEU) rulings.

To give yet another example of new active employment programs some new benefits (bonuses) were introduced in Slovenia from the beginning of 2013. Questions may be raised regarding their proper classification for coordination purposes. One of these benefits is a bonus that is intended to entice insured persons to continue working after reaching the retirement age. An insured person who meets the conditions for acquiring the right to an old-age pension and remains insured to the same extent can request a monthly payment of 20 % of the old-age pension to which he or she would be entitled. It is provided on top of the salary until the insurance is terminated or a partial pension is claimed, or until the age of 65 (it is not provided beyond this age). The question might be whether such incentive to continue working is in line with the basic philosophy of the social security system as such. The purpose of social security is to provide income replacement in case of its loss or reduction. In this case there is (and should not be) any reduction in income and hence no need for its replacement in order to guarantee social inclusion. The CJEU emphasizes that when benefits are classified, the social risk for which they are intended should be taken into account. This might cause problems. The bonus described is not an old-age pension and the social risk of old age has not materialized (no reduction or loss of income). Hence, according to its legal nature it might actually be better to classify this bonus as an active employment measure, rather than as a pension benefit.

These questions, which appear on the field of social security coordination, witness the pressure that employment puts on the traditional definition of the former. The introduction of new benefits especially dedicated to cover active labour market policies introduces also confusion for the contribution payer.

It is possible to achieve a single labour market with various social protection systems, but new conditions for employment policies in relation with social security could ask for changes, to prevent undue charges on national protection systems. The MS' welfare systems face challenges such as new approaches towards the inclusion of people in the solidarity circle (residence is a growing connecting factor); an often rising gap of benefit levels between MS; new ways to look at the prevention; and, reconsidering social security risks (inclusion of active employment programs, of benefits such as LTC benefits and the individualization of social security rights). It is more and more necessary for the EU countries to reach a better coordination of social policies themselves even if the matter stays within the competence of the MS.

II.4 The open method of coordination (OMC) a way to progress on a common approach about social protection, and a bridge between employment and social protection policies

The open method of coordination in the European Union may be described as a form of “soft law”. It is a form of intergovernmental policy-making that does not result in binding EU legislative measures. It does not require EU countries to introduce or amend their laws.

The OMC, originally created in the 1990s as part of employment policy and the Luxembourg process¹³, was defined as an instrument of the Lisbon strategy (2000)¹⁴. This was a time when EU economic

¹³ The “Luxembourg process”, acted in November 1997, marks the launching of the European Employment Strategy.

¹⁴ For the Lisbon strategy see footnote 12 above.

integration was advancing quickly but EU countries were reticent to give more powers to the European institutions.

The OMC has provided a new framework for cooperation between the EU countries, whose national policies can thus be directed towards certain common objectives. Under this intergovernmental method, the EU countries are evaluated by one another (peer review), with the Commission's role being limited to surveillance. The OMC takes place in areas that fall within the competence of EU countries, such as employment, social protection, education, youth and vocational training.

The OMC is principally based on:

- Jointly identifying and defining objectives to be achieved (adopted by the Council);
- Jointly established measuring instruments (statistics, indicators, guidelines);
- Benchmarking, i.e. comparison of EU countries' performance and the exchange of best practices (monitored by the Commission).

One of the results is a collaborative approach on both questions of social protection and employment policies. Based on good practices, a number of common benchmarks could be defined, to support upward convergence processes, while recognizing the diversity of starting points and practices across MS.

A draft joint employment report from the Commission and the Council¹⁵ accompanying the communication from the commission on the annual growth survey 2016 shows how this connection improves:

“MS have continued to modernize their social protection systems to facilitate labour market participation and to prevent and protect against risks throughout the life course. Social protection systems must better protect against social exclusion and poverty and become encompassing instruments at the service of individual development, labour market and life-course transitions and social cohesion. Adequate pensions remain contingent on the ability of women and men to have longer and fuller careers with active ageing policies sufficiently covering health and training. Investment in the working age population, including through the provision of childcare, is essential to secure inclusive employment outcomes as well as sustainable public finances. Health systems contribute to individual and collective welfare and economic prosperity. Sound reforms ensure a sustainable financial basis and encourage the provision of, and access to effective primary health care services.¹⁶

¹⁵ The European Council is composed of heads of State or Governments. It is an official institution since 2009 only. The European Commission is independent from Governments, and acts as a Government itself.

¹⁶ http://ec.europa.eu/europe2020/pdf/2016/ags2016_draft_joint_employment_report_en.pdf

Modernization of social protection systems should aim at providing effective protection for all and adequate investment in human capital.

The future focus should be on structural reforms, helping to move beyond the crisis towards ensuring systems oriented by clear social investment priorities and providing adequate protection throughout the lifecycle.

MS have shown increasing policy effort to improve activation, access and adequacy of minimum income schemes but the impact of the schemes still varies greatly across the EU. Improving coverage and actual access to benefits remain a priority. Social protection systems (including minimum income and unemployment benefit schemes) should activate those able to access the labour market, and protect those furthest away from the labour market. Continuous support for labour market reintegration (through job training, job search, etc.) should be an integral part of social protection, thus avoiding costly losses in human capital.

Overall gender disparities are being reduced and the pensionable age is being raised, opening routes to prolong working lives and improve pension entitlements, but reforming pension systems only will not be enough. The adequacy and sustainability of pensions are closely linked to economic performance and labour market developments. Discouraging early exit from labour markets is crucial. Policies promoting cost-effective and safe complementary savings for retirement are an important part of the necessary mix of measures to ensure future pension adequacy.

Inequalities in health and access to health services need to be addressed in most MS within constrained health budgets. MS will also have to address challenges to their health systems posed by ageing and a rise in chronic diseases. “

This approach, which is also promoted by the ILO, 17 gives an expression to the European social model. The OMC whose outputs twin more and more social and employment policies stress the importance of a combined approach of both questions beyond the social security coordination needed by European labour market.

Four general trends in unemployment could be noted across Europe. Firstly, the initial increase in unemployment in Europe is primarily due to adverse and largely common shocks. Secondly, different institutions led to different initial outcomes. Collective bargaining and/or inflation could be used to

¹⁷ Excerpt from the Report of the ILO Social protection floor advisory group, 2011: “The social protection floor relates strongly to the Decent Work Agenda; to succeed in combating poverty, deprivation and inequality, it cannot operate in isolation. In order to realize poverty reduction effectively, its strategies must be accompanied by others, such as strengthening labour and social institutions and promoting pro-employment macroeconomic environments

The effectiveness of social protection floor-type measures in reducing poverty, containing inequality and sustaining equitable economic growth is already well acknowledged in developed countries. In OECD countries, it is estimated that levels of poverty and inequality are approximately half of those that might be expected in the absence of such social protection provision.

In addition, it can help people adapt their skills to overcome the constraints that block their full participation in a changing economic and social environment, contributing to improved human capital development in both the short and longer term, and in turn stimulating greater productive activity. The report also shows how social protection has helped to stabilize aggregate demand in times of crisis and to increase resilience against economic shocks, contributing to accelerate recovery and more inclusive and sustainable development paths. Social protection represents, in fact, a “win-win” investment that pays off both in the short term, given its effects as macroeconomic stabilizer, and in the long term, due to the impact on human development and productivity”

reduce real wage growth and determine the size of the increase in unemployment. Thirdly, the increase in unemployment, in most countries, led to changes in institutions as most governments tried to limit increases in unemployment through employment protection and to reduce the pain of unemployment through more generous unemployment insurance - see part I. Fourthly, most governments in Europe have partly reversed the initial change in institutions due to financial pressure and intellectual arguments. However, this reversal was partial and sometimes perverse. The different paths chosen may well explain the differences in unemployment rates across European countries today.

There are several relevant explanations for these trends. A more favourable macroeconomic environment and an improvement in institutions should lead to a substantial decline in unemployment. High productivity growth need not imply favourable employment performance, or vice versa. There is a strong tendency on the part of policy-makers to presume that economic problems must be one dimensional – that growth and job creation are both aspects of an underlying quality, quoted as ‘competitiveness’. The available evidence suggests, however, that the unemployment problem has a life of its own, and is not simply part of a generalized deterioration in economic performance. Significant differences in the overall economic and social environments created the gap – and resultant tensions – between two clusters of European countries: North and South. The consequences of the current crisis have been drastic.

There are several possible answers. One view is that investment in human capital – both in basic education and in the retraining of older workers – can reverse the trend towards greater inequality. A second view suggests improvements in the welfare system, especially decreasing expenditure, which would reduce social contributions and hence lower the cost of labour. A third view, advocates an ‘active manpower policy’ with subsidized employment for those who would otherwise be unemployed, which is seen as the way to cut through the otherwise agonizing trade-off between mass unemployment and mass poverty. Economic stagnation and high unemployment in several countries will have an impact on remittances from workers abroad with potential repercussions for countries highly dependent on the external demand and financial flows.

The current crisis has been created by two factors: the sharp rise in European unemployment rates, and the emergence of large budget deficits in countries with extensive welfare and lower productivity. Leaving aside hopefully education and training, there is one alternative: a decrease in labour cost at all costs or a balanced mix between welfare and flexibility. If one of the risks were covered by social security the individual does not have to care about his or her protection. By contrast, under the new, very often market-based, philosophy of the transformed social security schemes, everybody has to look him or herself for the best protection and benefits depending on the efforts made during the active life. The contribution of the OMC to the debate is embodied by the various reports that represent a comprehensive approach of the questions related to social protection and employment and help to present a balanced evaluation more relevant in front of the available evidences.

The open method of coordination and common strategies did not have the expected spill over effects. The credibility of social Europe has been rejected: a dynamics of divergence, even dualisation, have become apparent in socioeconomic and employment trajectories in MS, in particular within the Eurozone. The social performance targets set in 2010 in the Europe 2020 strategy have already been

compromised. Social Europe seems to have led to a major imbalance, with the perception of a loss of national sovereignty by citizens that has not been offset by EU regulatory capacity. The principles of subsidiarity in social protection and autonomy of social partners in collective bargaining no longer appear to protect national social models: they are not articulated with the strengthening of economic governance including country specific recommendations relating to fiscal discipline and budgetary situation, structural reforms and wage policy as part of the « European semester »¹⁸ and excessive deficit procedure. Europe still lacks the effective process to associate the citizen to a new social contract much more complicated to achieve and to explain than the traditional welfare state where employment went along social protection without questions.

¹⁸ Implementation of the EU Economic Governance is organized annually by semesters – one where the EC analyzes data, and provides recommendations to MS., one where MS. Implement the commonly agreed upon policies.

III - Contribution of social protection to employment policies must be reassessed

Because of ideological debates the amount of public social spending is under scrutiny. However, empirical elements as presented in the first part do not confirm a negative effect of social protection systems on employment. The second Chapter has nonetheless identified some challenges to be met by social protection systems. The question in this Chapter is not to discuss the absolute or relative level of social spending (private or public) even if the management of the entire system could be improved. The question is not either to examine how public savings in social protection could be reallocated to others services of general interest (public safety, education, and investment in research) or how to limit the funding by implicit or explicit debt, but to review how the funding for social protection could become more employment friendly.

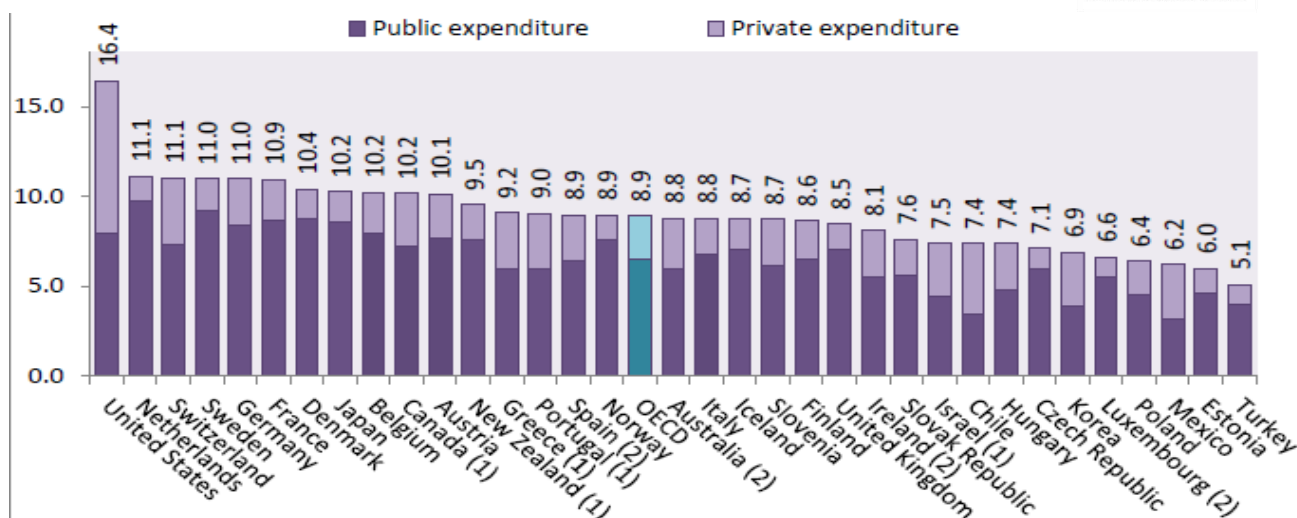
III.1 Limiting or expanding social security protection

The level of the public spending matters more and more because funding has become one of the criteria to assess public management. Since social protection expenditure are considered part of public spending, their level could lead to budget deficit or lead to a bad allocation of the resources on less efficient investments or purchases with bad macroeconomic impact on the national economy.

The global level of spending depends of many factors:

- The generosity of the welfare system
- The demographic factor which has many consequences .The number of inhabitants but also the age pyramid following the number of children or of ageing people needing care have a huge impact on the spending.
- The level of mutualisation. Most of the data used in this document are related to public spending. Sometimes the citizen must cover some of the costs out of pocket. In both cases the spending contributes to the GDP. High levels of social spending could be funded not only through public money. For health spending the highest level in the OECD is reached by the United States with 16,4 % of the GDP but less than half of it is public funded.

Graph 17 Health spending (excluding investment 2013) Source OECD



The sources of financing (taxes, social contributions and debt) have a general effect on employment by increasing labour costs and diminishing the profit and the incentives to invest for the entrepreneur.

Most policies tend to reach a balance between the spending categories by controlling the overall increase in benefits, notably benefits in kind as health, or by restricting access to the most dynamic spending such as “pay as you go” (PAYG) pensions and by looking for the most efficient mix of taxes, social contributions and borrowing.

In all the countries the trend is to shift part of the labour costs to public contributions to diminish the tax wedge. Tax wedge is defined as the ratio between the amount of net salary paid to an average single worker (a single person at 100% of average earnings) without children and the corresponding total labour cost for the employer.¹⁹

As seen before, the main reason for the increase in social spending is ageing, with consequences on health and retirement benefits hard to rollback. Public intervention is needed because the citizen will not spontaneously invest in own protection. Making spending compulsory like for car insurance could be enough to sort the question out but public intervention is linked with societal present or future projects. The French “success” in child and family policy with a rather high rate of fertility and a somewhat higher rate of women activity than the average European level is strongly linked to the experience of WWI and the demographic deficit that followed. Social protection is also the expression of solidarity not only between rich and less affluent people but also between the employed and the unemployed, young people and old, healthy people and those suffering from illness. Finally it is important to prevent the “creaming” (selection) by private insurers of the population to be covered, which could lead to massive exclusion of the less favoured.

In any case there is an opinion that considers social contributions or taxes on salaries as a hindrance for competitiveness for companies with a negative effect on employment, so it would be important to shift to a more job friendly tax or contribution base to improve the financial status of the companies along with growing employment opportunities. It requires the following conditions:

¹⁹ OECD (2016), Tax wedge (indicator).

- A minimum level of competition must prevent companies from pocketing the increase in profits
- The decrease in labour costs must not cause too much of an increase in other production factors costs such as capital, which could discourage investment
- A high level of unemployment could justify a decrease in lower wages to reduce the discrepancy between wages and productivity but this does not work for all skills.

Action on social protection must be estimated at different levels with different criteria to evaluate its consequences on employment:

- Macroeconomic, growth, household purchasing power, employment
- Consequences on companies depending on their size and industry
- Impact on the distribution of household revenues
- Clarification of the financing of social security risks
- Specific question for individual business or for non-profit activity
- Actual condition of implementation (collection of contribution, side effects, collective bargaining...)
- Every action on SP resources must be determined in connection with these aspects, which could be of political importance too.

III.1.1 Mixed results for reductions in employers' contribution

To discuss the question, it seemed interesting to refer to chapter 4 'Financing Social Protection: the Employment Effect'²⁰ of the OECD 2007 Employment Outlook while completing the empirical conclusions with some quantitative results of scenarios which have been recently tested in France. The mechanisms through which a decrease in employers' social contributions leads to positive effects on employment must take account of the consequences of the financing which is necessary to balance the loss of resources for the social protection schemes. Three parameters play a major role: the behaviour of the companies' profits which describes how they pass on their production costs to their selling prices, the cost elasticity of employment with various consequences according to how concentrated contribution breaks are at the bottom of the wage scale, the ramification of the mandatory contribution intended to compensate for these breaks on negotiation and adjustment of salaries and therefore on the final variation of labour costs.

The string of effects must be assessed in the short run and in the long run because these agents, who will benefit from the breaks or be hit by their funding, are not those who will sustain their effect *in fine*, a fact which could influence the "equilibrium unemployment"²¹.

Macroeconomic models have limits to describe the transfers between households and companies, the factors linked with the attractiveness of the country, the attitude with regard to research and innovation as well as the threshold effect or asymmetrical behaviour.

²⁰ <http://www.oecd.org/employment/emp/40776791.pdf>

²¹ The equilibrium unemployment level is the difference between those employed at a given wage rate and those who can work but are not willing to work at that wage rate.

Finally labour costs are part of a mix that also includes the price of intermediate consumption and capital cost. As showed in the first Chapter there is no overall relationship between level of spending, funding and the unemployment rate.

Some studies were done for the French government on various scenarii²² for social protection financing in a tense period of public deficits. The point of the exercise is that it covers the mains objectives cited above with an extensive use of data and macroeconomic models that do not include all the variables but are richer than an empirical study. Results must not be received as generalizable but as a description of the core interactions. Other things being equal it gives the same conclusions as the above quoted OECD article but with figures.

The main concern was to obtain a better fit between risks and resources in social protection. Although France has undergone a major shift to public contributions, a large part of certain risks that are mostly universal such as child and family benefits, are still funded by resources based on labour revenues. Four sets of scenarii have been developed to reflect the main issues raised by policymakers²³.

The first set encompasses the reallocation of existing taxes and contributions among the various risks covered by social protection but without a macroeconomic effect on activity, employment or income distribution among households. The objective is to improve the adequacy of resources and spending e.g. to reallocate contributions for child and family benefit from employer contributions to taxes.

The second set targets a change in the breakdown of taxes and contributions among households without change in employer contributions. The macroeconomic effects are almost nil except if major changes should occur in the propensity to consume and the propensity to save. The aim is a reduction of inequalities of the disposable income among households. Family contributions paid by employers would be transferred to the retirement scheme with a decrease in the employee retirement contribution and an increase in taxation of income extended to replacement benefits (unemployment benefit, retirement benefit) and asset incomes. The contribution rate could be made progressive.

The third set aims at a reduction of the taxes and contributions paid by employer on labour costs as a fixed global amount. They introduce major changes in relative costs of inputs with differentiated outcomes in the various economic sectors. It introduces some new kind of parameters to calculate the employer contribution such as labour cost/added value or the company's hiring and firing record to entice the employers to a more active labour management.

The fourth set forecasts a decrease in employers' contributions, which would be compensated for, by supplementary contributions on households through value added tax or behavioural taxes (tobacco, alcohol) or environmental taxes with major macroeconomic impact.

To summarize, a general 2% decrease in employer contributions, without factoring compensation, is favourable but limited on the activity (+0.3-0.8 % GDP in a 5 year period) and on employment (134.000-214.000 new jobs created or safeguarded) .The level depends of the repercussion on the alleviation of

²² Haut conseil du financement de la protection sociale : Point d'étape sur les évolutions du financement de la protection sociale – High Council for Social Protection Financing: Progress report on the evolution in social protection financing (2014)

²³ See Annex XII for details

contributions on production prices. Without compensation the impact would be negative on the balance of public administrations. The effect on employment is higher if the alleviation is focused on modest wages with 5.000 to 37.000 supplementary jobs for middle wages and up to 15.000 to 160.000 additional jobs if focused on the lowest wages.

In the case of compensation of contributions breaks, the impact would be reduced to 0.0-0.2 % GDP with 30.000-81.000 jobs; partial adjustment of the household purchasing power through a wage increase will reduce the impact of the labour costs decrease on job creation.

In the simulations with a positive impact on employment, the balance for public administrations is improved with a lower “ex post” public funding requirement than the costs “ex ante”. The effect is more or less positive on the foreign balance and investment. It depends upon the capacity of companies to conquer market shares on the interior market and to invest accordingly.

In the best case scenario the number of jobs created or safeguarded could reach 370.000 in comparison with 2.860.000 unemployed people (December 2015 ILO definition). The less efficient scenario would provide just 5.000 jobs.

For the OECD the more public spending goes to social protection, the higher the “tax wedge”, roughly defined as the difference between labour costs and take home pay in proportion to labour costs. But the extent to which a higher tax wedge has an impact on employment depends crucially on three factors: *i)* the “progressiveness” of funding systems; *ii)* the link between what is paid and expected benefits; and *iii)* how labour taxation affects wage claims and replacement incomes. A higher tax wedge reduces the opportunity cost of not working (as defined by the ratio between non-labour incomes and after-tax wages) and thus tends to depress labour supply and generate wage resistance. The survey identifies the following effects:

- An *income effect*: in order to compensate for the income loss resulting from higher taxes on wages, households may tend to raise their labour supply, thus moderating wage claims.
- A *perception effect*: employees may be willing to accept lower after-tax wages as taxes rise, if they effectively recognize a linkage between the taxes they pay and their benefits entitlements.

The above effects of the tax wedge ignore the potential impact of social protection on productivity. The OECD remarks that certain welfare benefits like parental leave, effective active labour market policies and well-designed unemployment benefits may raise labour productivity in various ways, which would offset any negative employment impact of the taxes needed to finance these welfare benefits. Likewise, health programs may support workers’ motivation and productivity. More generally, well-designed social protection is likely to serve as a productive input for the economy.

As discussed above, the *average* tax burden weighing on wages and labour costs may shape employment performance in various ways. The precise impact depends crucially on:

i) The tax burden on low-wage employment (since the presence of wage floors makes it difficult to pass tax increases onto lower wages);

ii) The extent to which there is a close link between the taxes and contributions that fund social protection, and social protection benefits (*a priori*, the closer the link, the less the risk of a negative impact of taxes on employment);

iii) The extent to which a broadening of the tax base to fund social protection helps meet employment objectives, in particular by affecting the wage/replacement income ratio. At the minimum wage level, labour costs and net incomes result entirely from policy choices concerning labour taxation, benefits and the minimum wage itself. The latter plays a doubled-edge role: a high minimum wage relative to the average wage tends to deter the employment prospects of vulnerable groups, but it also contributes to make work worth it when compared to welfare benefits.

Payroll tax cuts targeted on lower-wage earners are generally found to be more effective in boosting the employment prospects of disadvantaged groups and reducing aggregate unemployment, than general tax cuts. However, deadweight losses – *i.e.* the fact that the reduction of employer social contributions also benefits existing low-wage jobs and new jobs that would have been created even in the absence of the tax reduction – tend to be substantial. This is a strong limitation, as these measures pose a major funding issue and require higher taxes elsewhere in the wage ladder. Insofar as payroll taxes are not overly high, implementing or going further with broad tax cuts covering all those in low-paid work may be less cost-effective than schemes more closely targeted at jobless and hard-to-employ individuals, and aimed at facilitating transitions from unemployment or inactivity to regular employment in the private sector.

In countries with high minimum wages, well-designed employment-conditional benefits may help limit further increases in the statutory minimum wage to make work attractive enough, and may be more cost-effective than further broad employers' tax cuts. On the employee side, financial rewards from moving from unemployment or inactivity to low-paid work tend to be very low in most OECD countries. For unemployed or inactive persons, accepting a low-paid job – *e.g.* a full-time job at the minimum wage or at 67% of the average wage – provides little net additional incomes. When moving from unemployment to work, 70-80% of the additional gross income is on average taken away in the form of income taxes, employee social security contributions and/or lower welfare benefits. This proportion is lower when switching from inactivity to work but still represents on average 60-70% of the additional gross income. Reducing this disincentive may be achieved by better linking employees' contributions to their future benefits and employers' contributions to the cost they incur to the system. On the employee's side, increasing the perceived value of the counterpart to taxes would moderate wage claims, thus making taxes less distortionary. On the employer's side, introducing some linkage between labour taxation and the costs incurred by social protection systems (in terms of benefit payments), through experience-rating mechanisms, may be socially desirable and economically efficient, as employer behaviour in terms of workforce management has an impact on the observed frequency of some so-called "risks" covered by social protection and on employment.

Both approaches to the evaluation of results from reductions in employers' contributions, the French approach based on macroeconomics or the OECD, come together on the same conclusion. The most efficient policy to create jobs is to focus on the employers' tax or contribution on the lowest wages, but it does not offer a definitive solution. Due to the limitations of the contribution, alleviation is often

focused on the less productive people, young people in transition from school to work, low skill employees and the long-term unemployed.

So some measures were taken to reduce the tax wedge on labour, especially for disadvantaged individuals, and to stimulate labour demand and consumptions beyond the strict limits of social protection. Belgium intervened to lower the social contributions paid by low-wage workers, exempted employers from paying social contributions on overtime compensation in selected sectors, and extended the scope of the exemption of the withholding tax for employees. Italy lowered personal income tax for low-income earners for the year 2014 and applied a permanent reduction of 10% in the regional tax economic activities due by employers. The government of Spain approved a tax reform including a reduction from seven to five tax bands, a slight reduction of the marginal rates and an increase of the exempted amount, which has been phased in between 2015 and 2016. Slovakia increased the earnings threshold for students to be exempted from social contributions, while Estonia increased the basic exemption from income tax as of 1 January 2015. Slovakia reduced the tax wedge for employees re-entering the labour market after long-term unemployment through temporary exemptions from social contributions. In the context of a wide-ranging budgetary package, Latvia alleviated the tax burden especially on families with dependents by increasing targeted non-taxable thresholds for personal income tax. France implemented for the first year in 2014 a wage-based tax credit for companies, supplemented in 2015 by a decrease on employer's social security contributions. Measures to reduce income tax on median and low wage earners were also decided. Greece launched a further reduction of social security contributions to facilitate new recruitments and improve the competitiveness of businesses by reducing non-wage labour cost.

Targeted hiring incentives and start-up subsidies have been means to promote the activation of young job seekers in some MS. The Netherlands adopted a tax rebate for employers hiring young people who receive unemployment benefits or social assistance for a period up to two years, whereas Poland introduced exemptions from social insurance contributions for under-30-year old. Slovakia introduced support towards the first regular paid job for unemployed people under the age of 29 years. Other Member States have adopted new hiring incentives to stimulate job creation for other groups among the long-term unemployed. General hiring incentives have been introduced or reinforced in Portugal, Malta, Greece, Spain and Cyprus. For example, Malta offers a wage subsidy to employers for new hires up to half of the basic wage and of social contributions for a period up to one year.

Spain approved a flat social contribution rate for firms hiring new workers with open-ended contracts, including part-time contracts, for a period up to two years (three for small firms) as well as special allocations for Youth Guarantee beneficiaries hired on open-ended contract. Malta targeted a specific subsidy on older workers, including a tax deduction covering the costs of training. Finland has extended the duration of the renewable wage subsidy for older long term unemployed to two years.

III.1.2 A loose relation between employers' social contributions and hourly labour costs

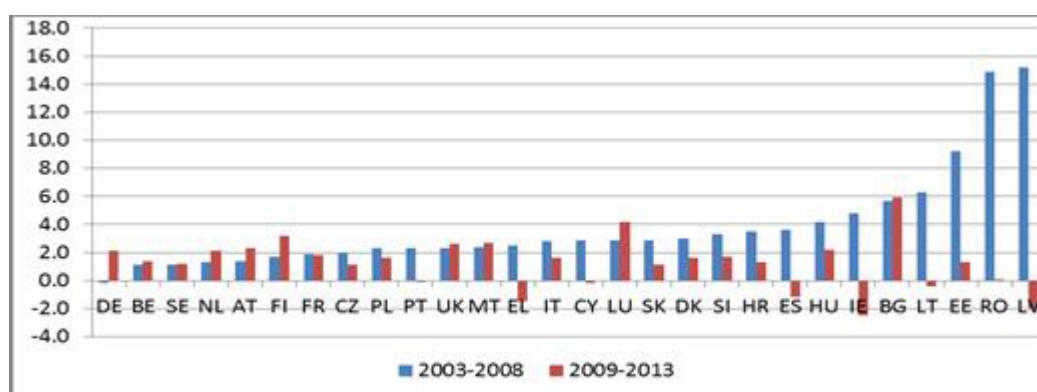
Comparative analysis does not reveal in Europe a statistical relation between the level of hourly labour costs and the share of social contributions paid by employers. The chart below identifies different country profiles, such as Denmark in which a modest share of employers' social contributions does not

preclude a relatively high hourly cost of labour. On the contrary Spain has a relatively low level of labour costs despite the high apparent rate of social contributions paid by employers. In certain countries the cost of social contribution paid by employers could be shifted to the employee through a decrease of his net wage. The hierarchy of labour costs in Europe primarily reflects differences in labour productivity and relatively not so much institutional arrangements for social protection. Economic analysis suggests traditionally two main factors for export dynamics of a country: the global demand for goods and services, and the prices for export by the companies. In the case of developed countries that trade among them and with the rest of the global economy, it can be assumed it is the same global demand that is directed to each of them. Therefore, differences in export performance between countries respond in a first approach to price differences for export: it is called the "price competitiveness", which covers both the "cost competitiveness" (costs of inputs), margins and if any, changes in exchange rates.

Important differences between countries or markets for goods and services are linked on the export sensitivity to prices. The same price change will have variable effects on exports from e.g. France and its various commercial partners. This heterogeneity of the export price elasticity allows to suggest that factors other than price influence the dynamism of businesses export: innovation, marketing, geographic or sector specialization, competitiveness.

In its Employment report ²⁴the European Commission points that: "Unit labour cost reductions and wage moderation have fed only slowly and incompletely into lower prices. Partly, this incomplete pass-through can be explained by simultaneous hikes of indirect taxes and administered prices due to fiscal consolidation. Nominal unit labour cost reductions in the face of sticky prices have led to decreases in labour income shares in several MS, in particular Greece, Spain, Ireland and Portugal. The resulting increase in profit margins has not (yet) been fully accompanied by an increase in investments.

Graph 18 Nominal unit labour cost developments in the EU-28, average year-on-year changes, 2003-2008 and 2009-2013



Source: Eurostat, DG EMPL calculations

²⁴ Draft Joint Employment Report from the Commission and the Council accompanying the Communication from the Commission on the Annual Growth Survey 2015

Changes in the total tax wedge have been driven mainly by personal income tax (PIT), where increases can be seen for 15 out of 21 Member States. Increases in PIT (at least for this particular type of household – single, no child - and at 67% of the average wage) have been particularly large in Portugal and Hungary, while it has decreased quite substantially in the United Kingdom and Greece. Taking PIT and employees' social security contributions together, the burden on employees has increased in 10 Member States, while this is less true for employers (3 countries with increases in the tax burden). Overall the level of employers' social security contributions has remained more or less stable in most Member States, with a few exceptions; there were relatively strong increases in Poland and Slovakia, while at the same time the level decreased quite considerably in France.²⁵

Graph 19 Change between 2011 and 2013 of the total tax wedge by components (67% of the average wage, single person, no child).



Source: EC-OECD tax and benefits database

SSCer: social security contribution paid by employer; SSCEe: social security contribution paid by employee; PIT: personal income tax.

In an economic and monetary union, the issue of wages is not just of national interest: crises sanction imbalances that have arisen out of divergences in competitiveness, to which divergent trends in unit labour costs have contributed; countries being unable to devalue their currency, they correct imbalances via internal devaluation (in particular lower wages); national trends in wages have direct implications for the achievement of the common objective of price stability (inflation target of 2%). This balance has not been met, despite disparities in wage costs beginning to fall (For the countries concerned, an internal wage devaluation strategy is difficult to maintain in the long-term (as in the case of Spain); it requires a divergent trend in wage costs in countries that have more latitude (in particular Germany). Otherwise, there is a risk of contraction in demand and deflationary trend within the Eurozone.

The alleviation of employers' social contributions has limited impact on employment except for low wages. It is currently used to protect the employment of low wage workers or as an incentive for the

²⁵ Draft joint employment report from the commission and the council accompanying the Communication from the Commission on the Annual Growth Survey 2015

employer to hire special categories as long-term unemployed people or young people. Actually in most of the countries employers' contributions are about zero at the lowest level.

The shift to out the pocket spending does not imply a better allocation of resources. The example of the US shows that a high level of spending in the GDP for health does not reduce the public spending and has a rather limited efficiency. The charge of growing spending (health and LTC) could be not sustainable even for private contributors i.e. insurance plans sponsored by private companies. As long term care shows it, the voluntary coverage in developed countries is fragile and limits the shift to private funding. The positive effect of some voluntary funding of pension funds are indisputable through a direct effect on savings, investment and employment during the period they reach their expected level and less important after. In any case all the States are engaged in an effort to improve the efficiency of social protection, to curb the spending at least for the more dynamic risks viz. health and retirement.

The shift to others resources could be more and more linked to behavioural criteria as described for employer experience-based contributions, or to consumption habits (tobacco, alcohol, soft drinks) or to other expanding revenues as value added tax or environmental taxes. In a global approach every tax would have an effect on the employer or on the employee. The result on the employment would depend on the capacity of the households to accept a reduction in their purchasing power and on the capacity of businesses to develop their sales. Another path to explore is to decrease spending by an active management of employer contributions.

III.1.3 Social contributions paid by employers as a leverage for a reduction of social spending: an opportunity with conditional good outcome

Social contributions are paid by employers with the primary purpose of funding social spending. Beyond their economic impact from the macroeconomic perspective, however, in some cases, social protection financing schemes have also been set up with a view to microeconomic incentives addressed to employers or insured people, to promote behaviours reducing the occurrence of certain social risks and costs associated with them in terms of social protection. The idea is then to individualize part or all of the contributions payable by the businesses or the insured based on the historical costs incurred by them in certain social systems: an employer would be encouraged to take measures that reduce the expenses paid by SP schemes if a good record would be accompanied by a decrease in enterprise's contributions.

Regarding this type of incentives to employers, experiences implemented in developed countries are overwhelmingly linked to insurance "accidents at work and professional disease" and to a lesser extent to unemployment insurance or, more occasionally, to the management of disability or other social risks. On unemployment insurance, it is almost exclusively limited to the US, while for the insurance "occupational accidents and diseases", it is much more widely used.

The experiments of modulation of unemployment insurance contributions

Modulation of employer unemployment insurance contributions in the United States is the most important experience. Its implementation is unique at this level. It applies to all federal states, to almost

all the private sector and became widespread in the 1980s. More recently, more limited modulation experiments were set up in France and Italy.

The most commonly used formula is the so-called "reserve ratio". In this system, an account is established for each company, which traces the expenditure on unemployment benefits due to redundancies decided by the company and supported by the scheme, and revenue contributions which it has paid, with these two flows being calculated over different periods of time (usually over the entire life of the business, sometimes for shorter periods). These costs are reported to payroll itself assessed over different periods depending on the State, and compared to the average contribution rate in the State. The rate to which the company will be submitted depends on the difference between the two ratios. Another approach is the "ratio of payments" which compares the total benefits paid to the payroll during a fixed period (and not on historical). There are also in every state a floor rate and contribution limits that cap, upwards or downwards, the due contributions and induce a certain mutualisation between businesses. This pricing is therefore to modulate the unemployment contributions of a company based on costs actually endured by unemployment insurance: a company that has a history of lay-offs will see its premiums soar, while conversely its contribution would have decreased. In doing so, the system imposes *de facto* dismissal costs to business, but also hiring costs since the increase in the contribution rate for unemployment insurance, which follows a dismissal *ipso facto*, results in increased costs for the future.

The system managed in each State determines the extent to which firms are to internalize the costs they generate for the scheme: it is theoretically possible to consider any kind of rule, from a complete pooling (which translates by a single contribution for each company, regardless of its past layoffs) to a complete individualization of employer contributions (where each company bears the costs of past layoffs). The actual degree of modulation of contributions, like other insurance parameters (eligibility, replacement rate, benefit duration, maximum and minimum contribution rate, etc.), can be quite variable from one State to another, both because they can make different choices, but also because they may be in different economic situations that require them to modify some unemployment insurance provisions. In any case, the full non-individualization and the existence of minimum and maximum rates induce many transfers between companies of different sizes or sectors. Finally it should be noted that a provision allows companies to opt out to not pay contributions, but they directly pay the final costs of the allowances to the bodies in charge of the payment of compensation.

The contributions modulation system is based not on the actual number of redundancies of the company, but on the costs that they entail for unemployment insurance. This characteristic makes important the issue of non-use by the people who would be eligible but do not claim their rights. In fact, the average rate increases from 20% of eligible people in the early eighties to settle around 35% today.

Some companies (especially those belonging to the non-profit sector or certain agencies of the Federated States) and certain employees (e.g. managers of business) may use the "opting out". They then pay only expenses relating to those employees they laid off. This choice favours optimization on the part of corporate behaviour in order to reduce costs under the unemployment insurance: the proportion of people under the "opting out" among the eligible persons increased from about 5% in 2005 to almost 35% in 2012 nationally.

Companies are very careful in the use of unemployment insurance. This can have the effect of increasing the selection of workers favouring those who might be less inclined to use the compensation for dismissal because they could quickly find a new job, with therefore little potential impact on their future contribution rates. As for the workers, it can also be an incentive not to use unemployment benefits to which they are entitled, in order to give a "signal" to a future employer that they will not burden its costs in case of dismissal and thus trying to increase their employability.

More recent and more limited European experiences

Limited experiments have been tempted on specific points in Europe.

In France for example, the "Delalande contribution" paid for dismissal of a worker over 50 years, aimed to discourage the removal of older workers from the labour market, was introduced in 1987. It was completely abolished in 2008. Some estimate that it would rather have had a deterrent effect vis-à-vis the hiring of workers over 50 years. More recently, the National Interprofessional Agreement (ANI) of 11 January 2013 introduced an increase in social unemployment insurance employer contributions for some fixed-term contracts of very short duration. Conversely, the ANI provides exemptions from the employer's unemployment contributions for hiring a young person under 26 years with an open-ended contract: the duration of exemption is three months if 50 or more employees in the business, and four months in smaller companies.

Italy, for its part, had to reform its unemployment insurance system as part of a broader overhaul of devices known as "social shock absorbers" in force since 1 January 2013. This reform fundamentally changes labour law in the sense of a relaxation of dismissal criteria (it includes in particular in its Article 18 a provision of contractual termination by mutual consent). In return, it introduces greater social protection for the benefit of the excluded categories of major collective agreements, including employees of small businesses. The law also creates a new employment contract with a duration of three years, which aims to facilitate the hiring of young people. Certain provisions relating to unemployment insurance funding are consistent with the employment behaviour of firms and the costs they generate for unemployment insurance: the financing reform implementation provides for an additional contribution of 1.4% for all fixed-term contracts and the payment of a lump sum contribution per employee laid off, up to € 500 per year with a three-year limit.

Few other developed countries use individualized modulation of unemployment contributions. European countries where labour regulations are relatively protective, compared to those in force in other areas adherent to the OECD, do not usually establish an incentive for employers to moderate their dismissal decisions. However, the legal or conventional redundancy payments to employees, resemble to a contribution proportional to the number of separations, but without pooling of the contributions paid, as for social insurance schemes.²⁶

Modulation in contributions for occupational accidents and diseases

It is in the field of Occupational Injuries that modulation of contributions is widespread since many developed countries practice individualized modulation of contributions for occupational accidents.

²⁶ The trend is to cap payments related to litigation to limit the uncertainty for the employer

Pricing method based on "experience" is meant as an incentive, for the company, to internalize the costs of work accidents and occupational disease. It is likely to generate for the community and to invest in safety and prevention:

- The management of this risk can be delegated to private operators (Belgium, Finland, Portugal), organized at the level of professional branches (Germany) or be supported by a national public operator (France, Italy);
- Contributions are, in part and to a greater or lesser extent, always individualized and set according to the direct cost of occurring occupational accidents and diseases ("experience rating"). In order not to impose small or middle businesses with excessive premiums compared to their turnover following a serious accident, some systems provide a separating rate of progressive contribution related to the company size. Others (Germany) do not use difference by size of business but implement different pricing schedules depending on the sector, so as the level of risk. Finally, to smooth the consequences of the occurrence of a serious accident in time, the premium paid in year n is generally calculated on accidents occurring during a past period taking into account several years;
- Some systems are organized according to two pillars: insurance against accidents at work contracted by companies and compensation for occupational diseases under the Social Security (Belgium, UK)

Other features of modulation for social contributions paid by employers

For example, in Finland part of the employers' social contributions to retirement scheme depends on company size, age of each employee and also partially on the present value of expenses payable in relation with the number of eligible employees for the early retirement scheme before the age of 65. This modulated component of corporate contributions to pension plans was strongly identified during the pension reform implemented from 2000, the rate of internalization for early retirement charges companies increasing from 50% to 80% for larger companies.

For France, the provisions relating to the consideration of the hardship were introduced as part of the Law of 20 January 2014 "Guaranteeing the future and justice of pension system ". The creation of an account "that will allow the employee to accumulate points when they are exposed to painful working conditions beyond a certain threshold, under certain types of exposure (night work, repetitive work, work in hyperbaric environment, alternating team work schedules, heavy lifting, awkward postures, mechanical vibration, exposure to hazardous chemicals, extreme temperatures or noise). The accumulated points will allow the employees to accede vocational training to apply for an unexposed or less exposed workplace, to obtain a reduction in working time or to benefit from increases in pension insurance periods. To finance these actions and to encourage the development of prevention policies, companies where eligible employees are working must pay a basic fee related to the number of employees effectively exposed at the rate of 0.01% from 2017. An additional fee will be levied with a rate of 0.2% when employees are exposed to a single criterion of hardship and 0.4% from 2017 when exposed to several criteria for arduous work (2017).

Results of international studies on the impact of these experiences modulation

1) Modulation of social contributions paid by employers may decrease dismissals or occupational hazards

The unemployment insurance pricing in the US has led to numerous studies that have assessed its impact on dismissal flows. According to a summary performed by Fern and Margolis (1999), all of these studies concluded to the effectiveness of an increase in individualization of contributions in terms of reduced layoffs. It was able to assess a potential 30% decrease in the number of temporary unemployed - i.e. those with a prospect of re-employment - individual data. Over 20% of the layoffs - temporary as definitive - could be due to contributions' individualization failure. These studies, however, also bring out the fact that wages have decreased in companies that experienced an attenuation of their degree of pooling because they have transferred on employees a significant part of the additional costs of individualization of contributions.

Another point is the impact of the modulation of premiums on fluctuations in unemployment. The underlying idea is that unemployment is a cost for companies, who have to bear part of the consequences of their decisions on dismissals in the form of an increase in their contributions, and therefore their costs. This characteristic could therefore result in limiting fluctuations in unemployment since companies have an interest in reducing their use of redundancy in case of negative economic shock, also limiting their hiring in upturns. The higher the degree of modulation is the more stable the level of employment is. The intuition tells that the effect of the cycle on layoffs / recruitment is lower when pooling is itself lower.

2) In terms of accidents at work and occupational diseases, an impact on the reduction of the claims

- Any mutualisation (or the introduction of franchise arrangements) results in a decrease in the claims, which is both the result of a better consideration of safety, but can also result from increasing under-reporting, it is not always possible to accurately quantify the relative weight of the two effects;
- An increase in the generosity of the benefits encourages further employers to improve health and safety at work (which reduces the claims), and promotes the full exercise by the injured employees of their rights to compensation (this tends to increase claims). Contradictory effects therefore occur when the generosity of compensation varies.

3) The modulation can, however, also cause some difficulties of implementation or undesired

Difficulties of implementation

Imposing the unemployment insurance contribution rate for companies reflecting the costs they generate for the compensation scheme could induce them to search through court proceedings qualification of dismissal as voluntary departure or dismissal for misconduct, cases in which either the employee does not receive compensation or the cost of the latter is not imputed to the company.

In a more general way, Blanchard and Tirole²⁷ argue that "experience rating" systems are exposed to a variety of implementation difficulties. Thus, smaller companies have fewer opportunities to implement actions to prevent dismissals or workplace accidents, and higher contributions can put them into financial difficulty. On the other hand, the gap between the increase in redundancy or accident risks in the company and its incorporation into the rates of contributions required an important historical record in case of modulation based on costs which may encourage some companies to go out of business before it has to pay the increased fee, and resume activity later under another name. It has also been argued that, in the case of the individualization of unemployment insurance contributions, reducing costs in case of decrease in layoffs could affect wage demands in a context where employees would find themselves less exposed to the risk of job loss.

Risk of increase of under-reporting of claims and litigation

The issue of under-reporting is often mentioned in studies on modulation of contributions. They generally find a significant effect on the reported claims, they also recognize that a part, difficult to quantify, of this decline could come from underreporting in cases of individualization of the contribution. Indeed, the expected increase in contributions that follows the claims may encourage businesses to develop strategies enabling them to under-report accidents or layoffs. In the case of unemployment insurance, the phenomenon of non-use (on the part of employees as the use by companies of "opting out") is spreading in the United States since the mid-2000s.

Given the complexity of the regulations and financial issues related to the modulation of the contributions, the development of litigation is also cited as one of the side effects of "experience rating" and raises the issue of legal uncertainty arising from litigation for different players, as well as the difficult and lengthy procedures that affect the ability of the concerned employees to be covered and compensated.

These results lead to a number of lessons, but also questions about the use of the modulation of premiums, especially if their extension is intended to promote employment and its stability.

Key parameters for the implementation of modulation schemes

- It seems logical that the extent of individualization is increasing with the size of the company, not excluding the exemption of smaller businesses from such mechanisms.
- It is also plausible that the modulation is more marked when the risk is likely to be significantly reduced through preventive actions of employers; in this regard, accidents at work are more adapted to "experience rating" than invalidity benefits.
- The depth of the history on which is measured the costs incurred by the company also implies arbitration between (long term) the need for the employer to have a sufficient time for preventive actions affecting costs, with the requirement that higher contributions do not put

²⁷ O. Blanchard, J. Tirole (2003), "Employment protection and redundancy procedures"

the company in difficulty, and (short term) the interest of a relatively small time window to deter opportunistic behaviour of cessation of activity

- The inclusion in prospective contributions of the impact of preventive measures taken by the employer to the extent that they are observable by the insurer could finally be preferable to consideration of the claims on the basis of historical costs.

The appropriate use of modulation also raises a number of questions to which answers do not appear always easy to make²⁸:

- Regarding the unemployment contributions, the study results suggest that the mechanisms of modulation have more relevance on labour markets where the risk of job loss is equally distributed between employees, and where employers have less leeway to select employees in hiring based on their potential risk related to unemployment. Secondly is the duration of unemployment benefit the only indicator to be taken into account in the modulation? Total duration of unemployment may be higher in countries with a significant long-term unemployment, which is likely to generate high social costs beyond the period of unemployment benefits (minimum support, assistance or rehabilitation measures...).

- A second question concerns the interaction between modulation in employers' social contributions and macroeconomic context. In this respect, if the individual risks are not independent, but correlated positively - the most obvious example being the risk of job loss, increases or decreases for all employees in a downturn or upturn in business - the modulation could lead to increase premiums when market conditions are unfavourable, and thus to exert pro-cyclical effects, unless the modulation rules were themselves continuously adjusted according to the average trend of the labour market (which then raise the question of the influence of the variability of the rules on the level of employment).

- Finally, the modulation of social contributions paid by employers raises the question of inter-sector transfers due to the differences in patterns or in productive combinations that characterize each sector: A possible answer would be that modulation is used only as deviation from the average sector indicator which is to be improved. Questioning then becomes that of the trade-off between adapting modulation mechanisms to variability in economic activity and / or the characteristics of the different sectors, and that of the readable and appropriable nature of these mechanisms for social actors, in a context where complexity can lead to administrative difficulties or disputes.

III.2 Contribution of social protection to reduce income inequality in EU countries is conducive to growth and employment

²⁸ Haut conseil du financement de la protection sociale Rapport sur l'analyse comparée des modes de financement de la protection sociale en Europe

In the previously quoted chapter of the OECD document²⁹ the function of social protection as a tool to reduce inequalities is mentioned. The focus on the employment policy and on social protection as a factor of labour costs reduction (with mixed outcomes) could divert social protection from what is its major playground to growth and therefore employment. Excessive inequalities lead to a long term discrepancy between those who enjoy long term employment with a quality at work life, high wages and lifelong learning and those who are excluded and unable to maintain their human capital because of problems related to skills, health or others social dimensions. Furthermore inequality prevents an increasing percentage of the population from contributing to growth because of the lack of purchasing power and the difficulty in contributing to savings and investment. That why it seemed relevant to add some comments about the results of social protection in reducing inequality, which could appear as the most important contribution to employment policies.

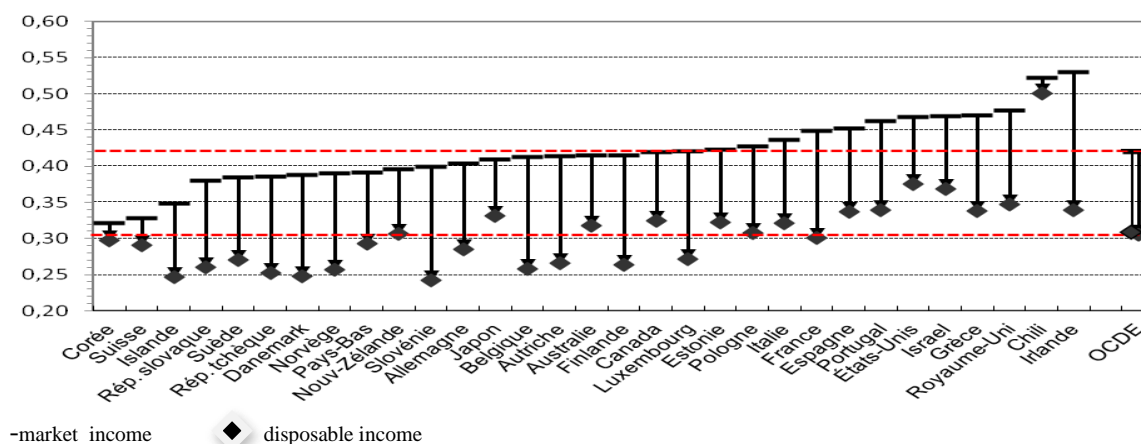
Because of the lack of harmonized data available, the analysis primarily describes the redistributive properties of social benefits in cash, combined with direct contributions on income - and on a complementary basis, those benefits and services in kind. This overview will be based upon the OECD study, which has been updated by the French Ministry for Social affairs.

III.2.1 The redistributive impact of social benefits in cash and direct debits

The OECD studies on the impact of social transfers and contributions on inequality in disposable income allow for deeper analysis of disparities and trends in income inequality in developed countries. They depend on the one hand on the level of "primary" or "initial" income inequality before transfers and contributions, and secondly on the redistributive impact of these transfers and contributions. Some countries such as the Scandinavian countries have low primary income inequality, which allows them to reach low degrees of disposable income inequality with a relatively limited redistributive impact of transfers and contributions. Others such as Ireland are characterized by a high degree of primary income inequality, and must exercise considerable redistributive efforts with transfers and contributions to come near the average of developed countries in terms of inequality of disposable income. France is in the second category of countries with primary income inequality higher than the OECD average, and a significant redistributive impact of transfers and contributions that allows this country to exactly reach the OECD average in terms of inequality in the distribution of disposable income. In contrast other countries with a high degree of primary income inequality (Spain, USA, and UK) remain, due to a limited redistributive impact of direct contributions and benefits in cash, significantly above the OECD average in terms of inequality of disposable income.

²⁹ See point III.1.1 above

Graph 20 Inequality (Gini coefficient) of market income and disposable (net) income in the OECD

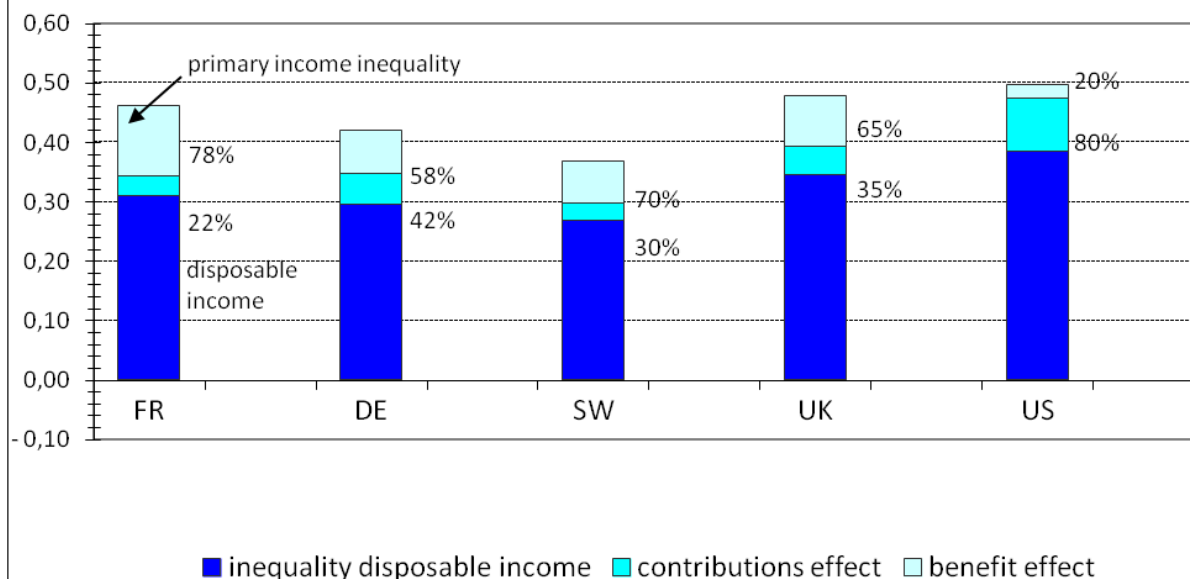


Inequalities of income distribution before and after transfers and contributions in OECD countries for the population 15 to 64

Source: OECD, 2013, "The crisis reduces revenues and sounds on inequality and poverty" www.oecd.org/fr/social/inegalite-et-pauvrete.htm.

Also, when trying to break down the respective outcomes of social benefits on the one hand, and of direct contributions on income on the other hand in reducing the inequality of disposable income, we observe that European countries are characterized by benefits in cash substantially larger outcomes for redistribution than direct contributions. Like Sweden, France seems to particularly accentuate this trend with a contribution of benefits to the redistribution 3.5 times greater than that of contributions, while Germany and the UK experienced a more balanced impact of these two mechanisms. However, there is a sharp contrast with the US where contributions account for 80% of the reduction of disposable income inequality compared to those of primary income. This major contribution in Europe of cash benefits in reducing income inequality explains that the reduction measures of these expenditures imposed within the financial recovery plans implemented from 2010 in some countries may have had the effect of increasing inequalities in the last years.

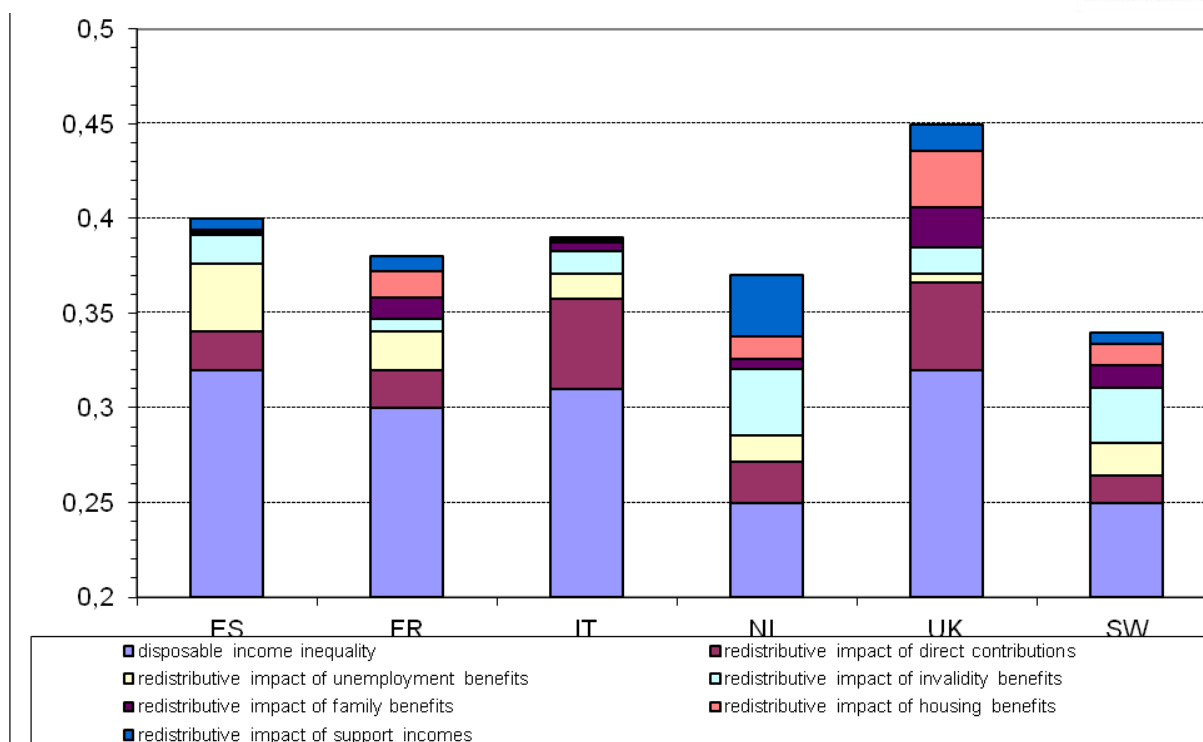
Graph 21 Contribution of social protection benefits and direct contributions on income to the reduction of income inequality



On the same theme, a study made on behalf of the High Council of financing of social protection has exploited the last available wave (Wave 2011 regarding 2010 data) from the European Survey on Income and Living Conditions (EU-SILC). It presents the Gini index on the distribution of living standards before and after these contributions and transfers. It provides contributions and benefits relating to the various risks to the reduction of living standards inequity. These contributions can themselves be divided into a first effect that traces the weight of each transfer in disposable income, and a second effect related to the progressivity of each transfer. Thus, a benefit or a strongly progressive levy may not have a strong effect on income redistribution if it represents only a small share of disposable income.

This analysis shows that, except in Italy where direct taxes account for 60% in the reduction of income inequality, it is social benefits excluding pensions that contribute to the majority of this reduction. This contribution ranges from 40% (Italy) to 84% (Sweden), and is close to 75% in France. The results provide further information on the redistributive impact of the major categories of benefits by risk, to assess whether their effect arises from progressivity of the benefit schedule, or rather from their weight in household disposable income and consequently the mass of income they transfer between individuals. In this regard unemployment benefits still appear as the primary contributors to the reduction of income inequality in most countries. This contribution is particularly large in Spain (45%), due to the high unemployment rate of the labour force. Conversely, unemployment benefits play a weak role in redistribution in the UK (4%), given their nearly flat amount and limited length of award.

Graph 22 Impact of benefits in cash on income inequality reduction



Note: Drees calculations based on Eurostat data (EU-SILC).

III.2.2 The redistributive effect of benefits in kind and services

According to a study published by the OECD in 2012 concerning the specific role of benefits and services in kind provided by governments in reducing inequalities in the income distribution these benefits and services represent a larger average share of national wealth than that of social benefits in cash (13% of GDP, against 11%, respectively). This underscores the great potential to contribute to reducing inequalities of these systems.

In fact, the calculations made in the OECD study assessing the impact of the monetary value of benefits in-kind services reach to 28% of average household disposable income. By themselves, they would contribute to a 22% reduction of income inequality, and of a 40% reduction in the risk of monetary poverty. Health and social services (health, aid for self-care for young children) represent two-thirds of the contribution of all in-kind benefits and services in the reduction of income inequality, with more than half for health services alone. This contribution of health and social services to income redistribution appears particularly substantial in Germany, Belgium and France, and more modest in the Netherlands.

The study also points out that a more global perspective and long term, in kind benefits and services have a second impact, more indirect, on income distribution, improving employment opportunities and pay level of beneficiaries throughout their professional lives in particular through the links between health status and job retention, or the impact of an adequate supply of care facilities for young children on female employment.

III.3 Creating or preserving employment

III.3.1 Reversing the trend of early retirement

The ageing of the population is a major challenge that will be facing most of the European welfare systems in the near future. Spontaneously, an increasing life expectancy will lead to higher expenditure on pensions and healthcare and an ageing society will have fewer younger people who pay taxes and contributions to finance the welfare systems. To use a frequent quotation, the problem is not that people are living longer, but that they retire too early. In Western societies the issue is not only balancing the accounts of the pension funds but also keeping a minimum supply of labour. Even in younger countries employment is not a pie that must be divided among fewer recipients.

The policies which aimed to reduce working time, yearly duration, or the working life could be regarded as a major contribution to people's well-being. When the retirement age was reduced to 60 in France in the 1980s, a blue-collar worker could expect at most two years of retirement. Today it is more than twenty years. If environmental concerns along with the effects of the economic crisis on health, especially on prevention, could lead to a slowing of this growth or even to a decrease in life expectancy, this dramatic progress would not be offset since life expectancy in good health is growing. In general, at the EU level, the number of healthy life years (HLY) at 65 is now quite similar for both women and men, with the EU average for both being 8.5 years in 2012 positively associated with economic growth and social welfare.

This effort is justified by the failure of early retirement policies as employment policies. From the beginning of the economic crisis in the seventies, early retirement was a way to facilitate the redundancies that result from job destructions. Because costs were largely mutualized through taxes or social contributions so that businesses could externalize most of the burden of severance payments, and because it was socially acceptable to see tired workers with a relatively short life expectancy enjoying old age pensions, the measure has been and is still rather popular. It has been working as an "addiction" with early retirement that can be as early as age 45. Hard restrictions dried the flows but some big companies do not hesitate to use this kind of policy through contracts with private insurers or through in house systems. However, costs are internalized and less supported by public spending.

Regarding the effect of early or on-time retirement on the employment of young people, in most of cases the jobs offered, if any, are different and require skills that are not always available. It is possible to have a good impact in expanding companies with a human resource policy focused on precise qualification needs, which however represent a very small percentage of businesses. It has also a negative side effect on middle-aged workers, who have increasingly been regarded as unemployable. If early retirement has helped to maintain the competitiveness of businesses and therefore to safeguard some jobs, it has been detrimental to public and social accounts and sometimes even to the knowhow of the company itself, with a negative impact on social cohesion. Overall, the vacancy rate was decreasing at the worst of the crisis, but has increased in 2011 and remains steady since, reflecting a significant proportion of unfilled jobs despite rising rates of unemployment. The situation is not homogeneous between countries (the situation is more favourable in Germany than in most of the

other EU member countries, including the UK, France, Italy, the Netherlands and Denmark) or between age groups. At the least, better adequacy must be attained through better education and vocational training.

At present, legal retirement age still exists but as a symbolic figure. Direct transition from work to retirement is becoming more and more rare. There are less and less people who move straight from work to pension. Most of the people go through a period of unemployment benefit or disability benefit or “self-employed period” which are not considered as working periods.

Relatively few of these “new retirees” start working again before they reach the statutory retirement age. As a result, some social insurance programs often work in practice as an arrangement to smooth the transition from work to retirement, alongside formal retirement programs. In the last decades of the twentieth century, almost all European countries had strong disincentives to work at older ages because of such social insurance programs.

Since the 1990s, many governments have started to reform welfare state institutions to reduce the disincentives to work as well as encouraging employers to keep older workers (see the Delalande amendment in France – point III.1.3 above, “European experiences”). Hence, these reforms may have contributed to the increase in participation rates of older workers across Europe. Studies have concluded that generous social insurance- and early retirement programs lead to early labour market withdrawal. Furthermore, they have also found that high unemployment rates lead to lower participation rates among older workers in other forms.³⁰ Part-time and self-employment were also used to counterbalance this trend with self-employment acting as safety net.

In 2014, part-time employment in the 28 EU MS amounted to 22.5% of total employment for the 55-64 age group. It is much more common among women (36.4%) than men (11.1%). Part-time work is generally more prevalent among workers aged 55 to 64 than among those aged 25 to 54 (22.5% versus 17.6%). This is the situation in all 28 EU MS, with the exception of Greece, Spain and Italy. The share of part-time work increased slightly between 2000 and 2014 for the age 55-64 years in the EU-28, but this increase was driven by men (in contrast, the share of part-time employment for women decreases for this age group as well as in the countries of Central and Eastern Europe).

In all countries except Estonia, the proportion of self-employment is greater in the 55-64 age group than in the 25-54 group. In 2014, in the EU-28, 20.3% of people in employment aged 55 to 64 years are independent workers, versus 14.3% of people in employment aged 25 to 54 years. For women, the percentage of independent workers among those employed in the EU-28 was 10.0% in the 25-54 age group and 13.3% in the 55-64 group. For men, the proportion of self-employed still differs more between these two age groups: 18.0% for ages 25-54 and 26.0% for those aged 55-64. The independent workforce aged 55-64 increased much more slowly than total employment for ages 55-64 years 2000 and 2014. Their share fell by more than 5 points on average in the countries of the EU-28 (slightly less for countries in the EU-15) over that period while it is fairly stable among those aged 25-54. So policies aimed to increase the participation of older workers must take into account other benefits or non-

³⁰ Jim Been and Olaf van Vliet, Early retirement across Europe: does non-standard forms of employment increase participation of older workers?

conventional employment, which could be a second best for some ageing workers willing to carry on working.

Graph 23 Part-time and self-employment, EU 28

	AGE 55 TO 64 %			AGE 22 TO 54 %		
	T	W	M	T	W	M
PART-TIME EMPLOYMENT	22.5	36.4	11.1	17.6	na	na
SELF-EMPLOYMENT	20.3	13.3	26.0	14.3	10.0	18.0

In any case, pensions are the most reformed sector in social protection with three leverages for public authorities: entitlement rules, level of benefits and retirement practices. Most reforms have changed the rules for future benefits with major changes related to increases in pensionable age and aligning pensionable age with changes in life expectancy. However, in a number of MS, the need for strong efforts to balance budgets continues to have strong implications for pensions in payment and current retirement rules. In this Section, the objective is to give an overview of the latest changes introduced in some MS, actions which can be consolidated into the following six policy levers: a) early retirement rules; b) pensionable age; c) contributory periods; d) level of pension benefits and pension indexation; e) supplementary pensions, and f) improving employment opportunities for older workers.

The main driver behind these reforms is improving the sustainability of the pension systems. Pensions continue to avert poverty for many, though divergence in adequacy and effectiveness remains. Pensions constitute by far the main source of income for older Europeans, who represent a large and growing share of the EU population. They are also the largest element in social protection systems, affecting the primary income of more people than any other component. The total number of pensioners in the EU presently comes to about 120 million or a quarter of the population. Almost 2/3 of these are women. The adequacy of pensions is measured by, among other things, their ability to prevent poverty, the degree to which they replace income before retirement and how they compare to the average income of people below pensionable age.

Regarding the ability of pensions to prevent poverty in old age, in many MS the trend in the income situation of the elderly has been better than for other age groups, since the beginning of the crisis mainly due to the stability of pension income. 23 MS have seen the share of the elderly at risk of poverty or social exclusion decrease by more than 1% between 2008 and 2013. There are, however, three countries that have had increasing rates of poverty or social exclusion of the elderly over the same period – Hungary, Luxemburg and Sweden. In addition, several countries saw increases between 2012 and 2013 (Estonia, Latvia, Luxemburg and the UK), although the general trend remains widely positive with 15 MS recording significant reductions. In terms of actual levels of the share of the elderly living in poverty or social exclusion remain wide disparities remain across MS. In 2013 the share was close to 60% in Bulgaria and above 30% in Croatia, Lithuania, Latvia and Romania, while it was below 10% in Luxemburg and in the Netherlands. It is important to remember that after WWII pensions were the major instrument of the fight against poverty. Retirees were poor or a large proportion of the poor

were retired people, especially women, till the pension schemes reached their full momentum. So the level of future pension benefits is an important marker for the confidence of the active population in the entire social protection system.

Pension systems play a key role in allowing people to maintain their living standards in old age at a level comparable to that achieved during working life. The median relative income of older people (i.e. the ratio of the median disposable income of people aged above 65 to the median disposable income of those aged below 65) has been rather stable in most MS in the latest period with few exceptions. At the EU level the relative median income ratio reached 93% in 2013, but underlying this are substantial differences across countries. The relative median income ratio was below 70% in Estonia, and under 80% in Belgium, Bulgaria, Cyprus, Denmark, Finland, Latvia and Malta. At the other end of the spectrum, Greece, Spain, France, Hungary, Luxemburg, and Romania recorded a relative median equivalent income for people over 65 that were equal to or greater than that for younger cohorts.

Most MS have already put in place mechanisms for a gradual increase in the pensionable age as part of an on-going trend to improve pension sustainability through later retirement and longer working lives and thus also contributing to pension adequacy.

Extending the effective Active ageing measures is of growing importance, as recent pension reforms require longer contributory periods to ensure an adequate pension. Increased employment ensures the accumulation of pension rights and contributes to the sustainability of the pension system. Older workers' employment must guarantee pension rights and pension levels must be adequate in order to combat poverty and social exclusion in old age. This is of particular importance for women. The move towards gender equality in the employment rate of older workers is not mirrored in a broader move towards more equal work patterns. Women, generally, have a lower participation rate, experience a gender pay gap, and more often interrupt their working lives due to child rearing. Female pensioners have a higher risk of poverty than men and, as a consequence of these gender inequalities, women receive lower pensions than men and often fail to qualify for benefits. Therefore, first and foremost, active ageing measures which ensure equal outcomes for men and women are needed, as the lack of progress in activity and employment rates can often be explained by poor employment opportunities and working conditions for older workers which can undermine the incentives embedded in pension systems. Social protection systems which effectively contribute to maintaining the health of the population and provide adequate long-term care also play a key role in enabling participation in society and the labour market, and ensuring independent living by older people. Beyond health services, working and living environments should also be better adapted to the needs of older people, including adapted housing and transport services and home support, which enable the elderly to live independently for longer retirement age.

An important part of ensuring sustainable and adequate pensions in the future, in view of the ageing population and the increases in retirement age, is related to guaranteeing adequate employment opportunities for older workers. This requires efforts related to retraining, life-long learning, improving working conditions to fit the needs of elderly workers, providing reasonable accommodation in the workplace in case of disability, among others. As part of its national employment policy in favour of seniors Luxemburg has introduced a bill on a package of measures in relation to ageing policy, which is

currently in the legislative process. The bill provides for an obligation for employers with more than 150 employees to develop an age management plan which must cover at least three of the following: hiring older workers, anticipation of changing careers, improving working conditions, access to lifelong learning or the transmission of knowledge and skills. Financial incentives are provided. Further to that, programs on increasing the activation of jobseekers have also been developed (e.g. 'fit4job-Restart my career'³¹). Lithuania has developed an Action Plan, which is designed to improve the employability of older workers. The Law on Support for Employment which took effect in 2014 aimed at encouraging employers to put in place measures to support the acquisition of professional skills to retain older employees (50 years or older) in the cases where they train newly hired young people (up to 29 years of age). Romania has recently adopted a National Strategy for Active Aging and Promoting Elderly's Rights for 2015-2020 plus a corresponding Strategic Plan encouraging and promoting active aging in good health conditions and maintaining an active working life for as long as possible.

In conclusion, reforming pension systems has consistently been an important element of the structural reforms agenda for a number of MS since Strategic Social Reporting was rolled out within the Social OMC and the European Semester. Increasing the retirement age has been a priority for all MS. Aligning it with life expectancy is in the process of being analysed or planned for by a number of countries in view of future measures but is not considered by all MS as a solution. Increasingly significant efforts have been focused by some MS on limiting early retirement options, among others through reviewing access to disability pensions and reforming work incapacity schemes in order to facilitate labour market participation and the accumulation of pension rights.

Some countries address the area of indexation, with specific challenges related to elderly poverty and average pension levels, as a tool to contribute to pension adequacy. Other MS focus on increases to minimum pension as a way to strengthen social protection for those most in need. A few MS are stepping up efforts to develop supplementary pension schemes. Few are underpinning their pension reforms through initiatives in the labour market aimed at improving the employability of older workers. Beyond, health services, working and living environments should also be better adapted to the needs of older people, including adapted housing and transport services and home support, which enable the elderly to live independently for longer retirement age.

³¹ Fit4job programme is a project aiming at organizing employability diagnosis of persons losing their employment, to enter into retraining adapted to the needs of the sector and the capacities of the individuals. The first Fit4job programme was for the financial sector (2010). Subsequently, programmes were launched for trade, public works, medical and health personnel. In 2011, a special Fit4job – Restarting career programme was launched for workers aged 45+.

Graph 24 Evolution in legal retirement age in EU MS

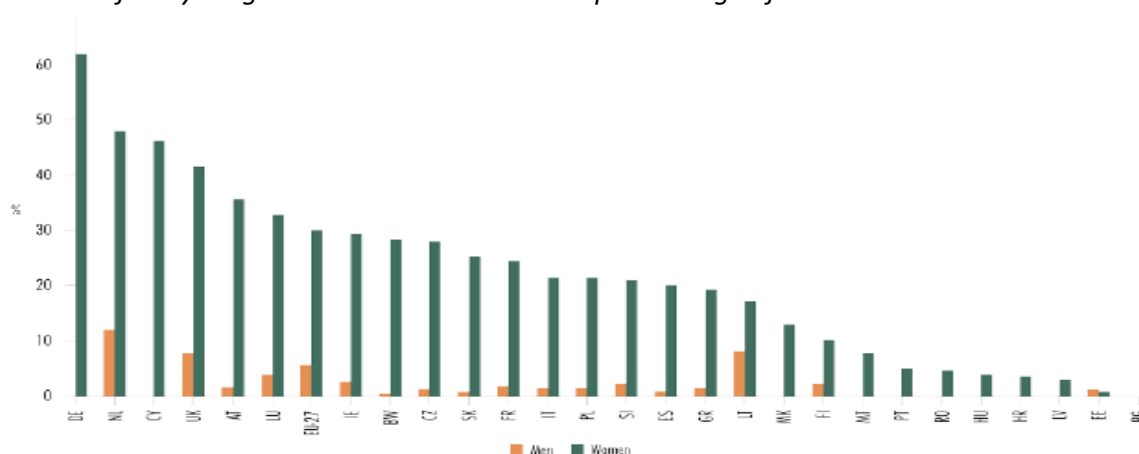
	2009		2013		2020		After 2020	
	Men	Women	Men	Women	Men	Women	Men	Women
BE	65		65		65		67 (in 2030)	
BG	63	60	63y8m	60y8m	64y3m	61y6m	65	
CZ	62	56y8m-60y8m (1)	62y6m	57y8m-61y8m (1)	63y10m	60y6m-63y10m (2)	67+ (in 2044) (3)	
DK	65		65		66		67 (in 2022)+ (4)	
DE	65		65y2m		65y9m		65y10m-67 (in 2029)	
EE	63	61	63	61	63 (in 2016)		65 (in 2026)	
IE	65		66		66		67 (in 2021); 68 (in 2028)	
EL	65	60	67	62	67		67+ (5)	
ES	65		65-65y1m (6)		65-65y10m (6)		65-67 (in 2027) (6)	
FR	60-65 (6)		61y2m		62-67 (6)			
HR	65	60	65	60y9m	65	62y6m (7)	65 (in 2030), 67 (in 2031-2038)	
IT	65y4m	60y4m	66y3m	63y9m (18)	67y		67+ (5)	
CY	65		65		65+ (8)			
LV	62		62		63y9m		65 (in 2025) (9)	
LT	62y6m	60	62y10m	60y8m	64	63	65 (in 2026) (10)	
LU	65		65		65		65	
HU	62		62		64y6m		65 (in 2022)	
MT	61	60	62		63		65 (in 2026)	
NL	65		65y1m		66y8m		67+ (in 2021) (11)	
AT	65	60	65	60	65	60	65 (in 2024-2033)	
PL	65	60	65y1m (12)	60y1m	66y10m-67	61y10m-62	67 (in 2020)	67 (in 2040)
PT	65		65		66+ (13)			
RO	63y4m	58y4m	64y8m	59y8m	65 (in 2015)	61	65	63 (in 2030)
SI	63	61	65	63y6m (17)	65			
SK	62	55y3m-59y3m (1)	62	57y6m-61y6m (1)	62+ (14)			
FI	63-68 (15)		63-68 (15)		63-68 (15)		63-68 (15)	
SE	61-67 (15)		61-67 (15)		61-67 (15)			
UK	65	60	65	61y3m-61y8m	66		67+ (from 2028) (16)	

III.3.2 The positive effect of social protection spending on employment: the example of family and child care and of long term care: increasing the active population and job opportunities

Family and child care

As presented before, the employment rate of ageing people must be increased to cope with the decrease in the population of working age and reduce the retirement benefit burden. In the same way, it is important to achieve a better activity rate for women by securing them a sustainable income both during their activity age and during their retirement. Their activity rate presents considerable room for improvement. In most European countries, the burden linked to raising children fall mainly on women and limits their participation in the labour market. The indicator of people needing to cut back on their working time because of a young child is about ten times higher for women than for men.

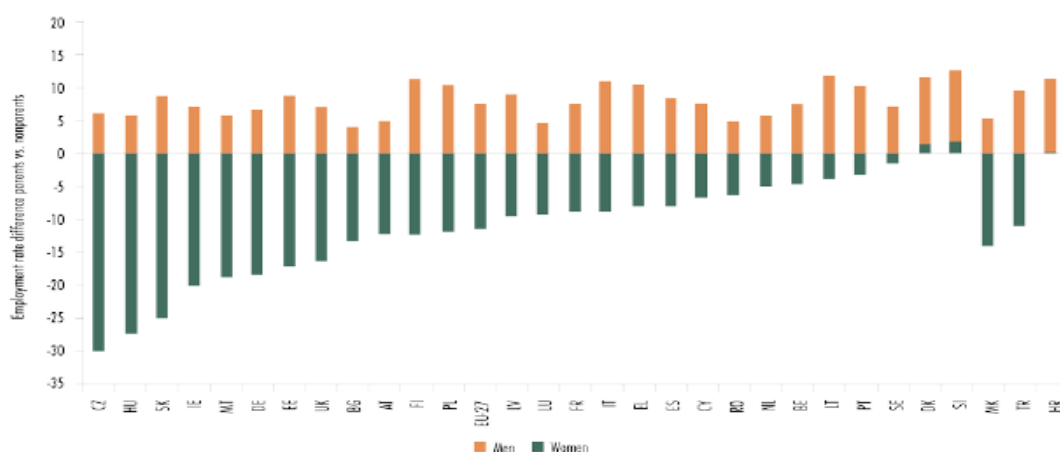
Graph 25 Percentage of men and women aged 20 to 49 who have reduced their working hours to take care of the youngest child in the household up to the age of 8



Source How childcare, parental leave and flexible working arrangements interact in Europe (DG Employment, Social Affairs & Inclusion, European Platform for Investing in Children, 2014)

Another indicator of this obstacle to female participation in the labour market is the employment rate of men and women aged 25 to 45 with and without children under 12. The presence of a child has practically no influence on the activity rate of men but a huge impact on that of women.

Graph 26 Differences in employment rates for men and women aged 25 to 45 with and without children under 12



Under these circumstances, childcare seems to be a major contribution of the social protection system to a better employment rate. First of all, childcare is an investment. Well-schooled children in good health will spare spending on health or on pre-training for employment in the future. Secondly, the social model has changed with more lone-parent households and more and more women are in charge of earning for the family. Childcare has an immediate effect on activity rates, especially for women, with immediate and differed effects e.g. it saves support income for women and improves retirement benefit levels for women or slows the ageing of society. Generally, the fertility rate is higher in Western societies when women are encouraged to work (France). Action on social protection takes place with a broader outlook. Some countries continue to discourage women from taking up work or working more, in particular by providing disincentives for second earners to work full-time because of the immediate decrease in the global employment rate.³² For example fiscal policy could prevent second earners in the household from accepting a fulltime job because of the progressivity of the income tax rate.

Provisions could indeed be introduced into labour law to improve opportunities for parents to reconcile work and family life. In the United Kingdom, the right to request flexible working has been extended to all employees as from 2014. In Poland, a grant for telecommuting – for the employment of unemployed parents returning to the labour market (bringing up at least one child under 6) or those who resigned from work to care for other dependants – was introduced. In Hungary, parents can return to work while still receiving the childcare benefit. In Germany, the parental allowance reform that applies to births from 1st of July 2015 incentivizes both parents to share childcare and work. In liaison with labour law more flexible parental leave could be funded by family schemes.

Other incentives could be introduced to improve women's participation:

- Affordable child care or free schooling during parents' working hours (Malta offers free and universal childcare to families where both parents are working. Childcare is available during the parent/s work hours as well as an extra hour a day for commuting).
- Funding of private or public child facilities by public authorities or social security schemes. In the Czech Republic, the law on child groups aims at easing the creation of child care centres outside of the public kindergarten network

The goal is to extend child enrolment in early childhood care and education as part of their strategies to improve opportunities for children. Germany has made some progress in further increasing the availability of fulltime childcare facilities but only limited progress in increasing the availability of all-day schools. In France, measures targeting families with dependent children have been introduced, such as improving access to school lunchrooms and providing extra day-care centre slots (with 10% reserved for children from low-income households). Ireland has introduced subsidized afterschool child care slots to help low-income and unemployed persons return to the workforce, and created childcare spots for

³² Draft Joint Employment Report from the Commission and the Council accompanying the Communication from the Commission on the Annual Growth Survey 2015

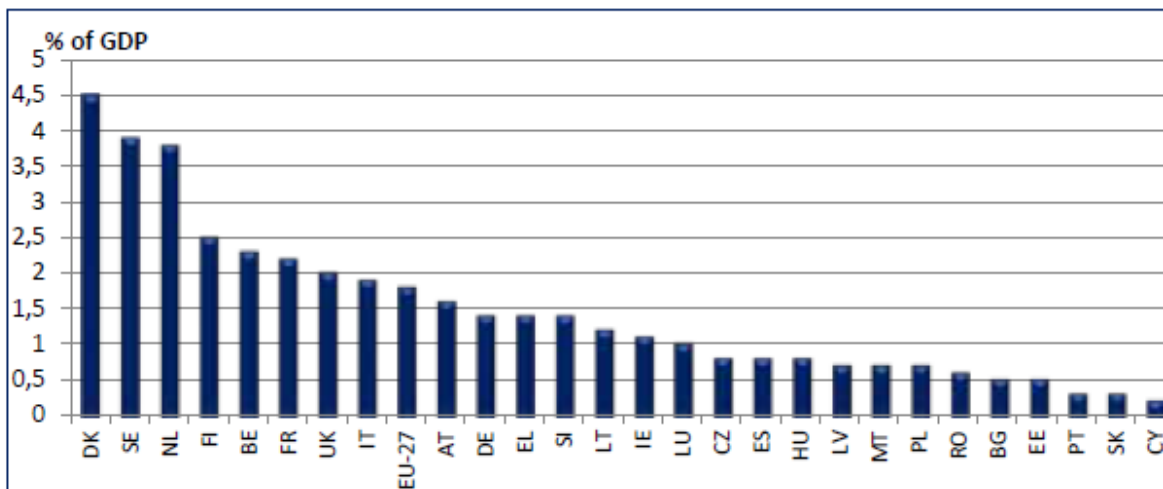
unemployed persons who participate in community employment schemes which provide training and experience to support activation into employment.

The more women are able to work, the higher the fertility rate. Anyway women are ready to leave a job for parenting if they are convinced to come back easily. Too much parental leave could be an obstacle to returning to the workforce. That is why couples are encouraged to split parental leave so that neither of them spends too long off the job, and benefits in kind are redirected to sponsoring facilities for children of working parents.

Development of long term care

Long-term care (LTC) is defined as a range of services and assistance for people who, as a result of mental and/or physical frailty and/or disability over an extended period of time, depend on help with daily living activities and/or are in need of some permanent nursing care. The daily living activities for which help is needed may be the self-care activities that a person must perform every day (Activities of Daily Living, or ADLs, such as bathing, dressing, eating, getting in and out of bed or a chair, moving around, using the toilet, and controlling bladder and bowel functions) or may be related to independent living (Instrumental Activities of Daily Living, or IADLs, such as preparing meals, managing money, shopping for groceries or personal items, performing light or heavy housework, and using a telephone).

Graph 27 Public expenditure on LTC as percentage of the GDP



Source Ageing report 2012

The differences between MS in public expenditure on long-term care mainly reflect differences in the estimated coverage of formal systems of institutional care and informal care. Formal care workers who are paid and work under contract primarily provide long-term care in institutions or at home. In most European countries informal caregivers still provide a great deal of the LTC for older or disabled people. The number of care workers is a good indication of the size of the formal long-term care sector. In 2008, long-term care workers represented only 0.3% of the total working-age population in the Czech and Slovak Republics, compared to 3.6% in Sweden and 2.9% in Norway and Denmark. Even though most care recipients are cared for at home, the majority of formal care workers work in institutions where care intensity is much higher than at home.

This means that child and family care as LTC could contribute to employment both by allowing women or ageing people to participate more in the labour market and also by offering workplaces both in services or facilities dedicated to childcare, ageing or disabled people at different levels of skills from menial work to highly qualified education or health jobs.

Financial support for carers – such as allowances paid directly to carers and cash benefits paid to the care recipient – recognize and compensate carers for their effort, but targeting support to those facing the highest health and labour market risks, and defining appropriate compensation, remains a challenge. Carers’ allowances are cash benefits providing carers income support replacing lost wages or covering expenses incurred due to caring. In the Nordic countries, the payment to carers is akin to remuneration, offering compensation for caring efforts while representing a relatively low wage. In Ireland and the United Kingdom, allowances are targeted to carers with income below a set threshold, or carers who provide a minimum amount of hours of care. While recognizing the societal value of caring, carers’ allowances raise difficult design issues, for example how to set an appropriate compensation level that offers carers a reasonable reward without discouraging labour market participation for working carers. Means-testing and eligibility conditions, for example, may result in disincentives to work. Eligibility criteria need to be clearly spelled out, but the definition of who is the primary carer and the measurement of carer’s efforts are prone to errors. Strict eligibility requirements help to avoid abuse, but can be costly to administer and be viewed as arbitrary. There are trade-offs between how many carers can be compensated and the amount of the compensation that can be afforded by public authorities. Cash benefits paid to the care recipient offer direct support to the person who is most in need, but are not only or necessarily used to compensate carers. Such cash benefits exist in many MS. Cash benefits paid to care recipients have some advantages, because they avoid having to define who the primary carer is. Moreover, the amount of the cash benefit can be more closely related to need. But they also leave carers dependent on the care recipient for compensation of their effort and may change family ties into a relationship where money is the driving factor. Requiring family carers to be employed under formal contracts (France for relatives other than spouses) has the advantage of clearly identifying the primary carer.

III.4 Activating social protection spending

In Chapter 2 the question was raised whether active labour market policies could be included into the scope of social security for the purpose of social security coordination. In this part it has been shown that the utilization of social protection benefits (e.g. disability or retirement benefits) to reduce unemployment has a limited if adverse effect with a significant increase in social protection expenditure. On the European level, the divergence in national performance is often the product of differences in productive and social investment. The countries now experiencing the greatest difficulties are those where investment has been the lowest in research, development, and human capital in the 1990s and 2000s. Expenditure in social investment —health, early childhood, reconciliation of work and family life, education and training, other active labour market policies— are essential in order to stimulate potential growth and to ensure the sustainability of public finances. These differences have very significant cumulative consequences in the medium and long-term, so ALMP must be incorporated into a multidimensional approach that combines the social protection dimension with other policies designed to:

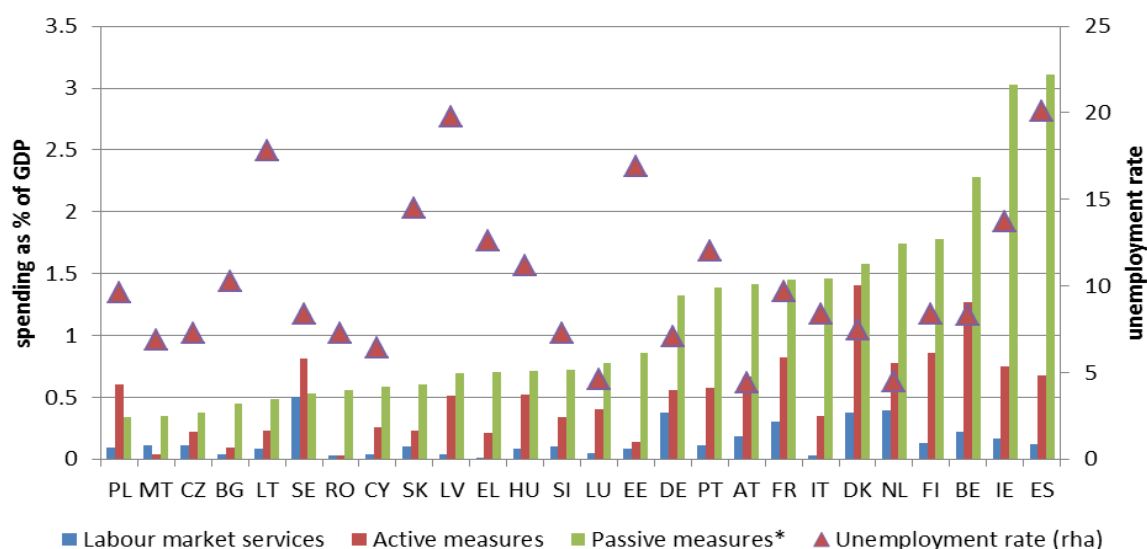
- Effectively activate and enable those who can participate in the labour market,
- Protect those (temporarily) excluded from the labour markets and/or unable to participate in it,
- Prepare individuals for potential risks in their lifecycles, by investing in human capital.

The implementation of Youth Guarantee, which introduces benefits for young people in many MS, is an opportunity to couple benefits with job assistance through better efficiency of public employment services. Many MS are developing rehabilitation programs for disability benefit or support income recipients. Two main concerns must be addressed:

- Even if the frontiers become blurred, when cooperation is needed it is important to keep in mind the main goals of the different policies, decent job for employment, protection for social security and fighting against poverty for social assistance,
- It is the coordination of the different levers that achieved good performance. Countries that have the best results dedicate a significant part of their GDP to labour market services and to active measures, but also to passive measures i.e. unemployment benefits which contribute largely to the reduction of inequalities.

It is the combination of both dimensions of social protection and employment policies that could be efficient. Actually these dimensions are not integrated because they are managed most of the time by separate administrative bodies with a global lack of efficiency. In some countries the solution is sought by merging the services (Germany) or by better coordination (France). Even if four main types of enabling services could be effective in removing such obstacles to labour market participation and in reducing the risk of poverty or social exclusion, they are not sufficiently taken into account: early childhood education and care, life-long learning, housing, and healthcare. Access to quality social services is essential to providing support for those furthest from the labour market in their reintegration into working life as well as ensuring social participation for those who cannot work.

Graph 28 Expenditure on unemployment benefits and ALMP (% of GDP) and unemployment



* Out-of-work income maintenance and support, early retirement Source. Eurostat LMP database

III.5 Tackling undeclared work as part of better coverage of workers

One of the ways to make legal work more attractive is also to tackle undeclared employment. Part of the stress on SP could be linked with an evasion of taxes and contributions that should normally be paid to social security schemes. The example of posting and its side effects on possible fraud in both countries has made the fight against fraud and errors a shared European concern for social security.³³ Undeclared work is defined here as 'any paid activities that are lawful as regards their nature but not declared to the public authorities, for tax, social security or labour laws. **Fighting undeclared work is a challenge in some MS.** Even in the most developed countries the reintegration of undeclared work could bring substantial resources to the social protection system

The undeclared economy as a percentage of GDP seems to be declining but it can account for a high percentage of GDP in certain MS. Undeclared work has major effect on SP systems:

- It deprives the SP system of resources
- Undeclared work and other atypical forms of employment such as bogus self-employment tend to distort fair competition among firms, paving the way for social dumping inhibiting the creation of regular employment with full social protection
- It allows the access of benefits to people who have not contributed to their funding
- It fails to adequately cover long-term risk such as pensions.

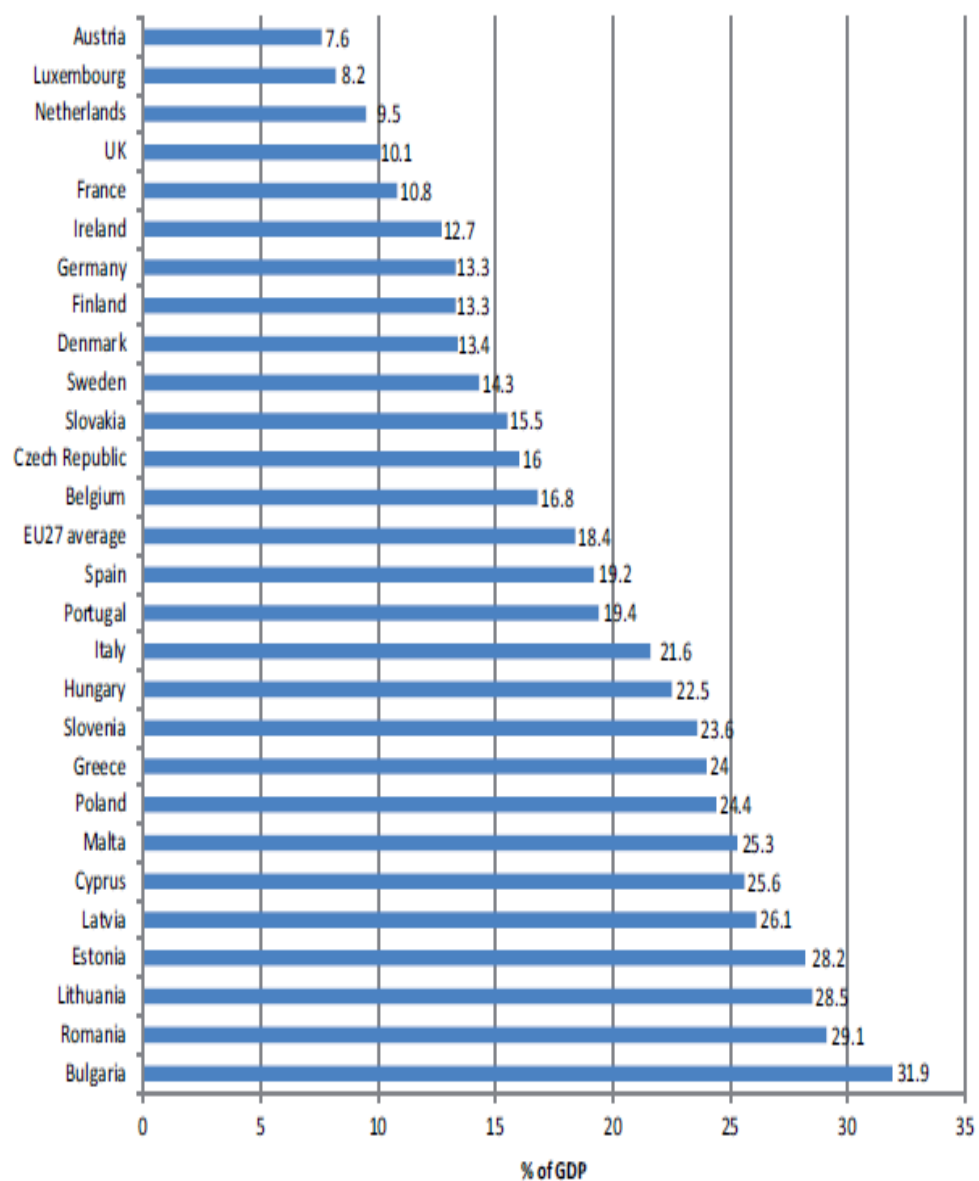
It also undermines the confidence of the people in the government and in solidarity. If we move to the labour market, it does not even facilitate a return to work for unemployed people as undeclared workers are often already employed.

Forms of undeclared work are diverse within a formal or informal enterprise. This can be either wholly undeclared, where all one's wages are paid 'off the books', or partially undeclared, where a portion of the wage from one's formal employer is paid officially and a portion off the books ('envelope wages'); undeclared work for an enterprise or another client such as a household, conducted in a similar way to self-employment; [more](#) socially embedded own-account undeclared work, delivering goods and services directly to consumers who are neighbours, kin, friends or acquaintances.

The scope of intervention is wide but deterrence is still the major component of the policy. Many innovative policy measures have been implemented in certain countries, which could be transferable to other countries. These have been included in the expanded knowledge bank of good practice policy measures available with the quoted overview report from Eurofound.

³³ Eurofound Tackling undeclared work in 27 European Union Member States and Norway Approaches and measures since 2008

Graph 29 Share of the undeclared economy % GDP 2012



Source Eurofound

Conclusion

In its current form, the European social model characterized by the coexistence of multiple logical (insurance and assistance) and financing sources (contributions and tax) is challenged by unemployment. The model has been said to reach its limits and to be facing a solvency and efficiency crisis with the rise of individualistic values and increasing inequality among citizens. The questions that are arising today to answer these challenges are manifold. Responses should consider the choice of economic model, but also the effects in the EU of globalization, which is submitting our social model to the test of competitiveness.

New risks appear, not only temporary unemployment but also long term exclusion from the labour market and the multiple dimensions of contemporary inequalities (social, economic, generational and regional) could change the model. The fight against inequality could be enlarged in the social model (inequality income but also access to public services, education...) while the social protection model base is increasingly being questioned.

The activation of social expense and individualization puts emphasis on individual responsibility and autonomy. These principles are questioning the organization of the welfare state, encouraging a move from a collective approach to an individual logic, from logic of solidarity to logic of responsibility. Underemployment through new forms of work raises the issue of whether work can remain central to the model (issues of portability social rights and securing career paths). This question is all the more central as participation in the labour market does not always guarantee decent living conditions. The temptation is to focus public intervention on those most in need, which requires some commonly agreed social assistance criteria pursuant to the basis of social protection. Such a view implies a consensus on the definition of those situations that require public intervention. This involves defining the scope of social entitlements within public intervention and organizing their portability. The objective is to strengthen social cohesion and to establish a kind of moral contract between individuals and society. The fact remains that, in a context of budgetary constraints, the participation of everyone in collective production is vital to the sustainability of the financial model. Therefore, solidarity should also be a reflection on the rights and duties that go with it. In France despite good achievements, the pros and cons have never been really presented.

The Nordic model, which was under strain at the beginning of the crisis with a high level of unemployment, is faring rather well because of a strong consensus:

- Appropriate mix in goods and services, which could support highly skilled workers with high salaries
- A high level of public service workers funded by a rather high level of taxes accepted by a population whose limited size has developed a tradition of collective bargaining.

On the other hand, the UK has achieved some impressive results with a limitation of wages but better integration into the labour market and improvement of certain public services (health, education) through a wide-reaching government communication campaign.

What social risks should the community meet? What respective weight should the social model grant to the principles of universality, contributiveness, and redistribution? What targeting criteria to retain to identify poor individuals beyond mere income test? What counterparts for solidarity work, investment in associative activities, civic service etc.? What is the place of work in the model (activation spending support, resources allocated to securing career paths, level of protection)? What balance between private and group insurance? Should we define a common set of protection complemented by an optional welfare system *à la carte*?

These are some of the questions that must be addressed, to which answers are in the end very much dependent upon national choices.

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ANNEX I Break down of the SP resources by contributor

	Public contributions	Social contributions	Social contributions covered person	Social contributions employer
ESTONIA	21,5	78,5	1,9	76,7
CZECH R.	26,5	73,5	23,7	49,7
NETHERLANDS	33,5	66,5	34,1	32,4
LITHUANIA	34,2	65,8	15,9	49,9
SLOVENIA	35,7	64,3	38,2	26,1
AUSTRIA	35,7	64,3	26,7	37,6
FRANCE	36,7	63,3	20,3	43,0
GERMANY	36,9	63,1	29,6	33,5
BELIGIUM	37,8	62,2	20,3	41,9
POLAND	37,8	62,2	18,9	43,4
SLOVAKIA	39,1	60,9	19,2	41,7
LATVIA	41,7	58,3	17,5	40,8
UE27	43,8	56,2	20,1	36,1
HUNGARY	44,0	56,0	20,1	35,9
UE15	44,1	55,9	20,1	35,9
ESTONIA	44,9	55,1	12,1	43,1
ITALY	47,0	53,1	14,8	38,2
LUXEMBOURG	47,4	52,7	24,5	28,2
GREECE	49,5	50,5	20,3	30,2
FINLAND	52,6	47,4	12,0	35,4
BULGARIA	52,7	47,3	16,2	31,1
ROMANIA	53,6	46,4	14,0	32,4
MALTA	54,5	45,5	16,7	28,8
SWEDEN	54,8	45,2	9,6	35,6
PORTUGAL	55,0	45,0	15,1	29,9
UNITED KINGDOM	56,0	44,0	12,8	31,2
CYPRUS	61,3	38,7	16,0	22,7
IRELAND	72,3	27,7	7,4	20,3
DENMARK	76,6	23,5	11,7	11,8

Source: Eurostat-SESPROS.

ANNEX II Is the creation of special insurance for the payment of wages and social security contribution in case of bankruptcy likely to decrease the reluctance to offer job opportunities?

The question of securing the wages and social security contributions has been addressed by a Directive 2008/94/EC on the protection of employees in the event of the insolvency of their employer³⁴.

In Europe the question is significant. As a part of the Schumpeterian movement of activities³⁵ it could be better for the entire economy to let down unprofitable activities to reallocate investment to more promising activities. In any case it is important to secure first the right to social protection of the employees, the resources of the social security organizations and the claims of the employees.

Without elaborating on the first two points it is possible to say that in countries with residence based system the rights to social protection are secured without regard to the situation of the employee. In the Bismarckian countries the rights of the employees are secured during a determined period or through safety net provisions. For the resources of the social security tax or contributions are often preferential debts. Mutualisation is the main factor to secure the right of the employee to deferred benefits. Pension fund based on companies could fail.

For protection of the employees' claims the directive introduces an obligation for the MS to establish a body that guarantees payment of the outstanding claims of the employees concerned. The state of insolvency should be defined in the light of the legislative trends in the MS and that concept should also include insolvency proceedings other than liquidation.

According to a report for the period 2006-2009, the national guarantee institutions intervened in more than 420 000 cases of insolvency. In the same period, 3.4 million workers benefited from payments of the guarantee institutions on account of the insolvency of their employers. Moreover, the guarantee institutions have paid out 17.7 billion euro to those workers. The average number of workers per case in the period 2006-2009 was eight, while the average amount paid to each worker by the national guarantee institutions was 5 187 euro.

The Commission notes the significant increase in the number of cases between 2008 and 2009 (+19 %) and, above all, the number of workers (+ 61 %) and the money spent (+ 72 %), which can be attributed to the economic crisis. The average size of the companies becoming insolvent in 2009 also increased (from 7.4 workers per case in 2008 to 10.0 workers per case in 2009, i.e. an increase of 35 %) as well as the amount of unpaid remuneration (from 5 059 euro per worker in 2008 to 5 409 euro per worker in 2009, i.e. an increase of 7 %).

While Germany is the Member State with the highest number of cases (146 673 in the period 2006-2009), France accounts for the highest number of workers (953 887 in the period 2006-2009) and the most money paid out (6.4 billion euro).

³⁴ [EUR-Lex%20-%2052011DC0084%20-%20EN%20ags.html](#)

³⁵ According to Schumpeter (1883 – 1950) Creative destruction describes “the process of industrial mutation that incessantly revolutionizes the economic structure from within.”

The Directive applies to all persons considered to be employees according to national law including part-time employees, workers with a fixed-term contract and workers with a temporary employment relationship. Exception are allowed provided that other existing forms of guarantee offer the persons concerned a degree of protection equivalent to that resulting from the Directive (Article 1(2)). Three MS have made use of this possibility: In Belgium workers and apprentices of businesses which are members of several joint committees or sub-committees are excluded from the protection of the general Guarantee Fund but are protected by sectorial funds established by collective agreement. In Cyprus non-resident merchant navy crews are excluded. In the United Kingdom, merchant seamen are excluded. The Commission considers that the ‘maritime lien’ which appears to be the main protection provided to seafarers in these two MS in case of insolvency of the employer may not always offer a degree of protection equivalent to that of the guarantee institution since the value of the vessel may in some cases not cover the minimum amount of outstanding claims provided for by the Directive. It is also the case for domestic servants employed by a natural person and share-fishermen, provided that such exclusions existed already in national legislation at the time of the entry into force of Directive 2002/74/EC in the Member State concerned (Article 1(3)). The Commission notes that share-fishermen are excluded in Greece, Italy, Malta and the United Kingdom; domestic servants are excluded in Spain, France, Malta, the Netherlands and Poland.

An employer is deemed to be in a state of insolvency (Article 2(1)) if:

- A request has been made for the opening of collective proceedings based on insolvency of the employer, as provided for by national law, and involving the partial or total divestment of the employer’s assets and the appointment of a liquidator (or a person performing a similar task);
- The competent authority has decided to open the proceedings (or has established that the employer’s business has been definitively closed down and that the available assets are insufficient to warrant the opening of proceedings).

The claims to be taken over by the guarantee institution are outstanding pay claims arising from an employment contract and relating to a period prior to and/or after a given date determined by MS. Bulgaria, the Czech Republic, Denmark, Greece, Malta, Portugal and Austria have fixed a reference period of six months before the request for insolvency to which the claims must relate; Poland uses a reference period of nine months; Italy and Latvia a period of 12 months; Slovakia, Ireland and Lithuania a period of 18 months; Cyprus uses 78 weeks; Belgium uses a period going from 12 months before the closure of the company to 13 months after it. Several MS have not fixed a reference period but just a date before and/or after which the claims must relate to. This is the case with Estonia, France, Germany, Luxembourg, Hungary, the Netherlands, Romania, Slovenia, Spain, Finland, Sweden and the United Kingdom.

Definition of the term ‘pay’ is left to national legislation, which leads to differences between MS as to the extent of the guarantee. Nevertheless, national law must respect the general principle of equality and non-discrimination when specifying the benefits payable by the guarantee institution. It exclude sometimes severance pay, bonuses, reimbursement arrangements, etc.

By setting ceilings on the payments made by the guarantee institution, provided that these ceilings do not fall below a level which is socially compatible with the social objective of the Directive (Article 4(3)). All the MS have fixed such ceilings with the exception of the Netherlands, but the method of calculating the ceilings varies greatly. The Directive contains no precise stipulations in this regard. However, as the Commission acknowledged in its report on the implementation of the Directive of 1995, it is assumed that if guarantee payments were in the final analysis equivalent to welfare payments or to the statutory minimum wage, problems of compatibility with the social objective of the Directive might arise.

By construction the guarantee is designed to protect the employees. The introduction of this kind of insurance increases the contribution on the wages but nonetheless it could have a positive effect on employment:

- By prodding people to accept job in start-up or small businesses whose growth is not foreseeable
- By easing the solution of collective proceedings by alleviating the charges for the business when the collective proceedings allow the continuation of the activity. The company liabilities are not increased by the salary debt towards the redundant employees.

The International Labour Organisation (ILO) adopted the Protection of Workers' Claims (Employer's Insolvency) Convention, 1992 (n.173) which Chinese text is available from the ILO website <http://www.ilo.org/global/standards/lang--en/index.htm>

ANNEX III Unemployment rate EU28

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014
EU-28	9.2	9.3	9.0	8.2	7.2	7.0	9.0	9.6	9.7	10.5	10.9	10.2
Euro area	8.9	9.1	9.0	8.4	7.5	7.6	9.5	10.0	10.1	11.3	12.0	11.6
Belgium	8.2	8.4	8.5	8.3	7.5	7.0	7.9	8.3	7.2	7.6	8.4	8.5
Bulgaria	13.7	12.1	10.1	9.0	6.9	5.6	6.8	10.3	11.3	12.3	13.0	11.4
Czech Republic	7.8	8.3	7.9	7.1	5.3	4.4	6.7	7.3	6.7	7.0	7.0	6.1
Denmark	5.4	5.5	4.8	3.9	3.8	3.4	6.0	7.5	7.6	7.5	7.0	6.6
Germany	9.7	10.4	11.2	10.1	8.5	7.4	7.6	7.0	5.8	5.4	5.2	5.0
Estonia	10.3	10.1	8.0	5.9	4.6	5.5	13.5	16.7	12.3	10.0	8.6	7.4
Ireland	4.6	4.5	4.4	4.5	4.7	6.4	12.0	13.9	14.7	14.7	13.1	11.3
Greece	9.7	10.6	10.0	9.0	8.4	7.8	9.6	12.7	17.9	24.5	27.5	26.5
Spain	11.5	11.0	9.2	8.5	8.2	11.3	17.9	19.9	21.4	24.8	26.1	24.5
France	8.6	8.9	8.9	8.8	8.0	7.4	9.1	9.3	9.2	9.8	10.3	10.3
Croatia	14.2	13.9	13.0	11.6	9.9	8.6	9.2	11.7	13.7	16.0	17.3	17.3
Italy	8.4	8.0	7.7	6.8	6.1	6.7	7.7	8.4	8.4	10.7	12.1	12.7
Cyprus	4.1	4.6	5.3	4.6	3.9	3.7	5.4	6.3	7.9	11.9	15.9	16.1
Latvia	11.6	11.7	10.0	7.0	6.1	7.7	17.5	19.5	16.2	15.0	11.9	10.8
Lithuania	12.4	10.9	8.3	5.8	4.3	5.8	13.8	17.8	15.4	13.4	11.8	10.7
Luxembourg	3.8	5.0	4.6	4.6	4.2	4.9	5.1	4.6	4.8	5.1	5.9	5.9
Hungary	5.8	6.1	7.2	7.5	7.4	7.8	10.0	11.2	11.0	11.0	10.2	7.7
Malta	7.7	7.2	6.9	6.8	6.5	6.0	6.9	6.9	6.4	6.3	6.4	5.9
Netherlands	4.8	5.7	5.9	5.0	4.2	3.7	4.4	5.0	5.0	5.8	7.3	7.4
Austria	4.8	5.5	5.6	5.3	4.9	4.1	5.3	4.8	4.6	4.9	5.4	5.6
Poland	19.8	19.1	17.9	13.9	9.6	7.1	8.1	9.7	9.7	10.1	10.3	9.0
Portugal	7.4	7.8	8.8	8.9	9.1	8.8	10.7	12.0	12.9	15.8	16.4	14.1
Romania	7.7	8.0	7.1	7.2	6.4	5.6	6.5	7.0	7.2	6.8	7.1	6.8
Slovenia	6.7	6.3	6.5	6.0	4.9	4.4	5.9	7.3	8.2	8.9	10.1	9.7
Slovakia	17.7	18.4	16.4	13.5	11.2	9.6	12.1	14.5	13.7	14.0	14.2	13.2
Finland	9.0	8.8	8.4	7.7	6.9	6.4	8.2	8.4	7.8	7.7	8.2	8.7
Sweden	6.6	7.4	7.7	7.1	6.1	6.2	8.3	8.6	7.8	8.0	8.0	7.9
United Kingdom	5.0	4.7	4.8	5.4	5.3	5.6	7.6	7.8	8.1	7.9	7.6	6.1
Iceland	3.3	3.1	2.6	2.9	2.3	3.0	7.2	7.6	7.1	6.0	5.4	5.0
Norway	4.2	4.3	4.5	3.4	2.5	2.5	3.2	3.6	3.3	3.2	3.5	3.5
Turkey	:	:	9.5	9.0	9.1	10.0	13.0	11.1	9.1	8.4	9.0	9.9
United States	6.0	5.5	5.1	4.6	4.6	5.8	9.3	9.6	8.9	8.1	7.4	6.2
Japan	5.3	4.7	4.4	4.1	3.8	4.0	5.1	5.0	4.6	4.3	4.0	3.6

ANNEX IV Regulations for experience based contribution for accident at work and occupational disease

Country	Principles	Pricing
Germany	Compulsory insurance organized by professional branches	Contribution rates decided in each professional sector with distinction by risk class. Bonus-malus system for businesses based on the comparison of contributions to the costs they generate
Belgium	Accident at work compulsory insurance scheme managed by private insurance companies. Occupational diseases are managed as part of a public fund.	The calculation of the premium reflects the risk group. For large companies, pricing is individual and based on past claims experience of the company
Finland	Delegate mandatory insurance system to private insurance.	Tiered pricing according to risk and individualization of premiums for large companies based on the claims experience of the previous five years
Great Britain	Public mixed system (for the "no fault") and private (for civil liability) managed by insurance companies.	Tax funding for the public system.
Italy	Compulsory public system under the Ministry of Labour	Highly individualized pricing with bonus-malus system.

ANNEX V The economic analysis of accident insurance and occupational diseases: principles and effects

1. The principles involved

The accident at work/occupational diseases insurance is an insurance form that emerges in case of accident at work to exonerate the employer from liability (except for wilful misconduct) by providing a right to compensation for the affected worker. Like all other types of insurance, the AWOD insurance is subject to information asymmetries between agents: the initial health conditions of workers are poorly known (including by themselves), compliance to safety measures by the employees can be difficult to verify for businesses, and the insurer, public or private, can only imperfectly monitor the proper implementation of security measures announced.

These asymmetries may have several implications for the risk coverage:

- If the agents (companies and employees) are insured, they may be tempted to pay less attention to security as they will be indemnified against the consequences of their actions (a phenomenon known as the "ex-ante moral hazard");
- Once the accident, companies may seek to prevent, report and workers may be tempted to "increase" the severity of the accident (a phenomenon known as "moral hazard ex post");
- Companies or workers experiencing the lowest levels of risk may have no interest in joining an insurance scheme that pools the costs associated with accidents or workers with businesses experiencing the highest levels of risk (phenomenon known as "selection downpour").

Pricing will have to be implemented so that the various agents involved in the prevention of Occupational Injuries are interested in reducing the consequences, i.e. adopt behaviours that reduce at the same time the probability of occurrence of an accident and its potential seriousness.

The problems of "moral hazard" (changing behaviour of agents who are insured) lead insurers (public or private), which can only imperfectly observe preventive behaviour within companies, to seek incentives resulting in sharing the cost among the insured (the companies in the case of AWOD) and the insurer: frequent claimants, who have a risk level higher than average in the industry to which they are part and which are a priori little inclined to prevention, are thus charged a higher premium.

Regarding adverse selection problems, they can be solved by providing compulsory insurance to prevent companies knowing the lowest risk not to make a choice made in France as in most developed countries where occupational Injuries insurance (whose management can be supported by private operators as insurance in Belgium, Finland and Portugal, organized at each of the professional branches as in Germany, or by a national public operator as in France or Italy) is mandatory membership.

2. The potential effects and empirically observed modulation

Abundant literature has addressed various aspects of the AWOD insurance, and in particular the modulation of contributions, and many empirical studies (mainly North American origin) sought to assess the effects on various parameters such as frequency, duration and compensation claims, the impact on wages or labour supply.

2.1. *The expected effects on the behaviour of employees and employers*

Insurance can affect both the number of staff accidents as well as the reported accidents (which may differ because of over- or under-reporting). The studies highlight several potential effects.

For a given wage level and a given level of security expenditure, an increase of AWOD compensation may be likely to lead some employees to less expand their accident avoidance efforts. Conversely, a generous insurance can also be designed to increase investment in health, which will mean that fewer people will be excluded from the accident or disease, and the supply of work can bear a positive impact especially in the most accident-prone areas.

On the employer side, in case of individual modulation of pricing, an increase in contributions will result in an additional effort for the prevention or control, but also an incentive to under-reporting of accidents, phenomena all the more pronounced when the level of individualization is itself higher.

Moreover, the effects of pricing type can also be observed on the side of labour demand, for reasons similar to those applying for unemployment insurance, with which the AWOD insurance shares some similarities. An independent pricing in claims (as is the case in France for small businesses) can have a positive effect on labour demand (since businesses will not endure the effects of an increase in the probability of accident or dismissal), but also more volatility (since enterprises are more likely not to adjust their labour demand down if they do not bear the costs directly). Conversely, a type of pricing "experience rating" is likely to lead to both a lower level of employment and less variability of it.

2.2. *Empirical effects observed in the American and French studies*

As we have seen, the theory often provides ambiguous consequences of pricing the AWOD assurance on the level of claims or the level of employment. Only empirical studies can determine the relative intensity of adverse effects that lead to changes in interest rates or changes in pricing mode.

The empirical studies relate primarily to the North American case. They may relate to a state data, an industry or a company located in different States and subject as such to different regulations. They seek to link the observed rate of loss (or certain types of accidents or diseases) to different variables related to demographics, industry, social (union), and business and of course the intensity of the degree of individualization contributions.

Three main conclusions can be drawn:

- Less pooling in pricing the insurance (either by introducing a mechanism that links the premium paid to the observed loss, either by introducing franchises) results in a significant decrease in the frequency of reported occupational accidents. This decline is both the result of a better consideration of safety by employees and businesses but also, probably, an increase in underreporting.
- Increasing the AWOD level of compensation has more complex implications. It certainly makes an improvement in the health and safety of employees at work (increasing the level of compensation increases the cost of insurance which is reflected in higher premiums for employers, prompting them to invest in safety), but it can also result in increasing the observed level of reporting of accidents by reducing the incentive to underreporting of these. Empirical work (including a US study on data) seem to clearly show an increased level of compensation increases statements but reduces the actual number of work accidents.

The first is a study of DREES³⁶ that uses the historically founded difference in pricing between Alsace Moselle and the rest of France³⁷ in the field of Occupational Injuries insurance as an attempt to demonstrate a differential loss between the two areas does not conclude that this is due to the influence of pricing. But this result may in part be related to the premium calculation (consideration of a past, sometimes quite distant in the calculation of the contribution for evil to link claims observed in a given year and the contribution rate actually paid).

A second reference is a doctoral thesis in *économiques*⁴² Sciences, which uses data on pricing set up following the 1995 reform, affecting the degree of mutualisation for firms between 10 and 300 employees. It highlights that:

- Individualization was more effective in small businesses of the least accident-prone areas ("non-food trade", "banking and financial services", "administration", "health" and "cleaning" in the study) than in small business of the riskiest sectors ("metallurgy", "construction" and "career" in the study): this observation is interpreted as the result of relatively lower safety investments and easier to implement in the little accident-prone areas than in areas that are more at risk.

- Increased individualization of corporate contributions between 20 and 300 employees has resulted in a significant increase in litigation.

A full assessment of a more individualized pricing method would require to take into account the behaviour of recourse to litigation, facing a law whose complexity can promote the development of disputes, and the underreporting of phenomena which are the subject a periodic assessment as part of the *ad hoc* commission established in Article L. 176-2 of the social security code. It evaluates the costs borne by health insurance under conditions that should fall under the Occupational Injuries Insurance and unsupported due to underreporting, amount to be a compensatory payment to health insurance and is taken into account in determining the elements for calculating the contribution payable for accidents at work and occupational diseases.

³⁶ Directorate for Research, Studies, Evaluation and Statistics in the French Ministry for Health and Social Affairs.

³⁷ The region of Alsace and Moselle was attached from Germany from 1871 to 1918, and from 1941 to 1945 – a certain number of German inspired legislation, derogatory of French law, have been kept in the local legal corpus, including for pricing in Employment Injury Insurance.

3. Pricing for contributions in Germany, Italy and the United States

3.1- The pricing in Germany

The insurance is organized by professional branches within industry funds (the "Berufsgenossenschaften" or BG), whose activity is regulated by legislation that requires each unit BG its contribution rate (bonus-malus). It also establishes the possibility to introduce financial incentives for companies that have a significant action on safety. Within this legal framework, BG are prohibited from making a profit. Dues are fully individualized by company (the size is not taken into account), calculated on the basis of actual expenditure of the insurer during the past year, according to categories of risk and fixed once and for all (but still subject to appeal by the company). All costs (accidents at work, commuting accidents, occupational diseases) are included in the calculation.

Within this framework, BG have wide latitude of application and can suggest different mechanisms of financial incentives affecting premiums (no-claims bonus, incentives such as discounts, rebates or subsidies):

- The no-claims bonus is calculated by comparing the load imposed by a company in which BG is adherent to the average burden of member companies in the same section. The boards of directors of each BG are free to exclude or to consider certain types of costs (commuting accidents, severity of accidents reported, and types of occupational diseases) in the calculation of bonuses and penalties and to modify the application (for example by limiting the increase in penalty rates or lower bonus). Thus in 2013 the sectorial BG Sugar industries modulated from -50% to + 60% its bonus-malus while that of Papermaking was -10% to + 40%;
- Additional features offered by BG which aim to induce or reward prevention efforts: there may be discounts or bonuses granted by example for the use of safer machines, training in occupational safety and health to increased protection devices against noise, internal prevention campaigns, etc.

These invitations are selected, managed and administered by BG depending on the characteristics of the branches they support and binding goals established by directors of BG.

3.2- The pricing in Italy

The insurance is mandatory and managed by a public institution, INAIL (National Institute for Insurance against Accidents at work). Pricing must ensure the balance between revenue and expenditure. The companies are divided into four sectors (industry, crafts, services and "other activities"), each with its own contribution rates grid, corresponding to the national industry average risk. Each sector is further divided into risk groups, the rates (calculated on the payroll of the company) varying between 0.5% and 16% (data for 2012) by risk group. Setting rates ignores the workforce, large and small firms in the same risk class being required to contribute at the same rate.

The device includes two Italian financial incentive mechanisms: bonus-malus and aids prevention.

- The bonus-malus system is based on past claims experience, with a dual limit on the possible variation rate. First, the difference between the own claims to the company and the average loss of his risk class is particularly taken into account when the company employs a large number of employees. On the other hand, the change in rate possibly is limited (the ceiling for this rate of change is from 7% for companies with fewer than 100 employees to 20% for those over 500 employees since the 2000 reform). The rates are symmetrical upwards (malus) and downwards (bonus) so that the largest companies (where the loss ratio is the lowest in general) benefit outweigh the small bonus. To alleviate this problem a second floor was set to the device. The two combined applicators apply the maximum rate of no-claims bonus ranging from 22% for smaller firms (under 10 employees) to 35% for those with over 500 employees.

- The second mechanism takes into account the prevention measures, chosen in the catalogue of INAIL, established the previous year. Each share is accompanied by a "score" (a number of points) that entitles you to a certain amount of discount on contribution due, even stronger when the company is small. This second device is subject to targeted financial assistance towards SMEs alone, agricultural and craft businesses, and on compliance with the law programs, as well as on training and information. Such aid must necessarily be supplemented by own funds of the company.

In total, by combining the two mechanisms (no-claims bonus and rebate under preventive actions), the maximum modulation that can be obtained varies between 52% (for companies up to 10 employees) and 42% for companies beyond 500 employees.

3.3- The insurance in the US

Companies are required to subscribe for their employees an insurance covering costs and compensation of an accident or occupational disease. A federal regulation is defined by Occupational Safety and Health Administration (OSHA) and implemented by each State under the authority of the insurance commissioners. The employer underwrites insurance with the insurer, generally private (with the exception of five States), but the States may exempt certain categories of companies (very small businesses in general) or workers (farmers, for example). OSHA has also been able to authorize certain large companies or sectors of companies with very low loss to self-insure.

The system has faced since the late eighties a very rapid cost growth, itself caused by the explosion of medical costs and increased procedures of "class action" for new categories of occupational diseases (consecutive to exposure to asbestos, for example). These factors led to concern with the reduction of occupational hazards in companies, employers wishing to contain their insurance premiums, and insurers face higher compensation and increased competition in the market, trying to restore their margins. This led to the emergence of contracts with franchise and the introduction of mandatory mechanisms "experience rating of" in over half of the States. It is however the companies sensitive to their public image and the emergence of a workplace safety consulting market which contributed to the significant improvement in the situation and a decrease in the loss ratio over the last 10 to 15 years. However, this decline in the number of workplace accidents (-42% between 1990 and 2003) did not allow a parallel decline in the cost of the warranty due to medical inflation and rising litigation (the presence of a lawyer in a dispute related to a labour accident increase by 12 to 15% of the cost of the latter).



ANNEX VI Trend in employment rate of older worker

In the EU-28, the employment rate of people aged 20 to 64 years, which is the age group target under the Europe 2020 Strategy, experienced different phases between 2000 and 2014: it rose sharply from 2002 to 2008 (from 66.7% to 70.3%) and the trend reversed, with a marked decline until 2010 (68.6% that year) followed by virtual stagnation until 2013 (68.4%) and a "rebound" from 2013 to reach 69.4% in 2014. In the vast majority of countries in the EU-28 (excluding Denmark, Ireland, Greece, Spain, Cyprus, Portugal, Romania and Slovenia), the employment rate 20-64 increased between 2000 and 2014.

In the vast majority of countries in the EU-28 (with the exception of Greece, Cyprus, Portugal and Romania), the rate of employment of older workers 65+ increased between 2000 and 2014. In average for the EU-28, it raised from 36.9% in 2000 to 51.8% in 2014, with, however, significant differences between countries, regarding the level reached in 2014 (34.0% in Greece to 74.0% in Sweden) and the developments over the period (-6.4 % for Romania to 28.0 % for Germany and 29.2 % for Bulgaria). The employment rate of older people within the EU-28 has increased by nearly 15 points between 2000 and 2014, much faster than the employment rate of 20-64 years. Contrary to the last crisis, the employment rate of people aged 55 to 64 in the EU-28 has increased steadily since 2000. In particular, the trend remained upward during the sharp decline phase of the employment rate for 20-64 year olds between 2008 and 2010. Since 2010, the employment rate of 55-64 years is increasing at a faster pace. The population aged 55 to 64 is not homogeneous in terms of the labour market situation. The employment rate decrease indeed sharply with age: in 2014, the rate of employment 55-59 was 65.7% in the whole EU-28, against 36.6% for the 60-64.

Sweden has the highest employment rate in 2014, both for the age group 55-59 (81.9%) and the 60-64 (66.0%). The weakest employment rates are observed in Greece for the age group of 55-59 years (43.9%) and Slovenia for the age group of 60-64 (18.9%).

Until recently, the "critical age" of termination was 60 years in average within the EU-28, the decline in the employment rate between 59 and 60 years was more significantly pronounced than the decrease among each age from 55 to 59 years or between 60 and 64 years. But because of the increase in employment rates for seniors of all ages between 2000 and 2014, age 60 no longer appears as the "critical age" of employment termination and only persists a relatively sharp decline in the employment rate between 64 and 65 years.

Following various reforms in the retirement ages in Europe between 2000 and 2014 in the EU-28, the 55-59 employment rate increased by 18 points for women and 9 points for men, while the increase of employment rate 60-64 was more homogeneous, 13 % for women and 15 % for men.

For women, the increase in the age for ending employment between 2000 and 2014 is stronger for the younger age within 55-64. This can match the gradual increase in the employment rate of women over generations, which reflects in the age group of 55 and older the gradual closure of derogatory mechanisms to enable women (not just mothers) to leave early in certain countries (Italy and the United Kingdom in particular)

ANNEX VII Median relative income ratio for the elderly, 2008, 2012 and 2013

		EU 28	EU 27	EA 18	BE	BG	CZ	DK	DE	EE	IE	EL	ES	FR	HR	IT
2013		0.93	0.95	0.94	0.76	0.76	0.85	0.76	0.89	0.69	.94	1.04	1.00	1.03	0.88	0.97
2012- 2013 % change											N.A.		N.A.			
2008- 2013 % change		n.a.	9.4	9.3		15.2	7.5	8.6		11.3	18.9	20.9	17.7	7.4	17.3	9.1
	CY	LV	LT	LU	HU	MT	NL	AT	PL	PT	RO	SI	SK	FL	SE	UK
2013	0.77	0.77	0.81	1.13	1.03	.79	.90	.95	0.98	0.94	1.04	0.87	.90	.78	0.81	0.87
2012- 2013 % change	10				8.2								11.1			
2006- 2013 % change	30.5	45.3	34.1	16.5	5.0	8.2	7.1	8.0		13.3	22.4		13.9	8.3		17.6
Source: EUROSTAT - SILC																

ANNEX VIII Redistribution effect of social protection

	Inequality of market income (↗)	Inequality of disposable income	Change (m-d)/m
Slovak Republic	0,380	0,260	32%
Sweden	0,385	0,270	30%
Czech Republic	0,386	0,253	34%
Denmark	0,388	0,248	36%
Norway	0,391	0,257	34%
Netherlands	0,391	0,293	25%
Slovenia	0,399	0,242	39%
Germany	0,403	0,285	29%
Belgium	0,413	0,258	38%
Austria	0,414	0,266	36%
Finland	0,415	0,263	37%
Luxembourg	0,420	0,272	35%
Estonia	0,423	0,322	24%
Poland	0,427	0,308	28%
Italy	0,437	0,321	27%
France	0,449	0,301	33%
Spain	0,452	0,337	25%
Portugal	0,462	0,339	27%
Israel	0,469	0,368	21%
Greece	0,471	0,338	28%
United Kingdom	0,477	0,347	27%
Ireland	0,530	0,339	36%

ANNEX IX Inequality in Income Distribution

	Gini index Disposable income	Gini index Disposable income +benefits in kind	Effect of redistribu- -tion	OF WHICH (total 100% of Effect)				
				Health benefit	Education	Child care	Social housing	LTC
GERMANY	0,300	0,249	-16,9%	61,5%	30,2%	7,1%	1,8%	-0,6%
AUSTRIA	0,270	0,220	-18,5%	56,8%	34,1%	7,6%	1,6%	
SPAIN	0,340	0,276	-18,7%	60,4%	32,1%	5,3%	0,5%	1,6%
FINLAND	0,270	0,220	-18,7%	57,8%	23,0%	5,3%	0,5%	13,4%
ITALY	0,320	0,259	-19,0%	48,4%	41,1%	7,9%	2,6%	
NETHERLANDS	0,270	0,218	-19,2%	42,2%	33,3%	9,4%		15,1%
SLOVAKIA	0,250	0,200	-19,9%	60,8%	33,7%	3,0%	2,5%	
POLAND	0,320	0,256	-20,0%	43,0%	49,5%	5,5%	2,0%	
ESTONIA	0,310	0,246	-20,6%	56,3%	31,1%	6,8%	1,9%	3,9%
GREECE	0,340	0,270	-20,6%	46,6%	28,6%	2,4%	22,3%	
CZECH REP.	0,260	0,206	-20,8%	63,9%	24,5%	7,7%	3,8%	
LUXEMBOURG	0,270	0,213	-21,1%	50,7%	36,0%	10,9%	2,4%	8,3%
BELGIUM	0,260	0,204	-21,7%	65,9%	20,3%	6,9%	6,9%	
DENMARK	0,250	0,196	-21,8%	45,9%	26,1%	5,0%		22,9%
FRANCE	0,280	0,217	-22,5%	57,8%	25,8%	8,0%	4,9%	3,6%
PORTUGAL	0,370	0,286	-22,6%	60,2%	35,4%	4,0%	0,4%	
HUNGARY	0,260	0,201	-22,8%	46,1%	36,0%	12,3%		5,7%
UNITED K.DOM	0,330	0,254	-22,9%	54,6%	30,6%	3,1%	4,8%	7,0%
IRELAND	0,320	0,246	-23,2%	53,9%	43,5%	0,4%	2,2%	
SWEDEN	0,240	0,183	-23,8%	52,1%	23,5%	6,3%	0,4%	17,6%

ANNEX X ACTUALITY OF BASIC INCOME

Two national situations in Europe embody the extent of the debate on social protection far beyond the usual terms.

In the **Swiss Confederation** a referendum was held in June 2016 about the implementation of basic income, the unconditional basic income (UBI). Even though the vote was negative, it is usually considered that the fact that it could be held and receive a far from negligible support is already a significant development. For its proponents it would have replaced many existing welfare programs. Given to everybody, no questions asked, it would eradicate poverty and dependence on welfare. However complementary programs, like unemployment insurance would still exist. The UBI could also play the role of a micro-credit, covering the costs of existence and thus favouring the success of young businesses. The parents, the children and the people who take care of close friends can thanks to the UBI better take care from each other. The UBI encourages cultural and artistic life as well as research and innovation, which are the foundations of Swiss prosperity. The UBI would allow us to choose a job depending on its advantages and conditions. It would eliminate the obligation to accept any job just to survive. The UBI would give many people the security to choose part-time work, thus allowing other people to get a job too. The UBI would democratize higher education and allow everybody to educate themselves for their entire life.

In **Finland** the Finnish government is considering a pilot project that would see the state pay people a basic income regardless of whether they work. The scheme is of particular interest to people without jobs. In Finland, they now number 280,000 - 10% of the workforce.

For now the government has committed to implement a basic income experiment through KELA, the Finnish government agency in charge of welfare benefits. According to Kela it aims to find feasible options for an overhaul of the social security system in response to labour market changes. Some of these trends include the growth of temporary contracts and freelance work that is not covered by the current work-based benefits structure. The experiment will also explore how to make the system more effective in terms of providing incentives for work, and avoiding poverty trap (benefit recipients are discouraged from taking up employment, if the additional income received from a job is only marginally higher than means-tested benefits). Another goal is to reduce bureaucracy and simplify complex and costly procedures for administering benefits.

The experiment will be carried out in a context marked by three years of economic downturn, which has led to rising unemployment and pressures on public spending. A working group has been created with the task of providing a preliminary study that will lead to the actual experiment. The study will identify a model for basic income to be tested. The experiment will evaluate the effects of giving a basic income to members of different population groups, and produce an overall cost estimate. The experiment is scheduled to start in 2017. Different scenarios were considered:

- Full basic income replaces almost all insurance benefits with a rather high level of income
- Partial basic income replaces almost all insurance benefits with a minimum level equal to the present day minimum benefit (550 euro a month °)
- Negative income tax through additional transfers through taxation

There are several ideological positions behind these proposals. Some look for a simplification of the existing system and spare of managing costs. Some see to secure a minimum support income due to the scarcity of work in post-industrial societies. Some think that a better allocation of the social protection spending will be reached through the empowerment of individuals, free to choose the kind and the level of coverage they need for social security risks.

NB. In the mid nineteen-seventies, a similar programme was introduced in the province of Manitoba (Canada) where it lasted until 1979 and its abolition by a newly elected conservative Government. Another experiment is being tested in Oakland (USA). See <http://www.newyorker.com/magazine/2016/06/20/why-dont-we-have-universal>

ANNEX XI European Legal framework on social and employment questions

Europe's sustainable development, based on balanced economic growth and price stability, and on a highly competitive social market economy, aiming at full employment and social progress (Article 3 Treaty on the European Union TEU);

- Combat social exclusion and discrimination, and promote social justice and protection, gender equality, solidarity between generations and protection of children's rights (Article 3 TEU);
- Promote economic, social and territorial cohesion, and solidarity among EU countries (Article 3 TEU);
- Ensure economic and social progress by common action to eliminate barriers that divide Europe (Preamble to TFEU); and
- An objective of constantly improving people's living and working conditions (Preamble Treaty on the functioning of the European Union TFEU).

Article 153 TFEU gives the Council the power to adopt directives, but not directly applicable regulations, setting out minimum requirements in relation to social security and social protection of workers. To date, this power has not been used. If it were used, it would be subject to the limits set out in Article 153(2) which excludes any harmonisation of national laws and Article 153(4) which prevents the adoption of any provision that would affect the right of each Member State to define the fundamental principles of their social security system, or significantly affect the financial equilibrium of the social security system of the Member State. Unanimity in Council is also required for any such directive.

Building on the existing mechanisms for economic, employment and social protection coordination, in 2010 Member States adopted the *Europe 2020 Strategy* (EU2020) 'to support smart, sustainable and inclusive growth'. This sets ambitious EU-level objectives on employment, innovation, education, social inclusion and climate change/energy to be reached by 2020.

The coordination of employment policy as part of EU2020 takes place under the broader umbrella of the European Semester, a yearly cycle of economic policy coordination and surveillance. Member States and the Commission jointly report on progress against agreed Europe 2020 EU-level targets, including raising the employment rate to 75%, and lifting at least 20 million people out of the risk of poverty and social exclusion.

The coordination and surveillance process involves presentation of Member States' reform plans to the Commission and other Member States, and the production of a National Reform Program report. The European Parliament again has no formal role.

Following the submission of the National Reform Program reports by Member States, which give an account of each Member State's progress against the previous year's Country Specific Recommendations, as well as other developments and plans, the Commission prepares annual Country Specific Recommendations (CSRs) for each Member State. The CSRs are discussed by Member States, including at the Employment and Social Protection Committees, then by Ministers at the relevant Council and are then endorsed by Heads of State and Government at the European Council, before formal adoption at the end of June or in early July. This timing is intended to allow the recommendations to be available to Member States before they finalise their plans and draft budgets for the following year. Nevertheless, CSRs are non-binding on MS.

ANNEX XII – FRANCE, FIT BETWEEN RISKS AND RESOURCES IN SOCIAL PROTECTION – FOUR SETS OF SCENARIOS

1. Set 1: Scenarios that primarily conduct to a clarification of the social contributions and wage costs borne by households and businesses

An orientation would be to reallocate between the branches of social protection existing social contributions borne by households and businesses to improve coherence between these resources and the expenditure they finance. Since they do not alter the nature and the total contribution paid by households and businesses, these scenarios do not affect macroeconomic aggregates such as activity and employment, or affect the distribution of income among households.

- Scenario 1A:

A decrease in "family " benefits contributions paid by companies to balance increased "old age" benefits contributions is also supported by the businesses and reallocation of taxes attributed to these branches between the "old age", "health" and "family" branches; the option to integrate health in this reallocation of taxes allows to go further in clarification of the financing of social protection, focusing behavioural taxes (alcohol, tobacco taxes ...) on in this branch and then to transfer to the «family" branch large revenues such as part of the VAT(value added tax) or the CSG(contribution sociale généralisée a tax on incomes dedicated to social protection); a second option would be to reduce transfers to the" old age" benefits and transfer the equivalent part of CSG to the "family" branch

Scenario 1B:

Conversion of "family" contributions paid by firms in social contributions or CSG supported by employees, offset by an increase of gross wages that would leave everything unchanged, the net salary of all employees and total labour costs for all businesses,

Scenario 1C:

A decrease in "family" contributions paid by companies to balance increased "old age" contributions supported by the companies, itself balanced by a decrease of "old age" contributions paid by employees, and ultimately completed by an increase of the CSG on activity income

2 Set 2: Scenarios that reallocate social contributions borne by households leaving the overall levies borne by them unchanged.

The purpose would be to consider a different distribution between households of social contributions paid by them without affecting levies on businesses.

The stakes of this scenarios set are not macroeconomic, except at the margin in case of significant changes in the distribution of income among households whose propensities to consume and to save would be very different. They do not comprise either as such modifications of the allocation of revenues to the various branches of social security, but are focused on the potential of social security

contributions for reduction of income inequalities between households, which will be assessed using micro-simulation tools.

- Scenario 2A:

As in the previous scenario1C, a decrease of 'family' contributions paid by business, offset by increased "old age" contributions also supported by companies, balanced by lower "old age" contributions paid by the employees, and accompanied by an increase in CSG

Not only on earned income but on all household incomes (activity income, benefit in cash and asset), with potential redistribution between households depending on the composition of their income;

- Scenario 2B:

introduction of progressive social contributions paid by employees depending on their salaries, for an unchanged overall yield of these contributions, which could be considered either through a progressive scale of certain contributions or through a modification of the proportion of capped or uncapped contributions;

- 2C scenario:

Introduction of an escalation of the CSG on the activity income with an unchanged overall yield of the levy;

- 2D scenario:

A management of escalation of the CSG on benefits in cash, from the current three level scale, to eliminate the significant threshold effects that appear from the exemption threshold to the reduced CSG rate and to the standard rate;

- 2E scenario:

An expansion of the base of social contributions on asset incomes, to include non-taxable income, the capital gains on securities in the event of donation or transfer or "fictive rent" corresponding to the advantage created by the free occupation of housing by its owner.

The scenarios of the next two sets mostly consider additional reductions of social contributions paid by employers. The objective is an elimination of employer social contributions for the financing of the family branch combined with a clarification of financing. These sets include scenarios in which social contributions for relief of companies are financially compensated for social security schemes by raising respectively levies borne by businesses and households. A variant of these scenarios would be associated with payroll tax relief and reduced public spending.

Concerning contributions relief, a decisive parameter of their macroeconomic impact lies in the form they would be likely to take, depending on the wage distribution, taking account of the existing tax or contributions relief that are largely focused on modest salaries, and on the other hand economic

analyses that highlight an substantially stronger impact on employment when these reductions are related to the bottom of the wage scale.

3 Set 3: scenarios that carry out relief or reorganisation of social levies paid by companies leaving the withdrawals supported unchanged

In this perspective, this third set includes scenarios that have in common to reallocate the social contributions paid by companies, usually by reducing the share directly supported by the labour factor, the overall amount of these levies however unchanged. The issues they raise are macro-economic, since the planned reforms can alter the impact of social levy on the relative costs of production factors. It should also be taken into account for assessing these scenarios, their different impacts depending on the size and sector of business activity. Their consequences in terms of changes in the distribution of household incomes are by construction pointless,

The following scenarios belonging to the set 3, calibrated to deliver the same amount of revenues to social protection schemes could thus be analysed:

- Scenario 3A:

A re-articulation of general reductions in social security contributions borne by employers and the tax credit in place in France leads to interactions between social contributions for businesses, results of the companies and amount of the corporate income tax; if the macro-economic impact of this scenario is probably limited to medium-long term it raises issues however because of significant transfers between firm size and industry sector (some of them are not eligible for tax relief), and feasibility related to the difference between the immediacy of social contributions cuts and the delay needed for the company to enjoy the benefit of the tax relief ; This scenario can also be an opportunity to analyse the articulation of targeted social contribution exemptions on sectors or geographic areas especially if the tax relief would amplified ; it implies in any case to reallocate to the corresponding amount to social security schemes resources

- Scenario 3B:

Individualized modulation of social security contributions for businesses, according to parameters such as the ratio of "payroll / value added" or history hiring and firing in every business, in order to use the social levy for the purpose of encouraging employers to develop employment;

- 3C scenario:

An expansion of the base of social contributions paid by employers, for example, the entire value-added businesses.

Set 4: Scenarios that introduce relief of social contributions with transfers between companies and households

The fourth set proposed possible developments of the financing of social protection. Reductions in social security contributions paid by employers would be compensated for social protection schemes at least partially provided through additional levies paid by households. The scenarios introduce potentially

cumulative macroeconomic impact given the reductions in social contributions planned and redistributive impacts between the various categories of households. This set potentially covers the following scenarios calibrated to ensure revenue unchanged amount to social protection schemes:

- Scenario 4A:

Lower social contributions paid by employers, offset by increases in social contributions payable by employees, possibly more progressive contributions in relation with the salary (see above the comments Scenario 2B);

- Scenario 4B:

Lower social contributions paid by employers, offset by raising the CSG; it could cover all or part of income today taxable for the CSG (income from work, benefits in cash, assets, gains from gambling), and in the case of the CSG on income from work may be greater through a progressivity of the scale (see above mentioned observations about 2C scenario);

- 4C scenario:

Lower social contributions paid by employers, offset by increase in the VAT rate, according to various forms of action on the reduced rates, intermediate or normal;

- 4D scenario:

Lower social contributions paid by employers, offset by raising other taxes borne by households, such as taxes environmental or behavioural.

Annex XIII SOCIAL SECURITY AND EMPLOYMENT - CHINESE MAIN FOCUS OF INTEREST

Since the late seventies China has progressively introduced a « modern » social protection system³⁸ as a key element for China's transition to a market economy and the Chinese leadership intends to further expand it as part of a transition to an internal consumption centred economic model. At the same time it is clear that the « new normal » economy and the desirable shift from a two-digit, export-oriented basis to a more modest, internal consumption centred economic model is a challenge for both the labour market, and the social security system. As China implements reforms under the “new normal,” maintaining stability in the labour market is a priority. Thus, the Chinese leadership is looking for an approach that balances the needs and limitations of a restructuring labour market, with the need to provide its citizens a better access to social protection and social services.

Although the Chinese labour market has long appeared to be resilient, in part because of an expanding service sector, there are signs that the Chinese labour market is becoming less performing. Low-skill jobs are not offered in such abundant numbers anymore, while growing numbers of mobile working population have difficulties to keep salaried employment. As the Chinese leadership has recognised the need to address overcapacity in the manufacturing sector, they count on the continuing expansion³⁹ of a more labour-intensive service sector to absorb redundant workers as to keep unemployment under control. The development of rural provinces might also act as a safety valve, especially since redundant migrant workers are expected to return to their home provinces⁴⁰ due to the *hukou* system. Rapid population ageing also provides some relief within this context, as by 2020-2025 China's surplus labour is going to shrink to the point of elimination.

However, in order to achieve this China will have to improve the functioning of its labour market. Labour mobility is counteracted by bureaucratic rules, including fragmentation of the social security system. Since rules are not necessarily applied identically in different locations, differentials in social security coverage may be seen as an element in competitiveness, hence a tool in promoting local employment opportunities (coverage may be in some place accepted for a few risks, not for all risks, controls may be stricter in some places, looser in others, inclusion of all elements of remuneration in contributory base may be enforced differently in different locations, etc.). The labour market is also fragmented; as various hurdles (administrative, cultural, societal, economic, human reasons) make transitions between labour market segment segments very difficult if not impossible.

Social security is generally seen mostly as a cost, not as a tool for labour market integration, fighting crisis or facilitating labour mobility. Despite a low overall percentage of GDP spent on social protection programmes (around 5%), employers claim the nominal contribution rate of 23% is too high⁴¹. Workers

³⁸ A system not based on employers' liability but with collective financing and risk sharing.

³⁹ In nominal terms, service output grew by 11.6% year-on-year in the first nine months of 2015, whereas manufacturing grew by just 1.2%.

⁴⁰ In 2008, at the height of the global financial crisis, tens of millions of migrants simply went back to rural areas.

⁴¹ Although there is in fact no or little control on declared contributory amounts, while part-time jobs and temporary jobs are exempted.

are still reluctant to contribute to the general scheme since salaries are low⁴² and they see no immediate or longer term interest given the fact that there are alternative schemes providing for medical coverage and even for minimal pensions. Lower growth rates and growing labour market uncertainty no doubt reinforces this reluctance to fund social security, while the revenue from social contributions is dropping.

At the same time labour market restructuring increases the need for social protection and social services. Unemployment benefits and pensions for aged workers cushion the social and economic impact of labour market restructuring, while employment services are vital in reallocating redundant workers. Opportunities for training, retraining, skills upgrading, vocational rehabilitation etc. are in more demand.

Moreover, a modern social protection system, which acts as an automatic stabiliser during economic downturns, might be essential for China's « new normal » economy with its emphasis on internal consumption. Social protection provides replacement income that smoothen consumption during recessions and thus prevents a deepening of recessions due to collapsing consumer confidence and its negative effects on domestic demand.

A modern social protection system is grafted on the labour market and thus improves labour market functioning. Employment services assist job seekers and help reconcile labour market supply and demand. Unemployment benefits protects workers against the financial impact of job-loss and helps them maintain their employability during a spell of unemployment, while improving their chances to find a job matching their skills. Access to health-care services helps workers to maintain their health, while sickness and invalidity benefits protects them against the financial impact of sickness or accidents, so they can be more easily return to employment once they have been cured. Maternity leave programmes provide working mothers with the time needed to deal with the requirements of parenthood, while retaining the link with their employers, thus reducing their chances of dropping out of the labour market altogether. Contributory social insurance schemes promote formal employment throughout worker's professional careers. In general, social protection provides a framework for the professional career and indeed the life-course of workers and their families.

QUESTIONS THAT ARE PARTICULARLY RELEVANT TO CHINESE POLICY MAKERS

- **Limiting or expanding social security protection:** Are there commonly agreed upon indicators or thresholds on optimal social security programmes from an employment promotion viewpoint, for example in relation to GDP, population covered, level of benefits? Is there any evidence of an adverse influence of too developed social security protection on the labour market – or conversely of too weak social protection negatively influencing the labour market? It is realistic to suggest a social security protection not predominantly financed through labour based

⁴² It is true that the lowest basis for contributions (60% of local average wage with ceiling at 3 times local average wage) can be high in low-skill employment units.

contributions concerning benefits intended at replacing lost income? Is it legitimate to transfer part of social security coverage to voluntary provisions, in order to alleviate the burden of compulsory social security contributions on the enterprises?

- **Employment creation:** How can social security contribute to more and better employment (mobility – vesting and portability, reintegration on labour market after prolonged unemployment, direct job creation – social work, more balanced use of resources, productive investment of funds, counter-cyclical action)? Is the creation of special insurance for the payment of wages and social security contributions in case of bankruptcy likely to decrease the reluctance to offer new job opportunities?
- **Using social security as encouragement for employment creation:** What tools are available to target social security support for enterprises generating employment (e.g. basing part of the contributions on non-labour related indicators, lower contribution rates for low income or younger workers or elder workers, temporary exemption for job creation)? How the corresponding loss of resources for social security is compensated (alternative funding etc.)? How to control that social security exemptions/subsidies are effectively used for employment creation? In order to avoid deteriorating employment conditions and unfair competition among enterprises, should all forms of employment subject to social security contributions?
- **Creating or preserving employment:** Does rising legal retirement age to ensure better balance of pension funds financing affect employment generation negatively, especially for younger workers? Are work-sharing experiences positive (progressive decrease in working time when approaching retirement age, such as part-time retirement)?
- **Employment promotion and unemployment:** Is it legitimate to have partial early pension payments made through unemployment funds? What should be the role of social security in relation with labour market instruments, including financing vocational training, skills upgrading, temporary jobs, supplementing part time salary after unemployment, etc.?
- **Alternative employment patterns:** How can social security respond to the challenges from alternative employment patterns like home-based work, multiple employers, flexible employment, informal employment, micro-entrepreneurs, etc. (how to collect contributions, how to monitor, how to facilitate making use of alternative forms of employment)?

JV Gruat & K. Vleminckx, 19 January 2016.

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Population Changes, Labor Market, and Reform of Urban Employee Basic Pension Insurance System

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Population Ageing, Change of Labor Market and Social Security for the Old Age

--How to Perfect the Urban Employee Basic Pension Insurance

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Abstract: By observing the consequences and challenges of population aging in China, this paper discusses how to perfect the urban employee basic pension insurance from a perspective of labor market. The paper concludes that the rapid increase of retirees has resulted in decrease of replacement rate of the urban employee basic pension insurance in spite of the rapid expansion of coverage of the insurance. It is true that expansion of the coverage will help maintain the replacement rate not decline further in a short run, but it is actually an issue of financing to maintain a stable replacement in a long run. However, the contribution rate of the pension insurance is already the highest in the world, and the solution will not be possible to find through expansion of coverage. As a socialist country, China's state owned assets is not only a solid source for pension funds, and the contribution of the state-owned assets into pension funds will also make the pension insurance with Chinese characteristic.

Key words: Population Aging, employment, social security for old age.

1. Population Change and Trend Forecasting

Since the Reform and Opening, the mechanism of market allocation of resources has made the demographic dividend into the advantage of labor cost, so that China has become a “world factory” and achieved rapid economic growth. Since 1978, the average annual economic growth rate has reached about 10%, and the GDP per capita has doubled several times; in 2014, the GDP per capita reached \$7,648. China has quickly transformed from a poor and backward country into a middle-income country. However, as the proportion of the working-age population is approaching close to the highest point in the history and the demographic dividend is weakening, it is difficult for China to continue maintaining rapid economic growth over the past few decades; at the same time, rapid decline in fertility level leads to accelerated population ageing, so that the population will transform from a factor promoting economic growth into an unfavorable factor.

According to United Nations Population estimates and projections, in China, the proportion of population aged over 60 will exceed 15% by the end of 2013, and the proportion of population aged over 65 will be 10%. By 2020, the previous two proportions will reach 18.9% and 13.63% respectively. Based on the basic situation of China’s economic and social development, we made a forecasting of China’s population and its structure change from 2016 to 2050. As shown in Table 1, in 2020, the proportion of population aged over 60 and the proportion of population aged over 65 will be 18.2% and 13.0% respectively, which are slightly lower than the United Nations projections, but not much differences. From 2016 to 2020, these two proportions will increase 1.6 and 2.0 percentage points respectively, with an average annual increase of 0.3 and 0.4 percentage points respectively. By 2030, these two proportions will increase to 26.2% and 18.2% respectively, which are 9.6 and 7.2 percentage points higher than those in 2020, with an average annual increase of 0.8 and 0.5 percentage points respectively. By 2050, these two proportions will further increase to 37.5% and 28.5%, with an average annual increase of 0.6 and 0.5 percentage rates from 2030 to 2050, which has been decreased compared to those from 2020 to 2030. Therefore, according to our forecast, from 2016 to 2050, China’s future trend of population ageing will continue to increase; in stages, the population ageing will continue to accelerate from 2016 to 2030, while the speed of ageing will decrease after 2030.

Table 1 Forecasting of China's Population and Its Structure Change (2016-2050)

Year	Total Population (10,000 persons)	Proportion (%)		Proportion (%)	
		15-59	15-64	Aged over 60	Aged over 65
2016	138222.6	66.7	72.3	16.6	11.0
2017	139111.7	66.2	71.6	16.9	11.5
2018	139926.7	65.6	70.9	17.3	12.0
2019	140664.7	65.1	70.3	17.7	12.5
2020	141179.1	64.6	69.8	18.2	13.0
2025	142213.9	61.8	68.6	21.7	14.9
2030	141792.3	58.8	66.8	26.2	18.2
2035	140409.6	57.3	64.9	29.9	22.2
2040	138271.0	55.9	62.3	31.9	25.4
2045	135283.6	53.9	60.8	33.8	26.9
2050	131319.8	50.2	59.2	37.5	28.5

Source: The author used PADIS, which is the population forecast software from the National Health and Family Planning Commission of the People's Republic of China, to forecast China's population from 2011 to 2050, based on the 2010 Census Data. Based on the forecast results, the author made this table.

From the perspective of the proportion of the working-age population to the total population, China is still in a period that the labor supply is relatively rich; in 2016, the proportion of the working-age population aged 16 to 64 is 72.3%. But this proportion will gradually decline: by 2020, this proportion will decrease to around 70%, and by 2030, it will decrease to 67% (see Table 1). If defining the starting decline of the proportion of the working-age population to total population as the time point when the demographic dividend disappears (Cai, 2007), then, it can be said that China has already crossed the turning point that demographic dividend started to disappear. The decline in the proportion of the working-age population will inevitably bring about increased old age burden. If defining the proportion of population aged 65 to the working-age population from 16 to 64 as the dependency ratio of the working-age population, then it can be seen that this proportion presents a rapidly rising trend in the future. In 2016, this dependency ratio is 15%; by 2020, it will increase to 18.6%; by 2030, it will reach to 27%; and by 2050, it will be as high as 48% (see Figure 1). For a more intuitive argument, in 2016, each of the elderly aged over 65 corresponds to 6.6 working-age population aged 15-64; by 2020, this number will decline to 5.4, by 2030 drop to 3.7, and by 2050, this number will drop down to only 2.0.

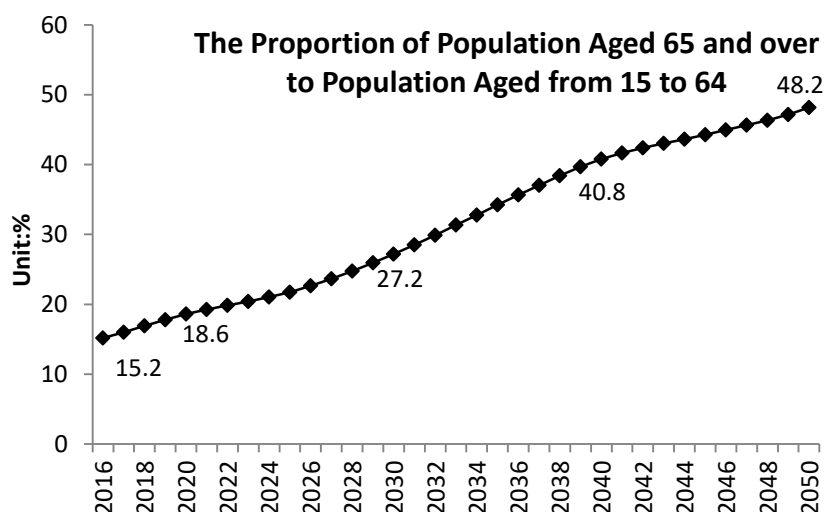


Figure 1 Change of the Old Age Dependency Ratio of the Working-age Population

Source: same as Table 1.

In general, after the demographic dividend disappears, economic growth will greatly slow down. Japan's experience has clearly illustrated this point. Japan is the first country which accomplished population change and economic development and prosperity in Asia. Japan's "demographic dividend" also appeared first, which started from about 1930-35 and ended in 1990-1995, lasting about 60 years. Japan's economic development history shows a high correlation with the demographic dividend (Gao, 1992; Meng *et al.*, 2005). From 1930 to 1950, the average annual growth rate of Japan's economy was only 2.21 percent; from 1950-1973, the average annual growth rate increased to 9.29 percent; after the oil crisis in 1973, Japan's economic growth rate gradually declined; by the early 1990s, Japan's economic growth stalled. Corresponding to this, changes in the indicators that reflect the demographic dividend—the dependency ratio (the lower the dependency ratio, the more obvious the demographic dividend)—presented the opposite trend to Japan's economic development. The 1960s was the fastest-growing period of Japan's economic growth, and also was the period during which the proportion of Japan's working-age population increased and the dependency ratio decreased. Before the 1990s, Japan's dependency ratio maintained at a low level of less than 50%, and the economy continued to grow at an average rate of around 5%. After the 1990s, with the decline of the demographic dividend, the dependency ratio gradually increased, and economic growth began to stagnate. Many studies suggest that the disappearance of the demographic dividend and the growing population ageing are among the main factors leading to Japan's economic recession (Ma, 2000; Hou *et al.*, 2010).

Japan's experience indicates that a reduction in labor supply and an increased burden on the elderly will inevitably lead to a decline in the potential labor productivity, which will affect the economic growth. When the number of working-age population is less than the retired

population, the relatively small proportion of fresh “blood” and the older high-skilled labor force will become the main subject in the labor market, which leads to a constantly reduction in the proportion of young labor force to the working-age population. Meanwhile, ageing of the labor age structure also may reduce the speed of the whole society absorbing new knowledge and new ideas, which leads to a decline in technology innovation capacity and weakens the role of technology progress in promoting economic development. Moreover, population ageing will also bring a reduction in the market demand. Population aged 15-64 is the production-age population and the strongest consumer as well. The increase in demand due to the ageing population is difficult to compensate for the reduction in consumption demand due to the decline in the population at the age of production. Therefore, the total consumption demand will tend to weaken.

Population ageing will not only bring economic growth to slow down, more importantly, the social burden of pension will become heavier. With the increasing of ageing population, the financial burden will increase, so that the government will have to increase taxes and social insurance contributions, resulting in increased national burden, which will further inhibit household and individual consumer demand, leading to slower economic growth. Ageing will also bring the dramatically increase of the costs of medical and health care. As the size of the family shrinks, the ability to care for the elderly is declining. The older the population, the higher the cost of maintaining well-being and health, so that the society and families will face the heavy burden of health care in the future.

Population ageing is a serious challenge for any country, especially an acute challenge for China, for the main reason that in China, the population is changing more quickly and ageing much faster. In 2010, China’s population aged over 65 was 118 million; by 2030, the population will be more than doubled to 268 million, an average annual increase of about 7.47 million; and by 2050, China will have 430 million population aged over 65, which means there will one elderly person in every three people. More serious situation is that as the elderly population is increasing, at the same time, the elderly population is also ageing; in other words, it is gradually moving from population ageing to the ageing of the ageing population. Thus, the burdens of pension, medical and health care will inevitably increase. In response to the growing population ageing situation, on one hand, we should continue to maintain sustained economic growth, but more importantly is how to speed up the construction of the social security system, to perfect the income security and social services system. From this point of view, there is a long way to go.

2. Working-age Population and Change of Labor Market

Around 2010, there was an important turning point in China’s population development process—the size and proportion of working-age population began to decrease. As shown in

Figure 2, the proportion of the population aged 15-64 increased from 67.2% in 1995 to 74.5% in 2010, then after that beginning to decline, decreased to 73.5% in 2014. The growth rate of the working-age population presented a trend from fast to slow. From 1995-2010, the average annual growth rate of the working-age population was only 1.3%; after 2010, the rate decreased significant; and from 2010 to 2014, the average annual growth rate was only 0.13%, which was nearly only 1/10 of that in 1995-2010. More importantly, in 2014, there was an absolute decline in the size of the population aged 15-64, which was reduced by 1.13 million compared with that in 2013.

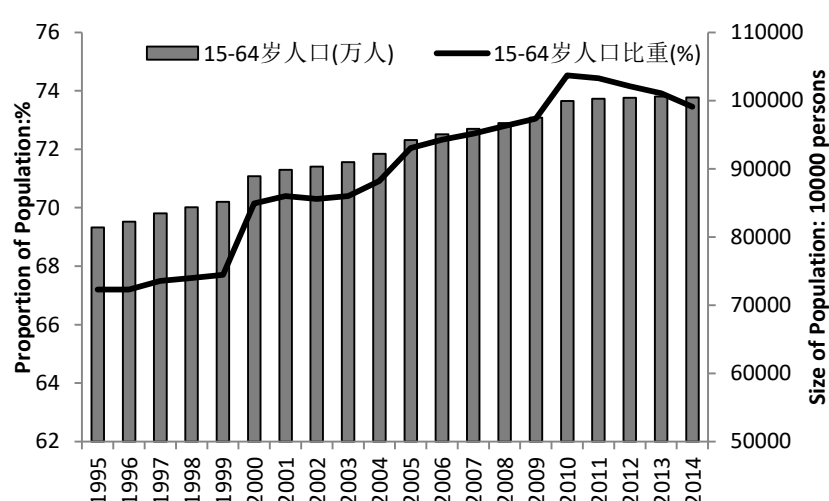


Figure 2 Change of Proportion of Working-age Population in China (1995-2014)

Source: Calculated based on the Database of National Bureau of Statistics of the People's Republic of China.
<http://data.stats.gov.cn/>

Labor force participation rate can more directly reflect the relative size of the economically active population in the market. Figure 3 presents the changes of total economically active population and labor force participation rate. It can be seen that the economically active population in China shows a gradual growth trend. The economically active population increased from 690 million in 1995 to 800 million in 2014, with an average annual growth rate of 0.8 percentage points, which is lower than 1.1 percentage points the average annual growth rate of the working-age population. This means that the labor force participation rate will decline, which decreased from 84.6% in 1995 to 79.3% in 2014. This illustrates that the economically active population is growing, but the labor force participation is declining. Due to the decline in both the working-age population and labor force participation, the real labor supply will inevitably decline at a faster in the future.

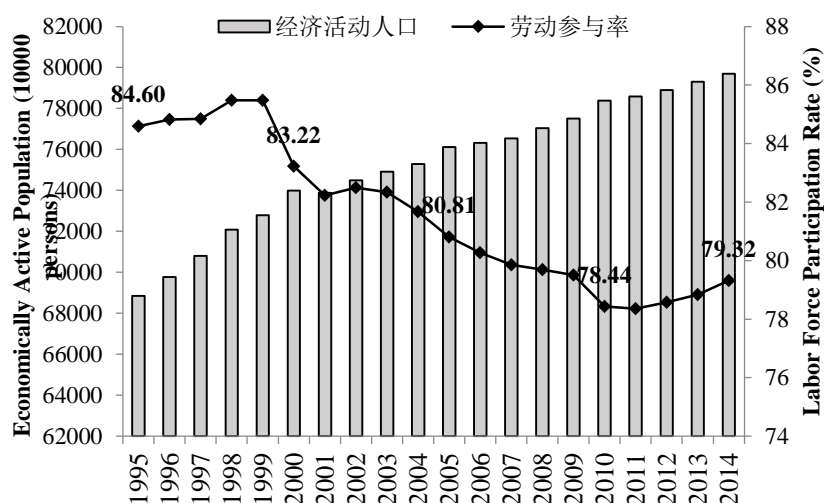


Figure 3 Proportion of Economically Active Population to Working-age Population (15-64)

Source: same as Figure 2.

The distribution of industries shows a significant “non-agricultural” and “service-oriented” trend. Non-agricultural employment has shown a declining trend since 1995. But between 1995 and 2003, non-agricultural employment is relatively stable, mainly because the proportion of secondary industry employment declined. This is because China experiences a severe state-owned enterprises reform process from 1997 to 2003, during which the secondary industry was greatly affected and the employment scale of the secondary industry was reduced. Since 2003, China has begun a new round of rapid growth, during which manufacturing and service industries have had tremendous development and the scale of non-agricultural employment has increased rapidly. Meanwhile, as the reservoir of surplus labor force in agriculture “depleted”, the total size of the agricultural labor force began to shrink rapidly. Worth noting is that China’s employment structure has shown a non-agricultural trend. The proportion of employment in the service industry not only increased rapidly in the proportion of total employment, but also widened the gap with the proportion of employment in the secondary industry. In 1995, the two proportions were almost the same and the gap between them was only 1.8 percentage points; but by 2014, the gap was widened to 10.7 percentage points. Thus, China’s future job creation will mainly depend on the service industry. How to improve the employment elasticity and employment quality of the service industry will become the focus of employment policy formulation.

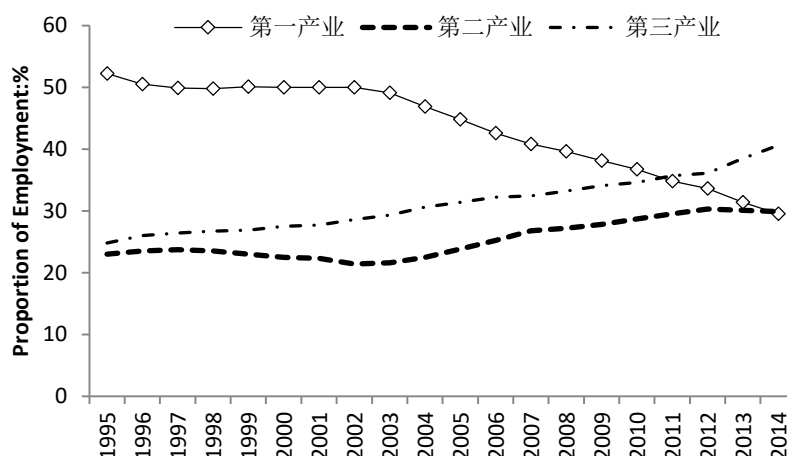


Figure 4: The Distribution of Employment by Three Strata of Industry: 1995-2014

Source: same as Figure 2.

To some extent, the process of economic modernization is the process of constant employment regularization. Employment regularization refers to that more and more people are engaged in production activities in formal production organizations, or the proportion of people employed in various forms of production organizations to total employed people constantly increases, so that the proportion of employees to total employment can be used to reflect the degree of employment regularization. As shown in Table 2, the size of total employees in urban and rural areas has been increased, which increased from 268.11 million in 2000 to 485.53 million in 2014 with average annual growth rate of 4.3%; the proportion of employees in urban and rural areas to total employed persons increased from 37.2% to 62.8%, with an increase of 25.6 percentage points. From the urban point of view, the number of urban employees increased from 128.52 million in 2000 to 278.52 million in 2014 with an average annual growth rate of 5.7 percentage points, which is much higher than the average annual growth rate of urban employment of 3.9%. The proportion of urban employees to total employed persons in urban areas increased from 55.5% to 70.9% in 2014 with an increase of 15.4 percentage points. It can be seen that since 2000, the employment rate of employees has been increasing rapidly, which indicates that more and more wealth is produced by the employees working in the formal production organizations, and also indicates that the quality of China's economic development is constantly improving.

Table 2 Trend of Employment

	Employed Persons in Urban and Rural Areas (10,000 persons)	Employed Persons in Urban Areas (10,000 persons)	Employees in Urban and Rural Areas		Employees in Urban Areas	
			Population (10,000 persons)	Proportion (%)	Population (10,000 persons)	Proportion (%)
2000	72085	23151	26811	37.2	12852	55.5
2001	73025	23940	26924	36.9	12651	52.8
2002	73740	24780	27568	37.4	12869	51.9
2003	74432	25639	28681	38.5	13354	52.1
2004	75200	26476	29821	39.7	13931	52.6
2005	74647	28389	31321	42.0	14684	51.7
2006	74978	29630	32752	43.7	15440	52.1
2007	75321	30953	34144	45.3	16382	52.9
2008	75564	32103	35327	46.8	17096	53.3
2009	75828	33322	36519	48.2	17868	53.6
2010	76105	34687	37910	49.8	18838	54.3
2011	76420	35914	40313	52.8	21006	58.5
2012	76704	37102	42163	55.0	22418	60.4
2013	76977	38240	46476	60.4	26049	68.1
2014	77253	39310	48533	62.8	27852	70.9

Source: same as Figure 2.

In the past few years, China's social security system for old age has made great achievements, achieving nationwide full coverage for the urban and rural residents in the system. In the framework of existing system, the urban employee basic pension insurance system needs to cover employed persons in urban areas; the new rural pension insurance system needs to cover rural residents who are 16 and over (excluding students) and do not participate in the urban employee basic pension insurance system; and the urban resident pension insurance system needs to cover urban non-employed residents who are 16 and over (excluding students) and do not meet the basic participation requirements of the urban employee basic pension insurance system. The aforementioned three systems together should theoretically cover all urban and rural residents over the age of 16.

However, reviewing the three social security systems for old age mentioned above would find that the new rural pension insurance system and the urban resident pension insurance system

started late, which only in recent years began to implement a low level of protection, which cannot afford to guarantee the basic living for old age people. In other words, when a person is over the retirement age and receive no other income, either the new rural pension insurance system or the urban resident pension insurance system cannot guarantee their basic living; while only the security level of the urban employee basic pension insurance system can meet their basic needs. However, due to the low coverage, the social security for old age of the urban employee basic pension insurance system is still very limited.

The urban employee basic pension insurance system adopts the funding model of individuals and organizations (employers) making joint contributions; the most convenient to be covered by this system should be those wage earners who receive wages. Wage earners can make their own contributions due to fixed wage income and also can be made contributes by their organizations or employers; while for those self-employed workers, it is not appropriate from them to participate in this system, because self-employed people lack the organizations or employers making contributions for them. Of course, theoretically, the urban employee basic pension insurance system does not exclude the self-employed people, but the prerequisite is that the participants must bear the costs of organizations' contributions by their own. At present, the urban employee basic pension insurance system allows urban self-employed people to participant in many places, just need to pay the part of organizations' required contributions by their own. From the point of view of system design, it is very difficult for farmers engaging in family agricultural activities in rural areas to participate in this system. The main reason is that the income of farmers is too low and not fixed, so that it is difficult for them to afford individual contributions and bear the costs of organizations' contributions as well.

From the perspective of the labor market, the workers should be covered by the urban employee basic pension insurance system need to meet these two conditions, one is non-agricultural employment, another is employed employees. In general, employed employees are non-agricultural employed people in most cases, but non-agricultural employed people are not necessarily employed employees. Therefore, observing the changing trends of non-agricultural and employee-oriented employment in the labor market has important practical significance to constantly perfect the urban employee basic pension insurance system and give full play of the basic role of the social security for old age.

Traditionally, China is an agricultural employment and self-employment oriented country; but changing from agricultural employment to non-agricultural employment, from self-employment to employment of employees is a necessary process for any modern country. From the perspective of employment, the development of a society is the process to continue achieving non-agricultural and employee-oriented employment. Of course, employment needs non-agricultural as prerequisite, because in order to become employees, it must be transferred from agricultural to non-agricultural industries; but non-agriculturalization does not necessarily lead to employment of employees, because the labor force transferred from agriculture can be

employed employment or self-employed employment. When they cannot find a suitable employed job, the labor force transferred from rural areas can only choose to engage in individual business and commercial activities in urban areas so that they become self-employed people.

Now China has achieved the change from mainly agricultural employment to non-agricultural employment and the change from mainly self-employment to employment of employees. In 1978, the proportion of agricultural employment was 70.5% and the proportion of non-agricultural employment was only 29.5%; by 2010, the proportion of non-agricultural employment reached 63.3%, while the proportion of agricultural employment decreased to only 36.7%. Meanwhile, the degree of employment of employees is also increasing. In 1978, the proportion of employed employees was only 30.7%, while the proportion of self-employed was as high as 69.30%. The trend of non-agricultural employment and employment of employees is the most fundamental change in the current labor market. Moreover, with the development of China, non-agricultural employment and employment of employees will be further increased. In the developed countries where industrialization has been achieved, the degrees of non-agricultural employment and employment of employees are very high. Not only the proportion of agricultural employment to total employment dropped to less than 5%, or even less than 1%, but also the process of employment of employees has been completed. For example, in the United States, the proportion of employees employed has been stable at around 90% since 1980; in the UK, the proportion of employees employed has been stable at between 85% and 92% since 1980. According the latest data from the International Labour Organization (ILO), in 2008, the average proportion of employees employed in the developed countries and European Union economies was 86.2%. From the perspective of the degree of employment of employees, China still has the typical characteristics of a developing country. By 2010, in China, the proportion of employees employed was only 50%, which is far from the average level of around 86% of the developed countries.

Table 3 summarizes the important changes that have happened in China's labor market since 1990. As shown in Table 3, in 2014, China's adult population aged over 15 was about 1.137 billion, of which the number of economically active population aged over 15 was about 796 million. Among the economically active population, there was 773 million working population of employment. Based on this, we can calculate that in 2010, China's labor participation rate of total adult population was 70% and the employment rate was 68%. Furthermore, let's look at the status of employment. Among the about 770 million total employment, the total number of non-agricultural employment is 545 million and the number of employees is around 485 million. So in 2014, the non-agricultural rate of employment was 70.4% and the rate of employment of employees was 63%. By 2014, the total number of participants in the urban employee basic pension insurance system was 341 million, of which the number of participated employees (*i.e.*, the people who are making contributions) was 255 million and the number of

retirees receiving pensions was 85.93 million. Here let's take a look at what the coverage rate of the urban employee basic pension insurance system is from various criteria.

Table 3 Change of Labor Market and Change of Number of Participants in the Urban Employee Basic Pension Insurance System

Unit: 10,000 persons

Year	Population aged over 15	Economically Active Population	Total Employment	Total Non-agricultural Employment	Total Number of Employees	Total Number of Participants	Total Number of Participated Employees	Total Number of Retirees
1990	82664	65323	64749	25835	23491	6166	5201	965
1991	83724	66091	65491	26393	24297	6740	5654	1087
1992	84832	66782	66152	27453	25647	9456	7775	1682
1993	86345	67468	66808	29128	27552	9848	8008	1839
1994	87482	68135	67455	30827	27913	10574	8494	2079
1995	88740	68855	68065	32535	29111	10979	8738	2241
1996	90734	69765	68950	34130	29890	11117	8758	2358
1997	92817	70800	69820	34979	29422	11204	8671	2533
1998	94424	72087	70637	35460	26934	11203	8476	2727
1999	95673	72791	71394	35626	26837	12485	9502	2984
2000	96912	73992	72085	36043	26808	13617	10448	3170
2001	98891	73884	72797	36399	26920	14183	10802	3381
2002	101111	74492	73280	36640	27568	14737	11129	3608
2003	102947	74911	73736	37532	28683	15507	11647	3860
2004	104898	75290	74264	39434	29817	16353	12250	4103
2005	105191	76120	74647	41205	31322	17488	13120	4368
2006	107170	76315	74978	43037	32750	18766	14131	4635
2007	108512	76531	75321	44590	34143	20137	15183	4954
2008	109804	77046	75564	45641	35326	21891	16588	5304
2009	110939	77510	75828	46938	36519	23550	17743	5807
2010	111824	78388	76105	48174	38075	25707	19402	6305
2011	111832	78579	76420	49826	40313	28391	21565	6826
2012	112571	78894	76704	50931	42163	30427	22981	7446
2013	113117	79300	76977	52806	46476	32218	24177	8041
2014	113743	79690	77253	54463	48533	34124	25531	8593

Source: same as Figure 2.

Table 4 calculates the coverage rate of the urban employee basic pension insurance system for various groups of people. The coverage rate using whichever criterion has shown a rising trend, but so far, the level of coverage rate is not high. The proportion of participants in the urban employee basic pension insurance system (including retirees) to total population aged over 15 was 7.46% in 1990 and increased to 30.0% in 2014; the proportion of participated employees (excluding retirees) to total economically active population was 7.96% in 1990 and increased to 32.04% in 2014; the proportion of participated employees (excluding retirees) to total employment was 8.03% in 1990 and increased to 33.05% in 2014; the proportion of participated employees (excluding retirees) to total non-agricultural employment was 20.13% in 1990 and increased to 46.88% in 2014; the proportion of participated employees (excluding retirees) to total employment of employees was 22.14 in 1990 and increased to 52.61% in 2014. If we consider the employment of employees as the target population who must participate in the urban employee basic pension insurance system, then the preceding numbers mean that so far only about half of the people in the labor market who should participate in the urban employee basic pension insurance system has participated in the system. Meanwhile, only a very small proportion of old age people are able to receive pensions. Among all the population aged over 60, currently only around 41.2% of them are able to receive pension; while the proportion of retirees receiving pensions to total population aged over 65 is only around 62.5%.

Table 4 Coverage Rate of the Urban Employee Basic Pension Insurance System for Various Groups of People

Unit: %

	Population age over 15	Economically Active Population	Total Employment	Total Non- Agricultural Employment	Total Employment of Employees
1990	7.46	7.96	8.03	20.13	22.14
1991	8.05	8.55	8.63	21.42	23.27
1992	11.15	11.64	11.75	28.32	30.31
1993	11.40	11.87	11.99	27.49	29.07
1994	12.09	12.47	12.59	27.55	30.43
1995	12.37	12.69	12.84	26.86	30.02
1996	12.25	12.55	12.70	25.66	29.30
1997	12.07	12.25	12.42	24.79	29.47
1998	11.86	11.76	12.00	23.90	31.47
1999	13.05	13.05	13.31	26.67	35.41
2000	14.05	14.12	14.49	28.99	38.97

2001	14.34	14.62	14.84	29.68	40.13
2002	14.57	14.94	15.19	30.37	40.37
2003	15.06	15.55	15.79	31.03	40.60
2004	15.59	16.27	16.50	31.07	41.08
2005	16.62	17.24	17.58	31.84	41.89
2006	17.51	18.52	18.85	32.83	43.15
2007	18.56	19.84	20.16	34.05	44.47
2008	19.94	21.53	21.95	36.34	46.96
2009	21.23	22.89	23.40	37.80	48.59
2010	22.99	24.75	25.49	40.28	50.96
2011	25.39	27.44	28.22	43.28	53.49
2012	27.03	29.13	29.96	45.12	54.51
2013	28.48	30.49	31.41	45.79	52.02
2014	30.00	32.04	33.05	46.88	52.61

Source: Calculated based on *China Statistical Yearbook* in each year.

3. Change of Labor Market and the Urban Employee Pension Insurance System

Construction of the urban employee pension insurance system is of great significance to promote sustainable economic development and maintain social stability. However, due to the acceleration of China's population ageing and the significant changes in the labor market, the sustainability of this system is under a lot of pressure. In order to clarify the direction of perfecting the urban employee pension insurance system, it is necessary to have a comprehensive understanding of the reform process, status quo and sustainability of this system. In this report, first we will roughly card the evolution process of the urban employee pension insurance system. The process is divided into four stages as follows:

The first stage, 1978-1992: The recovery and exploration of the urban employee pension insurance system. In 1978, "State Council Temporary Measures on Workers' Retirement, Resignation" and "State Council Temporary Measures on Providing for Old, Weak, Sick, and Handicapped Cadres" were promulgated. These two temporary measures made unified provisions on the retirement conditions and treatment levels for employees of enterprises and staff of government departments and institutions. This marks that from the point view of regulations and policies, the social security for old age was back to the original track and the pension insurance system began to recover and reform and exploration. Starting in the mid-1980s, in order to be in line with the reform of state-owned enterprises, the reform of the

urban social security system started from the pension system. In 1984, a pilot project for social pooling of retirement expenses was launched, implementing unified collection of insurance premiums and unified payment of pensions. The scope of the pilot project gradually expanded from state-owned enterprises to various types of enterprises in urban and rural areas. In 1991, State Council issued “Decisions on Deepening the Reform of the Pension System for Staff and Workers of Enterprises”, which made provisions on implementing a pension insurance system combining the basic pension insurance, enterprise supplementary pension insurance and employees individual savings-oriented pension insurance. In the combined system, the fees will be borne jointly by the State, enterprises and individuals. During this period, the financing mode and cost sharing and other important topics of the pension insurance system have actively discussed and explored. However, the starting point of the reform was limited to supporting the reform of state-owned enterprises and the basic idea of “cast off a burden” dominated the reform, which was not designed from the height of overall socio-economic development.

The second stage, 1993-2000: The initially establishment of the basic framework of the urban employee pension insurance system. In 1993, the Third Plenary Session of the 14th CPC Central Committee adopted “Decision on Some Issues Concerning the Establishment of the Socialist Market Economy”, which put forward clear requirements and principles for the reform of social security and called for the establishment of an urban social insurance system combining social pooling with personal accounts. In 1995, the State Council promulgated the “Circular on Deepening the Reform of the Pension System for Staff and Workers of Enterprises”, which clearly stipulates that the basic pension insurance system is applicable to staff and workers of all kinds of enterprises in urban and rural areas, and encourages carrying out the pilot projects all over the country. In 1997, the State Council promulgate the “Decision on Establishing a Unified Basic Pension Insurance System for Staff and Workers of Enterprises”, which proposed the establishment of a unified pension insurance system combining social pooling with personal accounts. In 2000, the State Council issued the “Pilot Program on Improving the Urban Social Security System”, which decided to implement the pilot program in Liaoning province and some cities of several of other provinces. The purpose of the pilot program is to solve the transitional cost of the reform of the pension insurance system and establish a social pooling fund. The state has gradually established a development mode that combines social pooling with personal accounts, hoping to absorb the advantages of both and make up for their shortcomings. Meanwhile, taking the realistic pressure into account, personal accounts were allowed to run empty account during the transition period.

The third stage, 2001-2012: The expansion of the coverage of the urban employee pension insurance system. In the new century, the social security system as an important component of building a harmonious society, the reform of the system has accelerated significant. In 2007, the 17th CPC National Congress proposed to speed up the establishment of social security

system to cover urban and rural residents. On the basis of the pilot programs in Liaoning, Jilin, and Heilongjiang the three Northeast provinces in China, the State Council promulgated the “Decision on Improving the Basic Pension System for Staff and Workers of Enterprises”, which called for expanding the scope of basic pension insurance, gradually making personal accounts, raising pension funding and payment ability, developing participating policy for self-employed people and flexible employment in urban areas and deciding organizational contributions are no longer include in the personal accounts. Including migrant workers into the urban employee pension insurance system was put on the agenda. In 2009, the Ministry of Human Resources and Social Security issued “Migrant Workers to Participate in the Basic Pension Insurance Approach”, which makes provisions that migrant workers who are urban employment and established labor relationships with employers should participate in the pension insurance. In order to ensure the transfer and continuation of the basic pension insurance relations across provinces for the participants, the State Council decided to implement the “Interim Measures for the Transfer and Continuation of the Basic Pension Insurance Relations of Urban Employees” in 2010. All the participants including migrant workers can transfer the pension insurance relations when they work across provinces; all of the personal accounts and partial social pooling funds can be transferred.

The fourth stage, 2011 to date: The establishment of a unified urban employee pension insurance system. The formal implementation of the “Social Insurance Law of the People’s Republic of China” in the July, 2011 marks that China’s social security enter into the stage of legalization. The reform of the “dual track system” for the urban employee pension insurance had a major breakthrough. Staff and workers of enterprises and government departments and institutions will be applied to a unified pension insurance system. In 2013, the Third Plenary Session of the 18th CPC Central Committee adopted “Decision on Some Major Issues Concerning Comprehensively Deepening the Reform”, which proposed to establish a more fair and sustainable social security system, insist on a combined basic pension insurance system of social pooling and personal accounts, promote the reform of government departments and institutions, perfect the policy of transfer and continuation of the social insurance relations, lower the social insurance rate appropriately in due time, and study and formulate the policy of progressively delaying the retirement age. In 2015, the State Council promulgated the “Decision on the Reform of the Pension Insurance System for Employees of Government Departments and Institutions”. Urban employees of government departments and institutions and enterprises were uniformly applied to the basic pension insurance system combining social pooling with personal accounts, which implement the approaches of organizations and individuals making contributions and the pension benefits linking to the contributions. So it will solve the “dual track” contradictions from the system and mechanism.

Through the carding of the revolution of the basic pension insurance system for China’s employees, we have an overall understanding of this system; for a more detailed understanding

of the development of this system, we take measurements and calculate changes of its contributions and fund revenue and expenditure. The fund revenue of the urban employee basic pension insurance increased from 95 billion yuan in 1995 to 2.53 trillion yuan in 2014, which increased 25 times, with an average annual growth rate of 18.9 percentage points. Among them, from 1995 to 2000, the average annual growth rate was 19%; between 2000 and 2010, the average annual growth rate was 19.4%, between 2010 and 2014, the average annual growth rate was 17.5%. We can see that the growth rate of the pension insurance fund revenue shows a trend of declining first and then increasing. In terms of the fund expenditure, in 1995, it was 84.76 billion yuan; and it increased to 2.2 trillion yuan, with an average annual growth rate of 18.6%. Stage by stage, the basic pension insurance expenditure shows a process of first declining and then increasing. From 1995 to 2000, the average annual growth rate was 20%; from 2000 to 2010, the rate decreased to 17.4%; from 2010 to 2014, the rate increased to 19.8%. The accumulated balance of basic pension insurance increased from 42.98 billion yuan in 1990 to 3.2 trillion yuan in 2014, with an average annual growth rate of 25.4%. Affected by the combined impact of basic pension insurance fund revenue and expenditure, the average annual growth rate of the basic pension insurance accumulated balance was 17% from 1995 to 2000; the rate was 32% from 2000 to 2012; and the rate was 19.9% from 2010 to 2014. The average annual growth rate of the basic pension insurance accumulated balance shows a trend of first increasing and then declining. Since 2010, the growth rate has been significantly decreased compared to that from 2000 to 2010, which reflects that the basic pension insurance expenditure grows more significantly in recent years.

In terms of the contribution per capita of the urban employee basic pension insurance fund, it has increase 8 times from 1995 to 2014, with an average annual growth rate of 12.3%. The annual growth rate of the contribution per capita shows a declining trend; from 1995 to 2000, the rate was 14.9%, from 2000 to 2010, the rate decreased to 12.2%, and from 2010 to 2014, the rate further decreased to 9.4%. In terms of expenditure per capita, from 1995 to 2014, it increased 5.7 times; the growth shows a trend of first declining and then increasing: from 1995 to 2000, the average annual growth rate was 12%, from 2000 to 2010, the rate decreased to 9.6%, and from 2010 to 2014, the rate increased again to 10.9%. In terms of accumulated balance per capita, from 1995 to 2014, the average annual growth rate is 18.2%. Specifically, from 1995 to 2000, the average annual growth rate was 12.2%; from 2000 to 2012, the rate was 24%; from 2010 to 2014, the rate was 11.7%. After 2010, the average annual growth rate dropped significantly, which was less than half of the growth rate from 2000 to 2010.

Table 5 Contributions and Fund Revenue and Expenditure of the Urban Employee Basic Pension Insurance

Year	Total Participants (10,000)	Total Participated Employees (10,000)	Fund Revenue (Billion)	Fund Expenditure (Billion)	Accumulated Balance (Billion)	Contribution per capita	Expenditure per capita	Balance per capita (yuan)
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	persons)	persons)	yuan)	yuan)	yuan)	(yuan)	(yuan)	
1995	10979.0	8737.8	950.1	847.6	429.8	1087.3	3781.9	391.5
1996	11116.7	8758.4	1171.8	1031.9	578.6	1337.9	4375.6	520.5
1997	11203.9	8670.9	1337.9	1251.3	682.8	1543.0	4940.0	609.4
1998	11203.1	8475.8	1459.0	1511.6	587.8	1721.4	5542.5	524.7
1999	12485.4	9501.8	1965.1	1924.9	733.5	2068.1	6451.6	587.5
2000	13617.4	10447.5	2278.5	2115.5	947.1	2180.9	6673.7	695.5
2001	14182.5	10801.9	2489.0	2321.3	1054.1	2304.2	6866.5	743.2
2002	14736.6	11128.8	3171.5	2842.9	1608.0	2849.8	7879.9	1091.2
2003	15506.7	11646.5	3680.0	3122.1	2206.5	3159.7	8087.9	1422.9
2004	16352.9	12250.3	4258.4	3502.1	2975.0	3476.2	8536.3	1819.2
2005	17487.9	13120.4	5093.3	4040.3	4041.0	3882.0	9250.8	2310.7
2006	18766.3	14130.9	6309.8	4896.7	5488.9	4465.2	10563.7	2924.9
2007	20136.9	15183.2	7834.2	5964.9	7391.4	5159.8	12041.3	3670.6
2008	21891.1	16587.5	9740.2	7389.6	9931.0	5872.0	13933.3	4536.5
2009	23549.9	17743.0	11490.8	8894.4	12526.1	6476.2	15317.0	5319.0
2010	25707.3	19402.3	13419.5	10554.9	15365.3	6916.4	16740.6	5977.0
2011	28391.3	21565.0	16894.7	12764.9	19496.6	7834.3	18699.7	6867.1
2012	30426.8	22981.1	20001.0	15561.8	23941.3	8703.2	20900.4	7868.5
2013	32218.4	24177.3	22680.4	18470.4	28269.2	9380.9	22970.1	8774.2
2014	34124.4	25531.0	25309.7	21754.7	31800.0	9913.3	25315.6	9318.8

Note: Contribution per capita=Fund revenue/Total participated employees, Expenditure per capita=Fund expenditure/(Total participants-employees), Balance per capita=Accumulated balance/Total participants.

Source: same as Figure 2.

Table 6 Growth of Contributions and Fund Revenue and Expenditure of the Urban Employee Basic Pension Insurance

Unit: %

Time Period	Fund Revenue	Fund Expenditure	Accumulated Balance	Contribution per capita	Expenditure per capita	Balance per capita
1995-2014	18.86	18.63	25.42	12.34	10.52	18.16
1995-2000	19.12	20.07	17.12	14.94	12.03	12.18
2000-2010	19.40	17.44	32.13	12.23	9.63	24.00

2010-2014	17.19	19.82	19.94	9.42	10.89	11.74
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Source: same as Figure 2.

As shown in Table 7, we calculate the fund revenue and expenditure of the urban employee basic pension insurance by province. First, in terms of fund revenue, overall, from 2001 to 2014, the average annual growth rate of fund revenue was around 20% for all provinces. Specifically, Chongqing grew fastest, with an average annual growth rate of 24.5%; Tibet grew the slowest, with an average annual growth of only 16.0%; and the growth rate of western region was higher than that of central region, while the growth rate of eastern region was the lowest. Second, the average annual growth rate of fund expenditure was around 18% for all provinces. Specifically, Sichuan and Chongqing had the highest average annual growth rate of 23%; while Tibet had the lowest average annual growth rate of 12%. The fund expenditure growth rate of western region was higher than that of central region, while the growth rate of eastern region was the lowest. Last, in terms of the growth rate of fund accumulated balance, the fluctuations among all provinces are large. Specifically, Tibet had the highest growth rate of 93.5%; and Heilongjiang had the lowest growth rate of only 17.6%. The growth pattern of the three regions is still the highest in the western region, followed by the central region, and the lowest in the eastern region.

Table 7 Fund Revenue and Expenditure of the Urban Employee Basic Pension Insurance by Province

Units: Billion yuan, %

	Fund Revenue			Fund Expenditure			Fund Accumulated Balance		
	2014	2001	2001-2014 Growth Rate	2014	2001	2001-2014 Growth Rate	2014	2001	2001-2014 Growth Rate
Beijing	1331	117	20.6	842	111	16.9	2161	22	42.2
Tianjin	534	56	19.0	492	55	18.4	362	11	30.9
Hebei	959	106	18.5	953	97	19.2	819	52	23.7
Shanxi	664	58	20.6	556	51	20.1	1233	24	35.2
Inner Mongolia	502	43	20.7	486	42	20.7	472	16	29.5
Liaoning	1534	192	17.3	1478	179	17.6	1284	41	30.3
Jilin	519	69	16.8	517	68	16.8	424	8	35.8
Heilongjiang	922	125	16.6	1028	110	18.8	323	39	17.6
Shanghai	1689	217	17.1	1506	236	15.3	1260	93	22.2
Jiangsu	1923	148	21.8	1584	146	20.2	2854	57	35.1
Zhejiang	1619	136	21.0	1220	110	20.3	2696	96	29.2

Anhui	657	60	20.3	520	57	18.6	882	15	36.7
Fujian	453	53	18.0	379	51	16.8	490	32	23.2
Jiangxi	490	41	21.1	445	41	20.2	430	16	29.1
Shandong	1673	183	18.5	1558	170	18.6	1973	104	25.4
Henan	923	83	20.4	831	88	18.8	931	21	33.8
Hubei	978	83	20.8	951	82	20.7	822	15	35.8
Hunan	812	68	21.0	730	70	19.8	879	23	32.2
Guangdong	2059	204	19.5	1289	134	19.0	5444	206	28.6
Guangxi	414	37	20.3	412	34	21.2	448	25	24.8
Hainan	141	16	17.9	139	15	18.8	104	7	23.2
Chongqing	678	38	24.9	574	39	23.0	662	7	41.6
Sichuan	1577	95	24.2	1313	89	23.0	2013	41	34.9
Guizhou	260	30	18.1	208	27	17.2	407	20	26.0
Yunnan	358	51	16.2	288	53	13.9	573	12	34.8
Tibet	23	3	16.0	15	3	12.1	40	0	93.5
Shaanxi	576	55	19.8	543	51	20.0	446	8	35.9
Gansu	298	37	17.3	259	37	16.2	361	8	33.7
Qinghai	93	13	16.7	91	12	16.5	84	1	44.0
Ningxia	117	11	19.7	118	10	21.1	165	7	26.9
Xinjiang	526	62	17.9	426	54	17.2	745	21	31.6
Eastern Region	13915	1427	19.1	11438	1303	18.2	19446	722	28.8
Central Region	5964	587	19.5	5577	567	19.2	5924	162	31.9
Western Region	5423	475	20.6	4733	451	19.8	6417	168	32.4

Source: same as Figure 2.

Furthermore, we calculate fund balance per capita of the urban employee basic pension insurance and its growth. Overall, the unbalanced regional development problem of the urban employee basic pension insurance is significant. As shown in Table 8, the provincial differences of fund balance per capita in 2014 were large. The highest province was Tibet, which reached to 26,495 yuan; while the lowest province was Heilongjiang, which was only 2,966 yuan. In terms of the growth, the provincial differences between the two levels of differentiation are very

significant. From 2010 to 2014, the growth rate of Tibet, which was the fastest growing province, reach 282%; the growth rates of Beijing and Fujian were more than 25%; but the growth rates of Heilongjiang and Guangxi were even negative. From the point view of three regions, the growth rate of balance per capita in eastern region was higher than that in central region and western region; the growth rate in eastern region was 12.7%, and the growth rate in central region was 9.3% which was lower than the rate in western region of 11%. The growth rate of balance per capita is basically in line with that of economic development. In the areas with high levels of economic development, financial investment is relatively sufficient and the growth of balance per capita is relatively fast. Heilongjiang and Jilin in the northeast are facing difficulties in economic development, so that the financial subsidies are unsustainable, resulting in a very low growth rate of balance per capita or even a negative growth rate. In addition, population mobility is also an important factor affecting the growth rate of balance per capita. Due to the problem of pension insurance regional segmentation, in the province with large net inflow of population, the systematic dependency rate of pension insurance is relative low and the current year fund balance is larger, which leads to faster growth of balance per capita.

Table 8 Growth of Fund Balance per capita of the Urban Employee Basic Pension Insurance by Province

	Balance per capita in 2014 (yuan)	Balance per capita in 2010 (yuan)	Growth Rate of Balance per capita 2010-2014 (%)
Beijing	15516	6297	25.29
Tianjin	6631	4705	8.96
Hebei	6489	5695	3.31
Shanxi	17814	10785	13.37
Inner Mongolia	8983	5988	10.67
Liaoning	7257	4939	10.10
Jilin	6265	5868	1.65
Heilongjiang	2966	5030	-12.37
Shanghai	8645	4402	18.38
Jiangsu	10604	6256	14.10
Zhejiang	10579	6827	11.57
Anhui	10636	5273	19.18
Fujian	5779	2222	27.00
Jiangxi	5491	3351	13.14
Shandong	8324	6078	8.18

Henan	6505	4623	8.91
Hubei	6488	4112	12.08
Hunan	7852	4856	12.77
Guangdong	11320	7687	10.16
Guangxi	8035	8435	-1.21
Hainan	4279	3590	4.49
Chongqing	8019	4374	16.36
Sichuan	10944	7137	11.28
Guizhou	11266	6914	12.98
Yunnan	14402	7224	18.82
Tibet	26495	9798	28.24
Shaanxi	6219	3921	12.22
Gansu	12085	7348	13.24
Qinghai	8915	6801	7.00
Ningxia	10920	10083	2.01
Xinjiang	15176	9794	11.57
Eastern Region	9754	6056	12.65
Central Region	7509	5260	9.31
Western Region	10227	6732	11.02

Source: same as Figure 2.

The urban employee basic pension insurance system has high contribution rate, low level of integration, and difficulty of transferring and carrying. A lot of people think that this system will eventually be unsustainable or even collapse. Especially, the current pension empty account problem is further exacerbated people's doubts. The urban employee basic pension insurance system adopts a funding mode combined personal accounts with social pooling. However, when the benefits are calculated and issued, the personal accounts and social pooling fund are mixed together, so that it actually runs on a pay-as-you-go basis. As a result, personal accounts are basically empty account. Some people called the total amount of these empty accounts adding up as pension gap. Some studies have shown that the pension gap in China is as high as 18 trillion yuan (Cao, 2012), but a more reasonable estimate is around 2 trillion yuan (Zheng, 2012).

The problem of pension gap is getting more and more social attention and constantly hyped by the media, but to be fair to say that this problem is far less serious than that of many people

images. The “gap” does not have impacts on actual pensions calculation, because the gap only happens in the case that personal accounts are fully funded; while the “gap” in the process of pensions issued won’t happen in the case that the personal accounts are not fully funded. In fact, no matter from the perspective of the calculation of the treatment, or from the perspective of the management and operation of the pension, it is not necessary for China’s pension insurance to make the personal accounts fully funded. The problem of pension gap actually does not exist, which is only an institutional “gap” and the “gap” will disappear due to changes in the system. However, with the increase of population ageing and the number of retirees, the pressure on the payment of pension is larger and larger; and it is an indisputable fact that the pension burdens borne by workers are increasing. Next let’s take a look at what the specific changes of pension burden of the urban employee basic pension insurance are.

Although the coverage of the urban employee basic pension insurance has been expanding and more and more employees have participated in contributions, the increasing of retirees is faster, so that it results in a decline of the number of contributing participants corresponding to supporting one retiree. In 1990, the number of contributing participants corresponding to supporting one retiree was 5.2; in the mid-1990s, the number decreased to around 4; while by 2014, the number was only around 3. In the case of contribution rate unchanged, the decline of the number of contributing participants needed to support one retiree constitutes an increase of the pressure on pension payment. As more people reaching the retirement age in the future, the number of contributing participants needed to support one retiree will further decline and the pressure on pension payment will further increase. In the short term, reducing the pressure on pension payment and the burden rate on each contributing participant can be achieved by expanding coverage of the pension insurance. Because so far half of the wage earners (employees) who should participate are still not covered by the system, which indicates that the urban employee basic pension insurance system still has the potential for development. In 2014, one retired old person corresponds to 5.6 employees, 6.3 non-agricultural employed persons, 9.0 employed persons, and 10.8 working-age population aged 15-59. However, from the perspective of the trend, these potentials are also showing a gradual declining trend (see Table 9).

Table 9 Numbers of Various Types of Staff Corresponding to Supporting One Retiree

Unit: Person

Year	15-59	Employed Persons	Non-agricultural Employed Persons	Employees	Contributing Participants
1990	75.5	67.1	26.8	24.3	5.4
1991	67.3	60.3	24.3	22.4	5.2
1992	44.0	39.3	16.3	15.3	4.6
1993	40.8	36.3	15.8	15.0	4.4

1994	36.4	32.4	14.8	13.4	4.1
1995	34.1	30.4	14.5	13.0	3.9
1996	33.0	29.2	14.5	12.7	3.7
1997	31.4	27.6	13.8	11.6	3.4
1998	29.5	25.9	13.0	9.9	3.1
1999	27.3	23.9	11.9	9.0	3.2
2000	26.2	22.7	11.4	8.5	3.3
2001	24.9	21.5	10.8	8.0	3.2
2002	23.8	20.3	10.2	7.6	3.1
2003	22.6	19.1	9.7	7.4	3.0
2004	21.7	18.1	9.6	7.3	3.0
2005	20.2	17.1	9.4	7.2	3.0
2006	19.3	16.2	9.3	7.1	3.0
2007	18.3	15.2	9.0	6.9	3.1
2008	17.2	14.2	8.6	6.7	3.1
2009	15.8	13.1	8.1	6.3	3.1
2010	14.9	12.1	7.6	6.0	3.1
2011	13.8	11.2	7.3	5.9	3.2
2012	12.6	10.3	6.8	5.7	3.1
2013	11.6	9.6	6.6	5.8	3.0
2014	10.8	9.0	6.3	5.6	3.0

Source: same as Table 4.

In the case that the pressure on pension payment is increasing, the pension received by the retirees continue to shrink and the pension replacement rate continues to decrease. Since the statistics department did not publish the wage data covering all wage earners, there is no uniform argument on how high the pension social average dependency rate is. The author used the data from the National Bureau of Statistics to calculate the total number of wage earners and the total amount of labor compensation (Zhang, 2012), and then calculate the average wage level of all employees (wage earners) based on this (see Table 10). According to the author's estimates, in 1990, the monthly average pensions received by the retirees was 129 yuan, accounting for around 78% of the average wage of all employees. After that, this proportion has gradually decreased. In 2000, this proportion dropped to around 68% and in 2010, this proportion decreased to around 70%. On average, this proportion declined one percentage point annually. If using the average wage of urban employees as the denominator, the pension replacement rate decreased much faster, which dropped from 72.29% in 1990 to

47.3% in 2013. From the perspective of the world standard, the current pension replacement rate has decreased to a relatively low level. A further decrease will not only bring retirees living difficulties, but also make the system lose its effects. How to make the pension replacement not further decrease has become an urgent problem needed to address in order to maintain the urban employee basic pension insurance system.

Table 10 Average Changes of Wage Level of Wage Earners and Pension

Year	Monthly Average Wage of All Employees (yuan)	Monthly Average Wage of Urban Employees (yuan)	Monthly Average Pensions Received by Retirees (yuan)	Proportion of Pension to Average Wage of All Employees (%)	Proportion of Pension to Average Wage of Urban Employees (%)
1990	165	178	129	78.33	72.29
1991	184	195	133	72.14	68.07
1992	215	226	160	74.06	70.62
1993	253	281	213	84.28	75.90
1994	348	378	265	76.08	70.06
1995	428	458	315	73.56	68.76
1996	496	518	365	73.59	70.46
1997	557	539	412	73.96	76.35
1998	660	623	462	70.04	74.11
1999	736	696	538	73.07	77.30
2000	816	781	556	68.18	71.22
2001	909	906	572	62.98	63.17
2002	1070	1035	657	61.37	63.43
2003	1181	1170	674	57.09	57.61
2004	1296	1335	711	54.88	53.27
2005	1399	1530	771	55.10	50.37
2006	1556	1750	880	56.57	50.30
2007	1793	2078	1003	55.96	48.30
2008	1971	2436	1161	58.91	47.67
2009	2147	2728	1276	59.45	46.79
2010	2366	3096	1395	58.95	45.07
2011	2603	3538	1631	62.66	46.10
2012	2876	3966	1870	65.02	47.15

2013	2934	4366	2054	70.01	47.05
2014		4780	2262		47.32

Source: (1) *China Statistical Yearbook* in each year from National Bureau of Statistics of the People's of China (2) ZHANG Juwei, 2012

4. Sustainability of the Pension Insurance System and Suggestions for its Reform

The pension replacement rate should not be too high, or too low; too high will lead to “welfare disease”, affecting social vitality, while too low will be difficult to guarantee the basic livelihood after retirement. In the early 1990s, the social average replacement rate of China's pension was more than 70%, which was at a relatively high level; but now the replacement rate decreased to less than 60%. From the perspective of international experiences, the current replacement rate is almost the same as that of most countries in the world, which is at a reasonable level; but if further decreases, then the pension replacement rate will be relatively low so that the basic livelihood of the elderly is difficult to guarantee (Chu, 2004).

To achieve the goal that the pension replacement rate does not decrease, simply speaking, there could be several approaches as follows. The first one is to expand coverage, the second one is to raise the contribution rate, and the third one is to find other sources of funding. The expansion of coverage is not only the need of developing the urban employee basic pension insurance system, but also help to stabilize or improve the pension replacement rate. But this is not a final solution of the problem. Because the expansion of coverage means that the increase of the number of pensioners in the future, when the coverage cannot expand, the increasing number of retirees will inevitably lead to the decrease of the replacement rate. Therefore, expanding the coverage is not the fundamental approach to improve or stabilize the pension replacement rate. Is it feasible to raise the contribution rate? The proportion of the added up contribution rate (individual contributions and employee contributions) of China's current various types of insurance systems to total wages is as high as around 42.5%, which is among the highest in the world. The employer or the enterprise is responsible for about 30% of the total wages, resulting in the increase of labor costs and affecting the competitiveness of enterprises. Thus, to further raise the contribution rate is not only impossible, on the contrary, it seems that now is the time to explore how to reduce the contribution rate. Now there left only the third approach, which is to find more sources of funding. China's urban employee basic pension insurance system adopts the funding model of individual and organization's contributions. The government takes the fallback responsibility of the pension insurance fund, but this responsibility is not clarified in the system. Only in the place where the payment of pension insurance fund has gap, the government will provide some financial subsidies. The government does not provide a stable financial support to the pension insurance fund from the

perspective of financing. From the perspective of the system design, the urban employee basic pension insurance fund does not seem to need financial investment. However, in reality, the government's financial subsidies always exist. But the subsidy financial funds are always temporary and casual, which is neither normative nor unreasonable. More importantly, the other two systems—the new rural pension insurance system and the urban resident pension insurance system—operating with the urban employee basic pension insurance system establish stable financial investment mechanisms. It should be said that the urban employee basic pension insurance system lacking stable financial investment mechanism is not only unfair, but also will bring the difficulties for transfer and continuation of pension insurance rights between systems. In the long term, establishing a stable investment mechanism of the government financing the urban employee basic pension insurance system is not only the need to ensure the sustainability of the system, but also the need to perfect the social security system for old age.

As a socialist country, in addition to general fiscal revenue, China's income has two parts belonging to all citizens, but these two parts are not being used reasonably. One part of the income is the income of the state-owned economy; another part is the income of huge foreign exchange reserves. In 2011, the total accumulated profits of state-owned enterprises were 2,255.68 billion yuan and the total accumulated net profits of state-owned enterprises were 1,963.26 billion yuan, of which the net profits belonging to parent company owners were 1,146.08 billion yuan. If using 50% of the net income of state-owned enterprises as the urban employee basic pension insurance fund, then in 2011, it will inject capital of more than 500 billion, which is equivalent to nearly one-third of the contribution income of national urban employee as 1.689 trillion yuan in 2011. Meanwhile, in 2011, China's foreign exchange reserves was 3.18 trillion U.S. dollars. Using the rate of return as 5%, the annual income should be more than 150 billion U.S. dollars, which is equivalent to about 1 trillion yuan. If using half of the annual income as pension insurance fund, then it will increase the fund revenue 500 billion yuan. The income of state-owned enterprises and the income of huge foreign exchange reserves can stably finance 1 trillion for the pension insurance fund. The additional income obtained from these two sources of income by pension insurance fund not only will not increase the burden of organizations and individuals, but also can fundamentally solve the sustainability problem of the urban employee basic pension insurance system. This will promote social equity and play a role in narrowing the income gap. When other countries are facing the difficulty how to finance for the increasingly serious population ageing, the advantage of the unique system can help China to establish a unique pension insurance system in the world.

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Population Aging and Its Influences on the Economy and Society in China



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Preface

Since China's reform and opening up, the development of economy and society in China have made remarkable achievements, and the comprehensive national strength have enhanced markedly. At present, China's GDP has become the second position of the whole world. However, China is still the world's largest developing country, the per capita GDP ranking beyond 90 and the development of economy and society is also facing with very difficult task. Especially in the 21st century, China is coming into a population aging society in an all-round way, which will bring a series of challenges to the development. On the one hand, aging has profound influences on many factors of economy development, such as labor market supply, capital accumulation, national savings, national income distribution and economy development potential, etc. On the other hand, the increasing of aging will bring a series of pressure to the social development in our country, the demand of pension, medical and nursing will increase and it will be difficult to balance the supply.

In full attention to the series of challenges brought from aging, we should see that ageing will also bring some opportunities at the same time. Ageing can increase the "consumer" population in the process of economy development, thus it can effectively expand domestic demand. In addition, it will bring some opportunities, such as developing old human resources to supplement the labor supply, developing the pension industry to upgrade industrial structure and improving the pension system to perfect the capital market, and so on. All of these can not only bring benefits for the elderly, but also can form a new economy growth point.

Overall, challenges and opportunity coexist in the process of aging, it needs to be discussed in depth and comprehensive. Despite the negative impact of aging may not be completely eliminated, replying on it timely and effectively can maximum limit the negative impact of ageing. Xi Jinping general secretary made important instructions on strengthening old-age work recently, he stressed that effectively cope with the population aging in our country, is a matter of national development of the country and of well-being of the nationals. It should be based on the current and long-term perspective, strengthening the top-level design, improving fertility, employment, pension and other major policy and system, in order to make timely response, scientific and comprehensive response. Prime minister Li Keqiang also make instructions, he points out that we should combine aging with 13th Five Year Plan and put forward relevant policy recommendations, and pay attention to the maneuverability. The argument in response to the top design has been clear about the direction of aging. However, there are problems of aging and they interweave each other, it is still a lack of clear train of thought dealing with ageing at present. This topic will focus on the economy effects and social effects of aging based on the existing research and practice of aging, the experiences of coping with aging in the whole world, the historical evolution, development status quo and future trends of aging in our country. Besides, this topic will explore the challenges and opportunities of aging in China and put forward some ideas and suggestions dealing with aging. This topic research is based on the following premises:

One is some errors unavoidably exist as the population prediction, especially long-term population prediction will be influenced by many factors. The data on aspects such as ageing project mainly comes from the Department of Economy and society Affairs, United Nations. As an international authority in the population research, the Department release the related results according to the actual of the world's population prediction for an adjustment, and it has high credibility.

China is now opening the "comprehensive two children" policy to deal with population ageing, the policy will not change the overall trend of population age structure. Li Qiang, the dean of School of Social Science in Tsinghua university, who did a prediction of population structure in 2020, 2030, 2050 influenced by the "two child policy" and it shows that in the following 30 years, "the second child policy" is not a fundamental impact on China's population structure.

Based on the above several backgrounds and prerequisites, this topic will mainly develop from the following several aspects:

The first part is the current situation of population ageing in China's. This part mainly expounds the development and change of population age structure in China and the present situation and characteristics of population ageing, and analyzed the state of development of economy and society in the early China's population ageing.

The second part is the development trend of China's population ageing. With the help of the data from Department of Economy and society Affairs, United Nations, we will forecast the population aging through different indicators, and comparing with the rest of the world population aging.

The third part is the analysis of China's population ageing 's influence on economy and society. This subject mainly focuses on the economy and society effects in order to explore the challenges and potential opportunities in the process of China's population ageing.

The fourth part is the experiences of dealing with aging population in foreign countries. This part will further sum up the experiences of different countries to cope with the population aging from the aspects of the economy development, social policy and pension service.

The fifth part is the possible strategy of dealing with population aging in China. This part will mainly explore the strategy dealing with population aging which is suitable for China's national conditions on the basis of international experiences for reference.

The main data sources of this report:

1. The population census data from 1953 to 2010 of China;
2. The annual data from National Bureau of Statistics, People's Republic of China;
3. Data from the Department of Economy and society Affairs, United Nations.

1 The Situation of Population Aging in China

Population ageing is an important trend in the development of the whole world. Changes of the population age structure affect every aspect of human's life extensively and profoundly, and population ageing has increasingly become a major population problem cared about by different countries in the world. As the world's largest developing country, China becomes a population aging country under the background of economy development level is relatively low, in the current and for a long time it will have a profound impact on China's economy and society development.

The fast developing trend of population aging is closely related to the decline of birth rate and mortality and the increase of life expectancy. At present, China's fertility rate has fallen below the replacement level, life expectancy and mortality is close to levels in the developed countries. As peak population born in the middle of the 20th century will go into old age, the early stage of the 21st century will be China's fastest growing period of population aging.

1.1 Population Aging and the Definition

1.1.1 Meaning and Measurement of Population Aging

Population ageing refers to the elderly population proportion growth dynamically in a country or a region because of the decrease of young population and the increase of older population. The meaning of population ageing usually contains two aspects: one refers to the elderly population increase relatively, it means the process of the rising proportion of older; Second refers to a state of an aging society.

Population ageing first produced in developed countries, it is inevitably resulted from the rapid development of economy, improvement of people's living standards, perfect of the medical security system and the progress of research and development and so on. At present, population ageing has become a common concern all over the world, it has a far-reaching influence on the economy and society development to the countries, and it is also a sign of social progress.

Table 1-1 Measurement of Population Structure

	Young	Adult	Old
0-14/whole population	>40%	30%-40%	<30%
60+ / whole population	<5%	5%-10%	>10%
65+ / whole population	<4%	4%-7%	>7%
65+/0-14	<15%	15%-30%	>30%
median age	<20	20-30	>30

Usually in the international society, we take the proportion of population more than 60 years reached 10%, or the proportion of population more than 65 years reached 7% as a standard to measure the population aging society. In addition, the young population ratio (the proportion of population aged 0 to 14 years is less than 30%), old and young, than (the proportion of population aged 65 and above accounts for the population aged 0-14 is over 30%), the median age (the median age in the 30 years of age or older) can also be used as a measure of an ageing population.

This topic mainly adopts international general indicators (10% of the population aged over 60, 7% of the population aged over 65) as the main standard to judge the population aging, while the other as auxiliary measurements, in order to determine the severity of population ageing.

1.1.2 Process of Population Aging in China

The change of China's population age structure is not a continuous aging process, but it has experienced from a relatively young population structure to old population structure rapidly. In 1953, China became an adult population structure, then it began to be younger. In 1964, it had become a young population structure (proportion of 0-14 was more than 40%, people of 65+ is less than 4%); After the mid-1960s, with the falling of mortality rates and fertility rate, the population age structure became into adult again, by the year 1982 it had become a typical adult population; In 1990s, the median age improved further, the quantity and proportion of the older continued to rise, the aging process speed up continuously. In 2000, the fifth population census showed that population aged 65 years and above had reached 88.21 million in China, which accounts for 6.96% of the total population, China officially became aging countries; in 2010, the sixth population census showed that the population aged 65 years and above in our country had reached 8.87 %, it increased by 1.91% compared to 2000, population ageing was further developed.⁴³

Table 1-2 population age structure from 1953-2010

Year	0-14/whole population (%)	65+/whole population (%)	65+/0-14	median age (year)
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⁴³ National Development and Reform Commission. population and social development report 2014 - population changes and the public service [R]. 2015

			(%)	
1953	36.3	4.4	12.1	22.7
1964	40.7	3.6	8.8	20.2
1982	33.6	4.9	14.6	22.9
1990	27.7	5.6	20.2	25.3
2000	22.9	7.0	30.6	30.8
2010	16.6	8.9	53.6	35.2

Source: counted from all previous census data in China.

1.2 The status quo and characteristics of population ageing in China

1.2.1 The aging increasing fast, and the old-age dependency ratio rises

Since the founding of new China, the population age structure is due to the change of the birth and death rates. From the data of six censuses, the quantity and proportion of elderly population is rapidly developing, the proportion of the population aged 60 and above is 7.32% in 1953 and the number rose to 13.26% in 2010, the proportion of the population aged 65 and above is 4.41% in 1953 and the number rose to 8.87% in 2010. According to the UN standard, in 2000 the proportion of the population aged 60 and above is 10.33% in our country, which marked that China has formally entered an aging society.

From the point of an ageing population development speed, China spent only 18 years in changing the population age structure from the adult structure to older structure, while other countries like France took 115 years, Switzerland took 85 years, the United States took 60 years, even with high aging degree of Japan also took 25 years. The speed of China's population aging development is very fast⁴⁴.

At the same time, China's population aging scale is huge, the quantity of old people equals 1/5 of it in the whole world.⁴⁵ China is one of the world's most populous country in the elderly and it is the only country whose elderly people are more than hundreds of millions.

⁴⁴ Sun Qixiang, Zhu Nanjun. China's ageing population analysis [J]. China's financial, 2015 (24) : 21-23

⁴⁵ The national working committee office on aging. China's ageing population trend prediction research report [R]. 2006

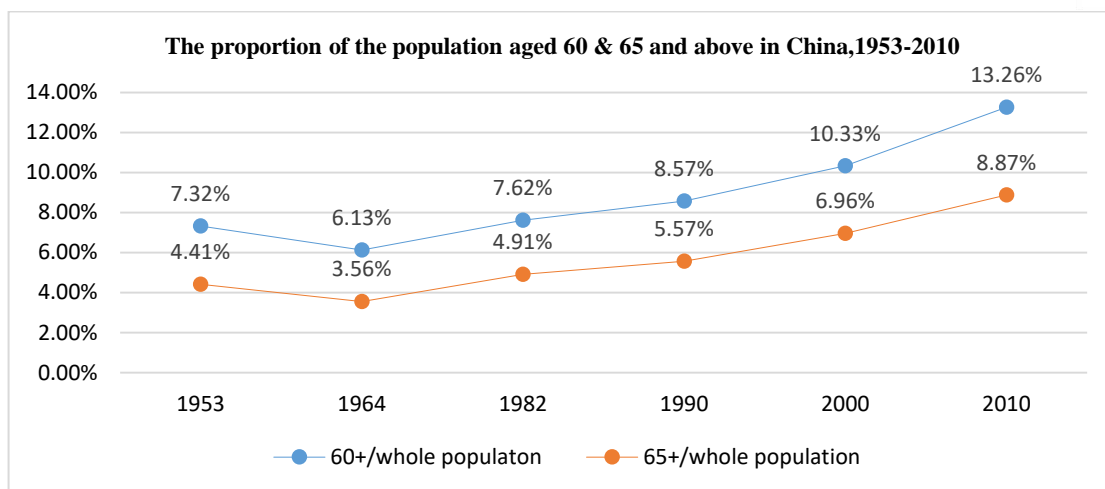


Figure1-1 The proportion of the population aged 60 & 65 and above in China, 1953-2010

source: counted from all previous census data in China.

Since entering an aging society, along with the high speed of economy development in China, people's living standard is rising. Especially due to the improvement of medical and health conditions, people's life expectancy becomes longer, and together with continuing of the family planning policy, the number, scale and increasing speed of elderly population in our country are increasing quickly. In 2000, the number of the population aged 65 and above is 88 million, and the proportion of total population is 6.96%. By the end of 2014, the number of the population aged 65 and above reached 138 million, the proportion of total population is up to 10.06%.

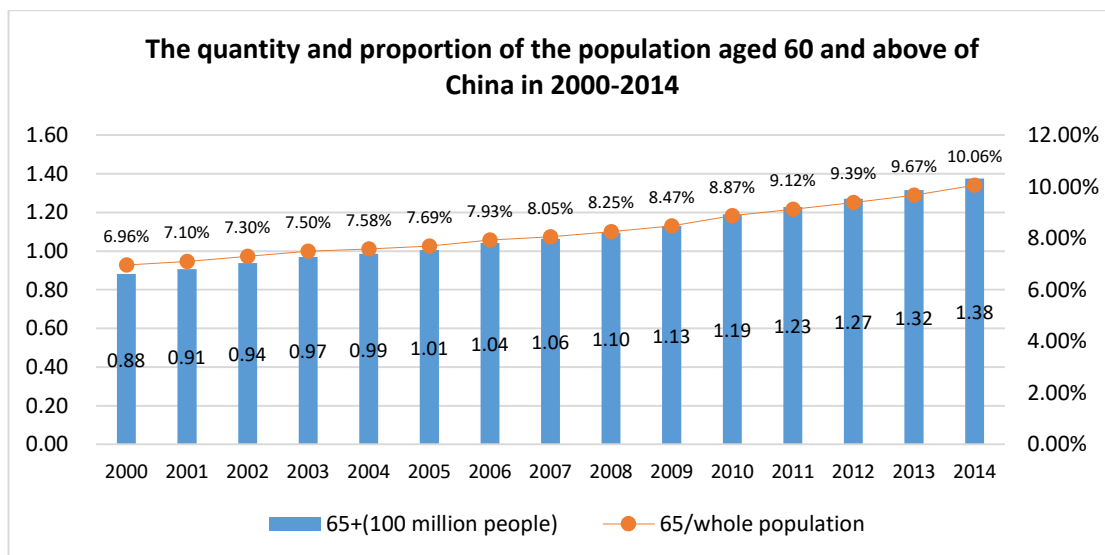


Figure 1-2 quantity and proportion of the population aged 60 and above of China in 2000-2014

sources: The annual data from National Bureau of Statistics, People's Republic of China, whereby, data of 2000 and 2010 are based on the census data, the other data are calculated according to the annual population sampling survey.

Another important performance of population aging is the change of elderly dependency coefficient. According to all the previous census data in China, the elderly dependency coefficient in China has risen from 7.44% in 1953 to 12.62% in 2010 (taking the population aged 65 and above accounts for the proportion of population aged 15-64 as the elderly dependency ratio). And what this means is that with the gradual improvement of the degree of ageing, the pension burden of the labors will be more and more heavy.

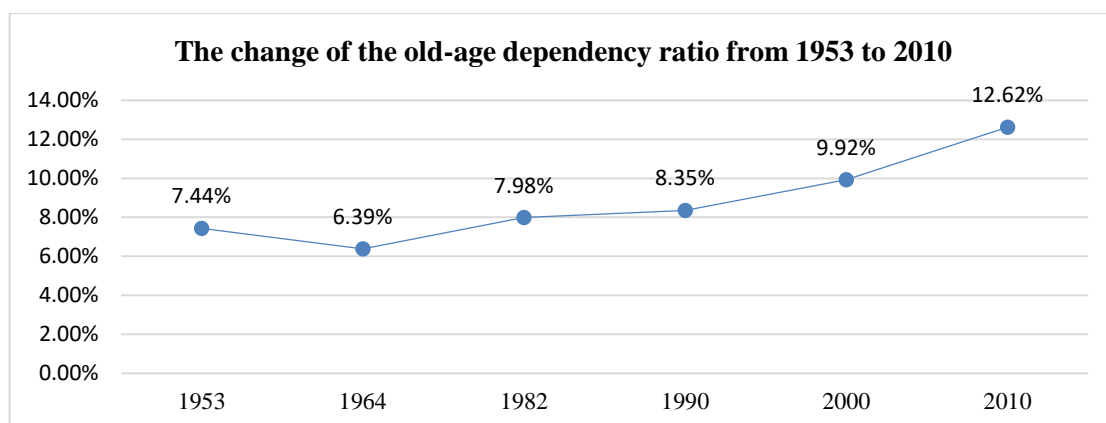


Table 1-3 The change of the old-age dependency ratio from 1953 to 2010

source: counted from all previous census data in China.

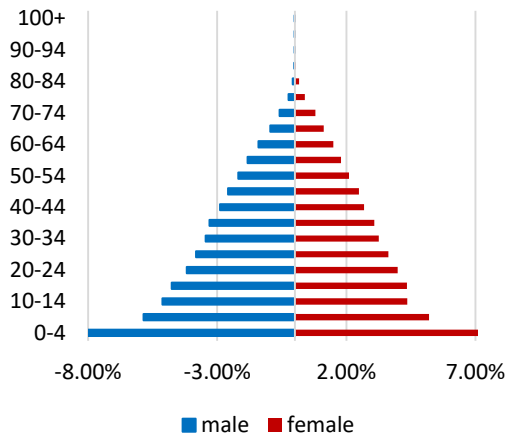
Note: elderly dependency ratio = population aged 65 and above / population of 14-65, that is, the proportion of the elderly population of working age population.

1.2.2. The bottom of the population pyramid is shrinking, the structure of population is becoming older and older.

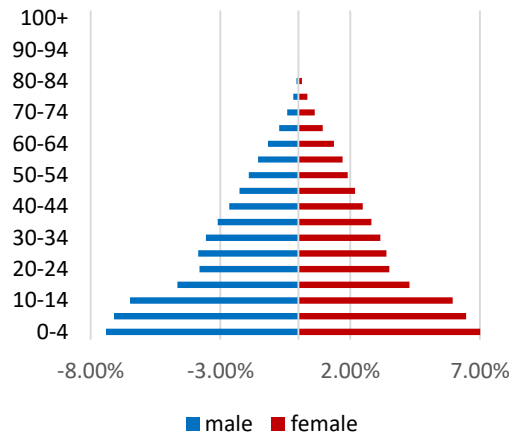
Great changes of population age structure have taken place since the founding of the People's Republic of China. The quantity of population aged 60 and above rose from 41.5 million in the first national census in 1953 to 177 million in the sixth national census in 2010, which has been increased by a factor of 4. Scholars have different interpretation to the changes of the population age structure in China. Generally, the changes of population age structure were summarized as three phase shift. The first phase is high birthrate and high mortality rate, low natural growth rate, the second phase is high birth rate, low death rate and high natural growth rate, the third phase is low birth, low mortality rate and low natural growth rate. The shift of the three phases has a relatively clear reflection in China's population age structure on the pyramid.

According to population age pyramid from the six times census in China, we can see that in 1953, population age structure in our country presented a standard pyramid shape and population age structure is still young. After that, along with the rapid rise of fertility and mortality decline, the population age structure became further younger. However, China began to implement family planning starting in the 1970s, the fertility rates fell sharply. The birth rate decreased from 34.11 ‰ to 17.82 ‰ from 1969 to 1979, and the births fell rapidly, and it also made the population age structure change gradually, the bottom of the pyramid is shrinking, the middle and top of the pyramid is expanding, which is an important performance of population age structure aging.

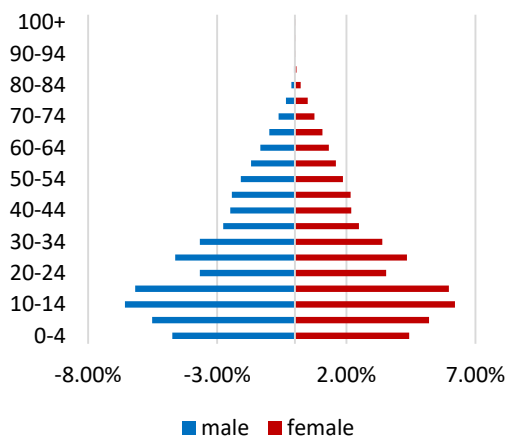
The population pyramid of China in 1953



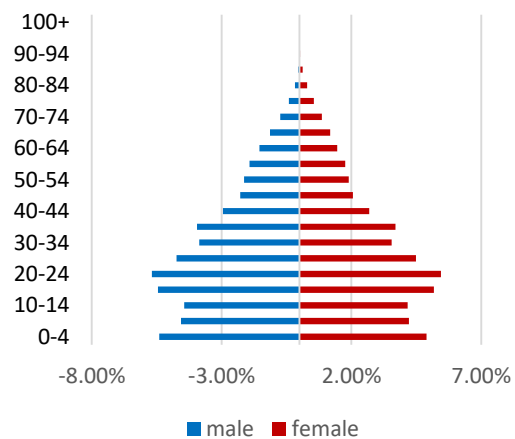
The population pyramid of China in 1964



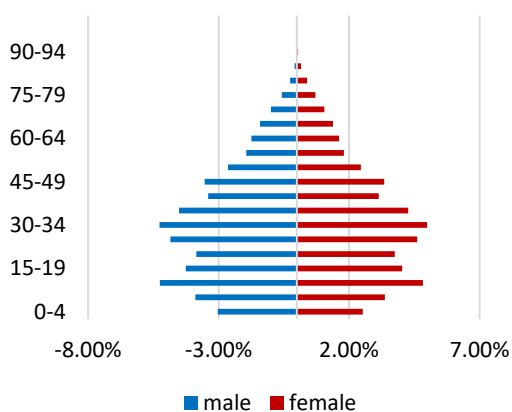
The population pyramid of China in 1982



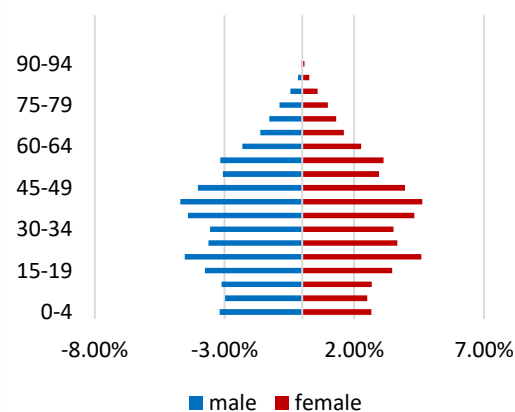
The population pyramid of China in 1990



The population pyramid of China in 2000



The population pyramid of China in 2010



In addition, all previous census showed that the proportion of the population of 0 to 14 decreased from 36.28% in 1953 to 17.12% in 2010, has fallen by more than half. The declining of the proportion of children is also the important performance of the aging population age structure.

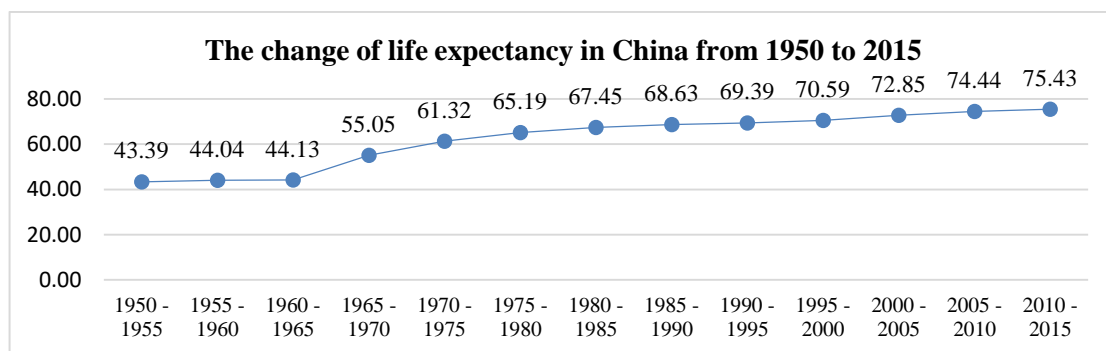
Table 1-3 The whole population and population by age from 1953 to 2010

Year of census	whole population (million people)	Proportion of population by age (%)		
		0-14	15-64	65+
1953	59435	36.28	59.31	4.41
1964	69458	40.69	55.75	3.56
1982	100818	33.59	61.5	4.91
1990	113368	27.69	66.74	5.57
2000	126583	22.89	70.15	6.96
2010	133281	17.12	73.6	8.87

source: counted from all previous census data in China.

1.2.3 The life expectancy is becoming longer, the median age population is rising.

Life expectancy is an important symbol measuring residents' health level in a country or area. It is comprehensively calculated according to the death situation of baby and each age stage population, it refers to all the citizens should be lived to the age at this stage in the case of no accident. Life expectancy is one of the statistical indicators reflect lifespan, at the same time, the extension of life expectancy is also an important factor to deepen the process of population aging. Along with the gradually perfect of the economy and society development as well as the medical and health care system, life expectancy in our country continues to extend, and it had already been 43.39 years in the 1950s to the present 75.43 years. The extension of life expectancy increased the number of elderly people to a certain extent and deepen the process of the aging of the population.



Source: United Nations, Department of Economy and society Affairs, Population Division (2015). World Population Prospects: The 2015 Revision, custom data acquired via website.

The median age is also a key variable reflecting the population age structure. The upward moving trajectory of the median age can reflect the population ageing process as a whole. In the early days after foundation of People's Republic of China, as a result of rapidly rising birth rate, declining mortality, increasing new birth population, the median age population had experienced a period of decline. In the 1970s, along with the carrying out of family planning policy, new born population began to decline, the median age of population increased year by year and it has risen to 37 at present. According to international practice, the median age indicators is a standard of dividing the population age structure types: it is a young population structure when the median age is under 20; it is an adult population structure when the median age is between 20-30; it is an elderly population structure when the median age is over 30. According to this standard, it significantly tells an elderly population structure in China now.

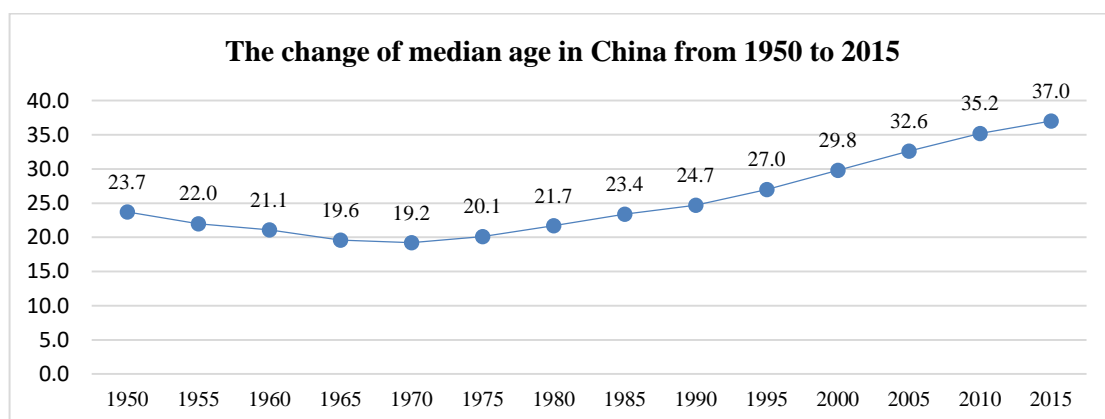


Figure 1-6 the change of the median age in China from 1950 to 2015

Source: United Nations, Department of Economy and society Affairs, Population Division (2015). World Population Prospects: The 2015 Revision, custom data acquired via website.

1.2.4 The proportion of advanced ages and disabled elders is increasing.

In addition to the large elderly population and fast development of aging, the trend of advanced age is another striking feature of the population aging in our country. In 1953, the first time census of China showed that the population aged 80 and above accounts for the proportion of population aged 60 and above was only 4.37%, and by 2010 the sixth census this figure has risen to 11.68%, that is to say, there is more than a 80-year-old people in every 10 people over 60. In China, the average annual growth rate of advanced ages above 80 reached 5% from 1982 to 1990, the speed is much faster than the annual growth rate of the population aged 60 and above. From 1990 to 2010, the average annual growth rate of advanced ages above 80 was 4.1%, which is higher than the average level of the world even the developed countries.⁴⁶As the extension of life expectancy and deepening of aging degree, the proportion of advanced ages will have a tendency to rise further.

⁴⁶ Sun Qixiang, Zhu Nanjun. China's ageing population analysis [J]. China's financial, 2015 (24) : 21-23

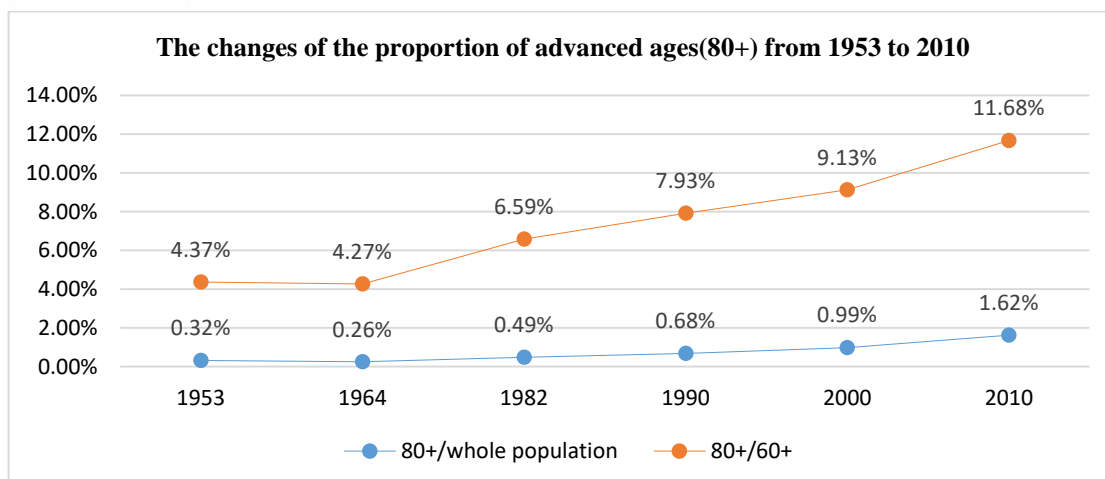


Figure 1-7 The changes of the proportion of advanced ages from 1953 to 2010

source: counted from all previous census data in China.

As the increasing of age, old people's health will also be weakening, also, advanced ages will lead to disability to a great extent. The ministry of health statistics showed that elderly people aged 60 and above was 3.2 times than the population prevalence of chronic diseases, and was 3.6 times of disability rate than the whole population. Compared with young people, the elderly will appear some age-related characteristics in physiology, the physiology is falling into a decline, the resistance is decreasing, and the possibility to be disabled is greatly increased.

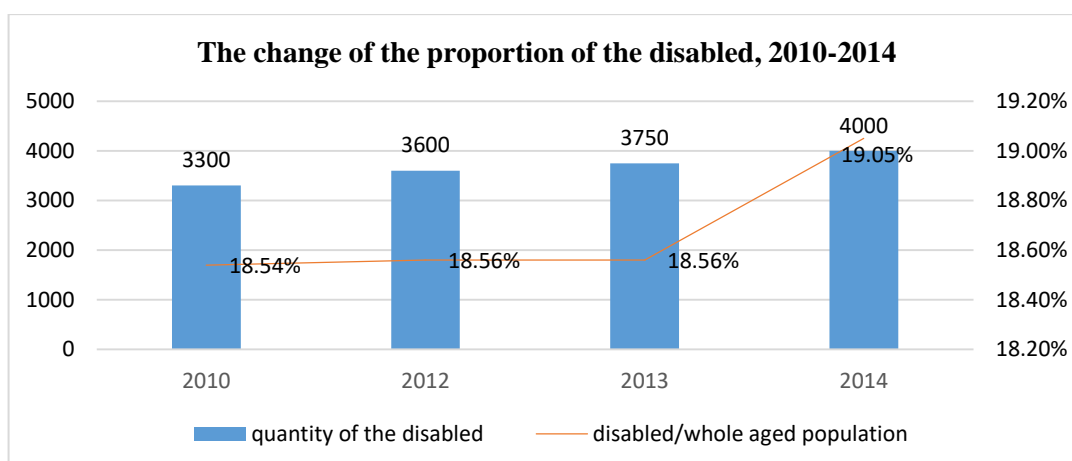


Figure 1-8 the change of disabled in China from 2010 to 2014

Source: arrange from the China Research Center on Aging and the press conference of Ministry of Civil Affairs of the People's Republic of China

China is currently the world's only country whose disability elderly population is more than 10 million.⁴⁷ In recent years, the number and proportion of disabled elderly people in China is increasing. In the year of 2010, the number of disabled elderly people is about 33 million, accounting for the proportion of

⁴⁷ Sun Qixiang, Zhu Nanjun. China's ageing population analysis [J]. China's financial, 2015 (24) : 21-23

elderly people aged 60 and above 18.54%. With the rising number of disabled elderly people, there are 40 million people fail (wisdom) among the whole 210 million old people aged 60, accounting for the proportion of elderly population aged 60 and above 19.05%. Authorities also predicts that the number of elderly population will reach 400 million by 2035, and the quantity of disability will further increase.

1.2.5 The population aging changes among different areas, the western areas surpass the formers

According to the fifth census data in 2000, China's aging population geographical distribution is consistent with the famous "Heihe-Tengchong" population distribution line. The degree of population ageing developed unbalanced among regions, the ageing is even severe in the provinces along the Yangtze river delta and several municipalities directly under the central government, while most of the western provinces have not yet entered the aging society. By 2010, the sixth census data showed that the population aging has developed rapidly and all quickly fell into an aging society in the western region provinces except Tibet, Qinghai, Ningxia, Xinjiang. Especially in Chongqing and Sichuan, the degree of population ageing is ranked among the top ageing rapidly in the whole country. The population ageing presents that the eastern region is slowing, the central and western regions are increasing, besides, with the labor force in the Midwest flowing to the eastern, this kind of situation will worsen.

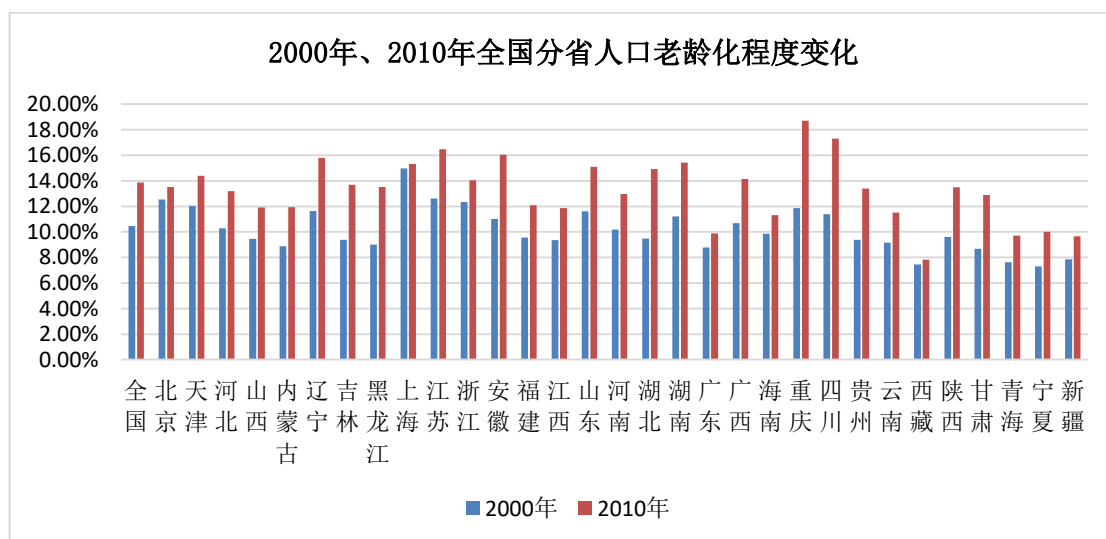


Figure 1-9 the change of degree of population aging in different provinces in 2000 and 2010

Source: Arranged from the fifth and sixth census in 2000 and 2010 in China,

Note: population aging means the proportion of people aged 60 and above of the whole population.

After entering the 21st century, the trend of advanced ages is becoming severe in most regions. Similar with the regional differences of ageing, the advanced ages in the part of western region surpass the formers, in addition to Shanghai, Jiangsu, the degree of the advance ages in Chongqing and Sichuan also ranks the top.

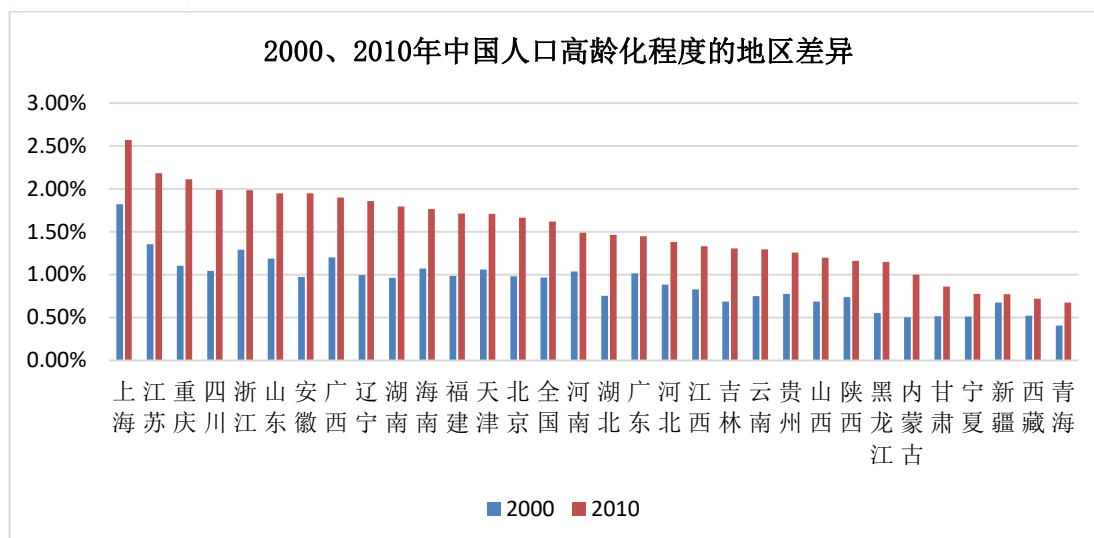


Figure 1-10 the differences of advanced ages among regions in 2000 and 2010

Source: Arranged from the fifth and sixth census in 2000 and 2010 in China,

Note: advanced ages means the proportion of people aged 80 and above of the population aged 60 and above.

1.3 The development of economy and society in the early ageing

1.3.1 Owed to the demographic dividend, the economy increased rapidly

Demographic dividend is a word first appeared in 1997, the *World Bank World Development Report*. The report argues that when the population structure comes to be the formation of "the top and the bottom is small while the middle is large middle" (0 to 14 years old population and population aged 65 and above is in small size, population aged 15-64 is in large scale), population dividend is more noticeable in the process of demographic transition. According to the existing research, we usually take 53% as a general demographic dividend standard, and 59% as the demographic debt standard.⁴⁸ In general, dependency ratio of population is an important index of demographic dividend.

Table 1-4 Judging standard of dependency ratio of population, demographic dividend and demographic debt

	Demographic Dividend			Balance			Demographic Debt		
	强质型	显著型	趋强型	微弱型	平衡	微弱型	趋强型	显著型	严重型
Whole	<44	44-47	47-50	50-53	53-59	59-62	62-65	65-68	>68
Young	<25.5	25.5-27	27-28	28-30	30-33	33-35	35-36	36-37.5	>37.5
Elderly	<18.5	18.5-20	20-21.5	21.5-23	23-26	26-28	28-29	29-31	>31

Source: National Development and Reform Commission. population and social development report 2014 -- population changes and the public service [R]. 2015

⁴⁸ Chen Youhua. demographic dividend and demographic debt: quantity definition, experience, observation and theoretical thinking [J]. Journal of population studies, 2005,06: 23-29.

According to the above indicators, in the early period of the population aging society in China, population between 15-64 of working age group is still on the rise of demographic dividend period in a relatively long period of time (the proportion of the population between 15-64 is more than 70%, the total dependency ratio is less than 30%). This will provide a good environment for the rapid growth of the economy for China. Beginning in 2010, although China's working-age population numbers keep rising, the overall proportion began to decline. By 2014, the working age population of 15-64 became to decline for the first time⁴⁹. Overall, China is still in the demographic dividend period.

Demographic dividend often leads to a series of opportunities: on the one hand, labor supply is adequate in the demographic dividend period, and the price is low and it can create more social wealth on the premise of full employment; On the other hand, a relatively young population age structure makes the savings rate higher, it can effectively convert savings into investment in a sound capital market so as to promote the economy development; At the same time, the social security will be at the stage of accumulated more, spending less in the demographic dividend period, which can accumulate a large number of social wealth.

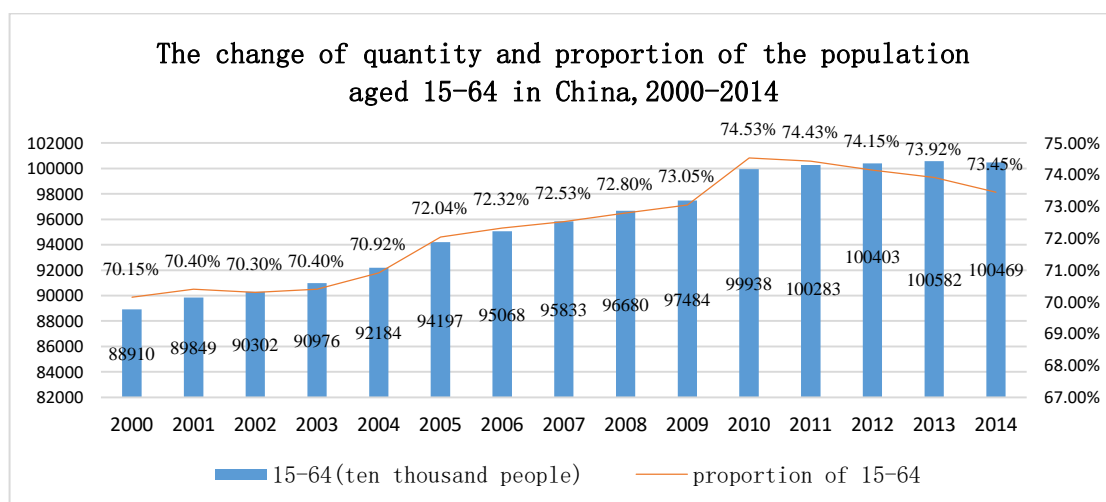


Figure 1-11 The change of quantity and proportion of the population aged 15-64, 2000-2014

Source: The annual data from National Bureau of Statistics, People's Republic of China

Benefit from the policy of reform and opening in China and the demographic dividend, China's economy development has been maintained a fast growth speed for decades. At the beginning of the 21st century of nearly 10 years, the GDP growth in China was more than 10%, which created a miracle of economy development. Because of it, the economy development level, people's living conditions have greatly improved. In recent years, along with the economy dimension increasing and the impact of population ageing and many other factors, the speed of China's economy growth is slowing down. At present, the economy growth in China has becoming gradually from rapid growth to about 6% of middle-high-speed growth especially as the demographic dividend reduce.

⁴⁹ Note: Take the 15-64 as the working age population is because most labour retired at the age of 60 are still at work, the second reason is the lack of statistical data of the population of 15 to 60, the third reason is for the sake of unity with the world standards.

The change of GDP and per capital GDP in China from, 2000-2014

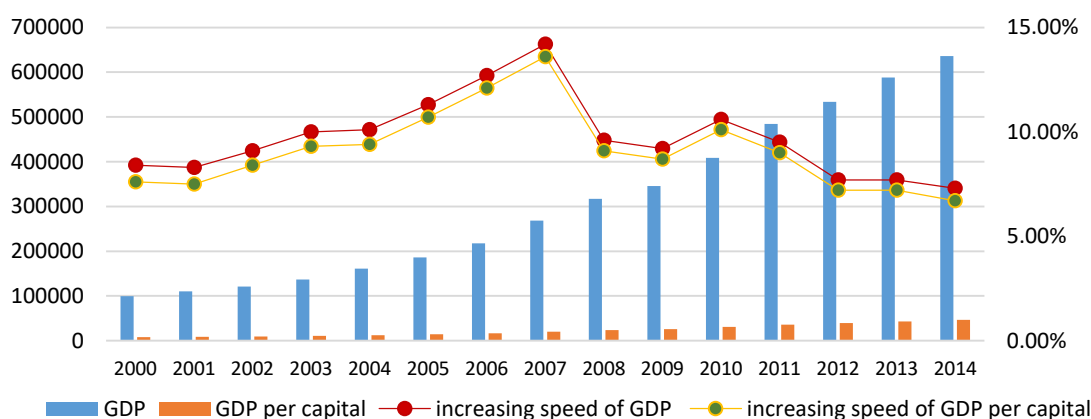


Figure 1-12 The change of GDP and per capital GDP in China from 2000 to 2014

Source: The annual data from National Bureau of Statistics, People's Republic of China

1.3.2 The social security developed rapidly, the goal of establishing a full-covered system has realized

In terms of the pension system, China's pension system only covers the urban workers and community agencies and institutions before 2009 and there are only 219 million Chinese people was covered by the pension system by the end of 2008. In 2009, the pilot of the New Rural Pension Insurance System started and fully opened after that, in 2011, the Pension Insurance System for Urban Residents began to build, the pension insurance system has basically realized the goal of full-covered. From then on, the pension insurance system in China expands rapidly, at the end of 2014, the insured persons covered by China's pension insurance system has becoming more than 840 million.

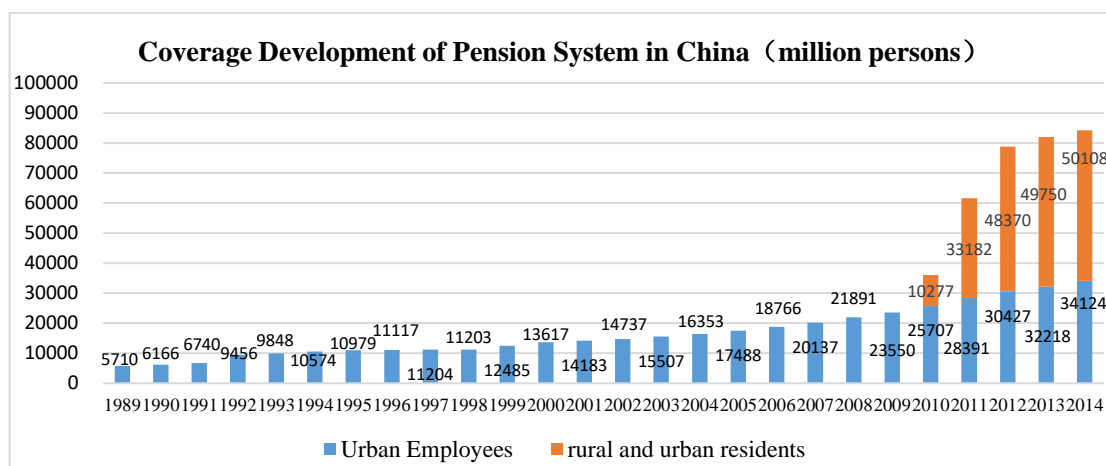


Figure 1-13 Coverage Development of Pension System in China (million person)

Source: The annual data from National Bureau of Statistics, People's Republic of China

In terms of the medical insurance system, China's medical insurance system only covers the urban workers and community agencies and institutions before 2003 and there are only about 109 million Chinese persons who were covered by China's medical insurance system by the end of 2002. In 2003, the pilot of the New Cooperative Medical Insurance System was carried out fully opened after that, in

2007, the Medical Insurance System for Urban Residents began to build, after year of development, the Medical Insurance System has basically realized the goal of full-covered. By the end of 2014, the coverage of China's medical insurance system has becoming more than 1.33 billion.

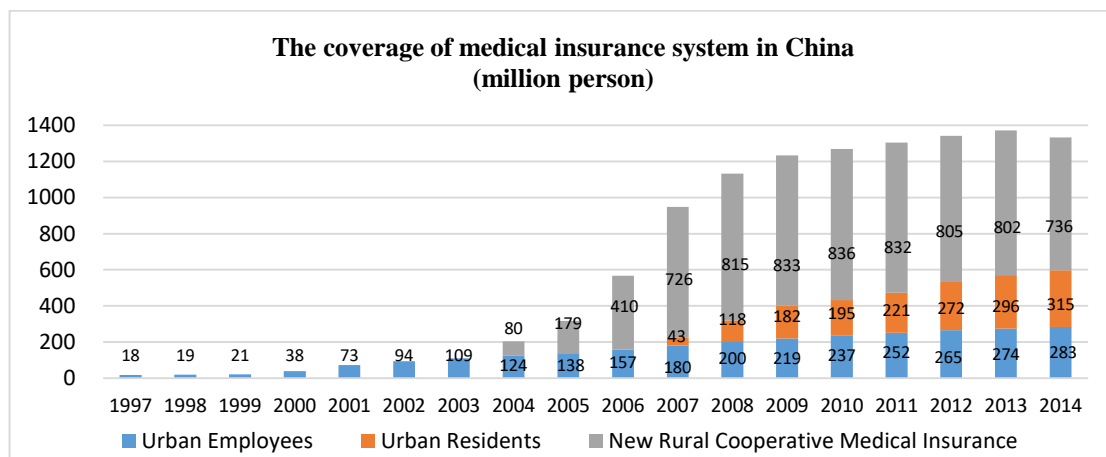


Figure 1-14 The coverage of medical insurance system in China (million person)

Source: The annual data from National Bureau of Statistics, People's Republic of China

1.3.3 China was not wealthy when it entered an aging society compared with other countries.

Compared with many developed countries of the world, the time when China stepped into the population aging society is not too early. However, the economy development level in China is not only far lower than developed countries, even it had a larger gap with the world's average level when China stepped into an aging population society along with the world overall in 2000. Developed countries are mostly step into the aging society under the condition of basic modernization, their society became old after they had been rich or their society became old when they were wealthy. Take the United States, Japan, Israel, South Korea, Singapore and so on for example, when these countries entered into population ageing, their per capita GDP exceeded \$10000. However, China stepped into an aging society when it didn't achieved modernization. The per capita GDP was just nearly \$3976 when it entered into the aging society in 2000, it was much lower than \$7446 of the world average.

Table 1-5 the degree of population aging and GDP per person of China compared with other countries

Countries and areas (year)	GDP per person (dollar)	aging (%)	
		Proportion of 60+	Proportion of 65+
world (2000)	7446	10.0	6.9
China (2000)	3976	10.1	6.8
American (1950)	10645	12.5	8.3
Japan (1970)	11579	10.6	7.1
Israel (1975)	12270	11.8	7.8

Korea (2000)	17380	11.0	7.1
Singapore (2000)	23356	10.5	7.2

Data sources: national population development strategy research group: the national total population development strategy research report.

In general, at the early stage of China's population ageing, the impact and influence to the economy and society development by the population age structure is not very significant, and the economy and society development has made great achievements under the impetus of the reform and opening up policy and the demographic dividend. But it is worth noting that China is still not wealthy and it has large gap with developed countries. Especially in the next few decades, the population age structure will impact the development of economy and society under the condition of population aging speed up, therefore, fully preparation must be made to cope with the aging of the population.

2 The Trend of China's Population Ageing

Along with the change of population age structure, the degree of population aging in China will continue to deepen. On the one hand, the state of fertility rates have remained low for a long time and it makes the bottom of the population age pyramid continues to narrow; On the other hand, the progress of research and development and the improvement of living conditions will make mortality decline further, which will make the top of the population age pyramid become wider eventually; In addition, the sharp drop of China's fertility rate and death rates was formed because of a series of policies economy development, therefore, China will be faced with the challenge of intensifying aging in the next few decades.

2.1 Prediction of the Development Trend of China's Population Age Structure

2.1.1 Prediction of the Development Trend of the whole population and the aged population in China

The future population trends of China involving the population policy of our country on the one hand, and also it concerns about the economy and society development goals. Different organizations and scholars have done some related prediction about the development trend of China's population aging. The changes of the future population are mainly influenced by fertility and mortality. However, the mortality is relatively stable, and it is often not included in the assumptions of different prediction schemes, therefore, the differences among kinds of schemes mainly reflected in the data and assumptions of different future fertility.

The overall trend of the prediction of the population quantity and structure of China in the future is consistent, and there is little differences on the degree of aging prediction. All scholars predict that the population peak will be in 30s to 40s in the 21st century, and the speed of population ageing will be increased in the following thirty or forty years. Especially in around 2040, the proportion of the population aged 65 and above will be more than 20%, and to 2050, this proportion will continue to increase to be 20% to 24%.

Table 2-1 Prediction of the population age structure of China in the future by different organizations and scholars

Year	Zeng Yi		Guo Zhigang		Du Peng		Li Jianxin		UN	
	population	65+/whole	population	65+/whole	Population	65+/whole	Population	65+/whole	population	65+/whole
2000	12.71	6.8	12.69	7.1	12.74	6.9	12.88	7.0	12.70	6.8
2010	13.56	8.4	13.35	8.4	13.61	8.5	13.76	8.4	13.52	8.4
2020	14.40	12.9	14.33	11.6	14.33	11.9	14.50	11.9	14.21	11.9
2030	14.77	16.4	14.66	15.6	14.44	16.3	14.86	16.1	14.59	16.2
2040	14.81	22.4	14.62	20.4	14.29	21.9	14.70	22.0	14.48	22.2
2050	14.60	24.1	14.45	20.6	13.38	23.2	14.27	23.8	14.09	23.7

Resource: Li Jianxin. Problems of China's Population Structure [M]. Beijing: social sciences academic press,2009: P33

The Department of Economy and society Affairs, United Nations will make a comprehensive prediction about the population development of different countries according to the national population register data, census data and some important survey every two years. The most important factors that will influence the prediction are the change of population birth and mortality rates. The China's population and its structure is predicted according to the prediction of the birth rate and mortality rate.

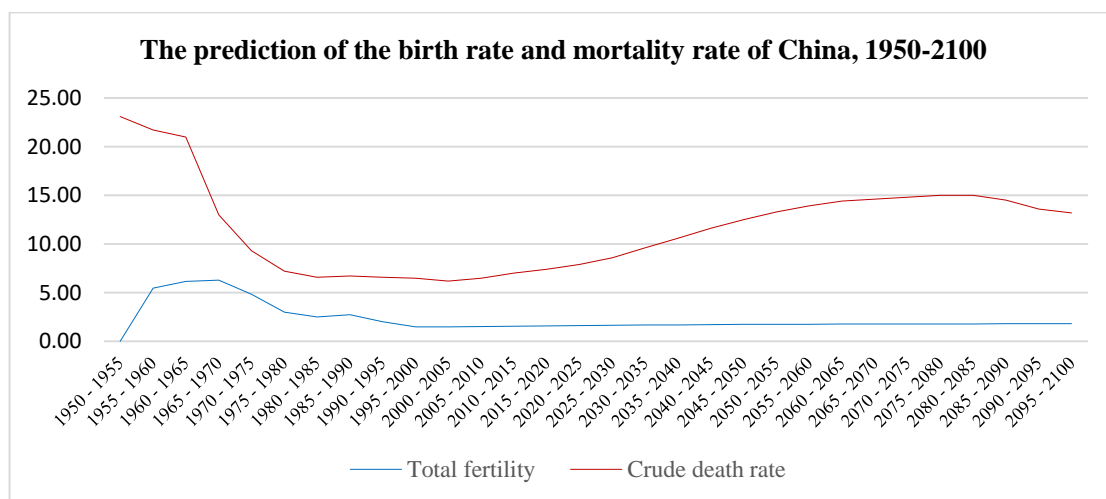


Figure 2-1 The prediction of the birth rate and mortality rate of China, 1950-2100

Source: United Nations, Department of Economy and society Affairs, Population Division (2015). World Population Prospects: The 2015 Revision, custom data acquired via website.

From the perspective of the change of China's fertility rate, it has experienced a process of quickly rising during 1950 and 1970, then the fertility rate began to fall under the influence of the family planning policy, it has been basically stable at about 1.5‰ from the beginning of the 21st century until now, but

the prediction data shows that China's birth rate maintained a certain rise from now on, (1.5 ‰ to 1.5 ‰, may consider the policy of second child). In the aspect of mortality, it decreased from 23 ‰ at the beginning of the founding of PRC to 6 ‰ in the 1980s, then it has remained in 6 ‰ 7 ‰ till now, but from now on, China's population mortality rates will rise from the current 7.4 ‰ to 13.2 ‰ in 2100.

The Department of Economy and society Affairs, United Nations, China's population will reach their peak at around 2030, then the whole population will begin to decline gradually. The population aged 65 and above will be further increased and peaked at around 2060, after that, the quantity of the population aged 65 and above will decline, but its proportion will still increase and remain at a high stage (about 33%) in quite a long period, the year 2060-2100 a plateau of severe aging.

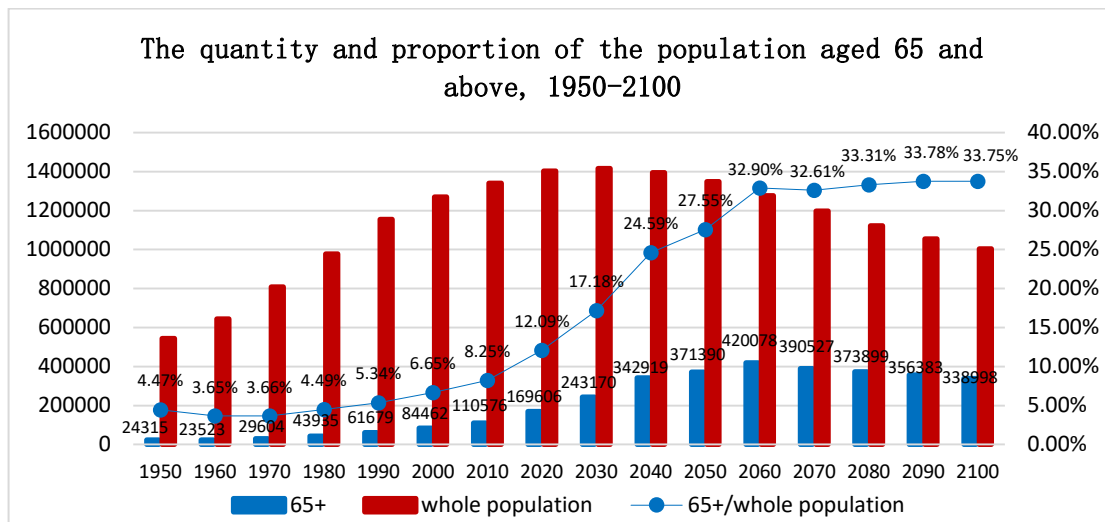


Figure 2-2 The quantity and proportion of the population aged 65 and above, 1950-2100

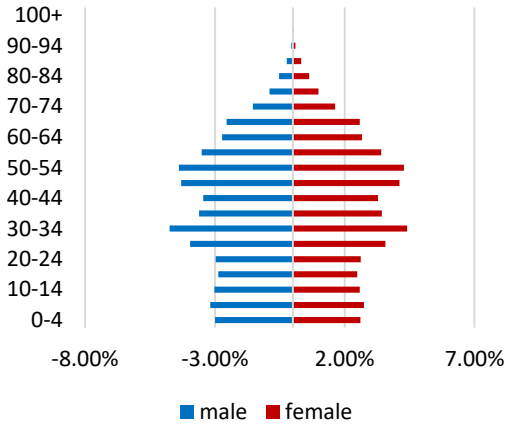
Source: United Nations, Department of Economy and society Affairs, Population Division (2015). World Population Prospects: The 2015 Revision, custom data acquired via website.

But it is worth noting that if the total fertility rate will be higher than the existing prediction, the degree of China's population ageing may be a little slighter.

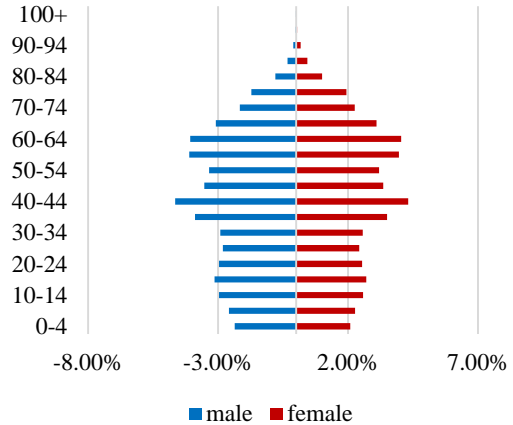
2.1.2 The prediction of the trend of China's population age pyramid

According to prediction of the Department of Economy and society Affairs, United Nations, the shape of the population age pyramid will change further in the following 30 to 40 years, the bottom of the pyramid will be shrinking continuously and the degree of population aging will be increasingly serious.

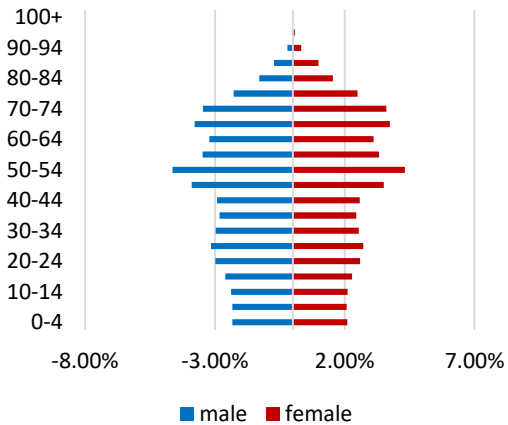
The population pyramid of China in 2020



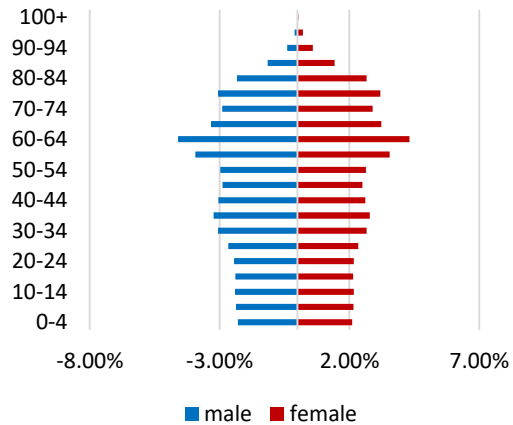
The population pyramid of China in 2030



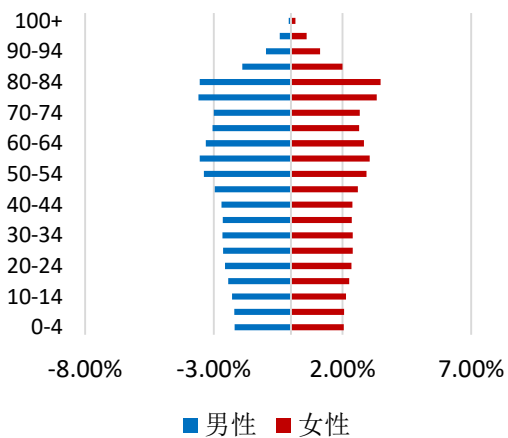
The population pyramid of China in 2040



The population pyramid of China in 2050



The population pyramid of China in 2070



The population pyramid of China in 2100

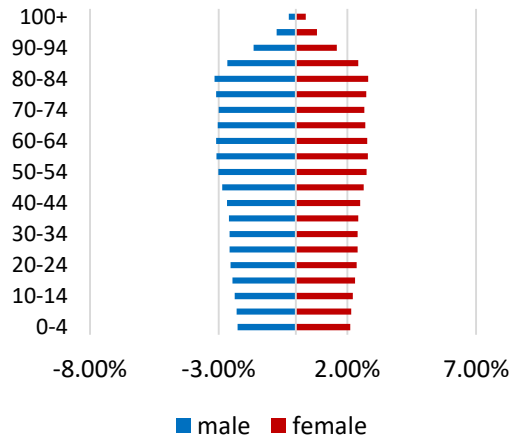


Figure2-1 prediction of the trend of China's population age pyramid

Source: United Nations, Department of Economy and society Affairs, Population Division (2015). World Population Prospects: The 2015 Revision, custom data acquired via website.

Influenced by the twice baby boom during 1953-1957 and 1962-1973, a majority of population will reach the age of 60 in 2013-2017 and 2022-2033. Besides, caused by the inertia effect of the second population boom, the third births boom was formed in 1985-1991, and these population will go into age of 60 before, during, and after 2045-2050, it will lead population aging to go to a peak level in this period. Along with the decrease of the total population, the proportion of elderly population will continue to be high, the proportion of the population aged 60 and above will be more than 30% of the whole population until 2100, the population ageing will be accompanied by the 21st century.

2.1.3 The Prediction of the old-age dependency ratio of China.

The increase of the old-age dependency ratio is the result of the combined action of the increasing of the aged population and the decreasing of working age population, it is a typical embodiment of the population aging. The current old-age dependency ratio in China is 13%, according to the division standard of demographic dividend and population debt, it will be a balance state of population when the old-age dependency ratio is 23%-26%, a demographic dividend period when the old-age dependency ratio is less than 23%, and a population debt period when the old-age dependency ratio is more than 26%.

According to the prediction of the Department of Economy and society Affairs, United Nations, the old-age dependency ratio in China will reach 25% by 2030, which will achieve a balance state of population. However, the old-age dependency ratio will further accelerate in the following few decades, the ratio will rise to 47% by 2050. It shows that China will be in a period of population debt for a long time, which means nearly two working-age population needs to support an aging population, the pressure among generations will be enormous.

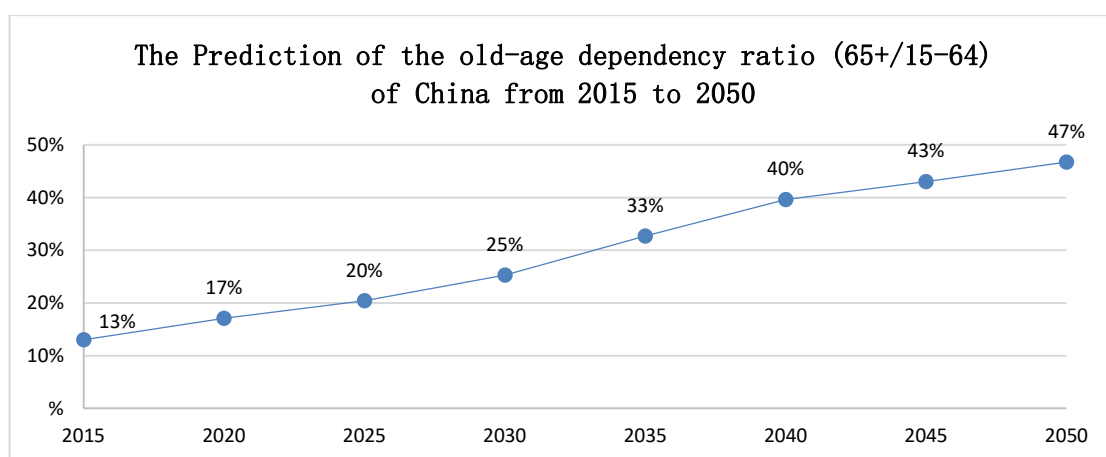


Figure 2-2 The Prediction of the old-age dependency ratio (65+/15-64) of China from 2015 to 2050

Source: United Nations, Department of Economy and society Affairs, Population Division (2015). World Population Prospects: The 2015 Revision, custom data acquired via website.

2.2 The prediction of the trend of China's population change

2.2.1 The prediction of the life expectancy in China

As an important factors affecting the population aging, life expectancy will be further enhanced along with the economy and society development and the progress of medical technology.

According to the prediction of the Department of Economy and society Affairs, United Nations, in the following 30-40 years, the life expectancy in China will increase from the current 76.5 to 82.5 years in 2050. The scale of the aged population will be widened for the increasing of life expectancy.

Table 2-2 The prediction of the life expectancy in China from 2015 to 2050

Year	Life Expectancy (Year)	Year	Life Expectancy (Year)
2015 - 2020	76.50	2035 - 2040	80.55
2020 - 2025	77.54	2040 - 2045	81.53
2025 - 2030	78.60	2045 - 2050	82.52
2030 - 2035	79.55		

Source: United Nations, Department of Economy and society Affairs, Population Division (2015). World Population Prospects: The 2015 Revision, custom data acquired via website.

2.2.2 The prediction of trend of the advanced ages in China

Along with the extension of life expectancy, the quantity and scale of the population aged 80 and above will further expand. According to the prediction of the Department of Economy and society Affairs, United Nations, the population aged 80 and above in China will be more than 120 million in the coming decades. Besides, the growth rate of the population aged 80 and above will be much faster than the population aged 60. The proportion of the population aged 80 and above will reach 24.53% of the population aged 60 and above by the year of 2050, which means that there will be one population aged 80 and above in every 4 elderly people. After the year of 2060, the quantity of the population aged 60 and above will be reduced gradually, but the quantity of the population aged 80 and above will still rise. The population aged 80 and above will be over 165 million and the proportion of it will be above 41.69%.

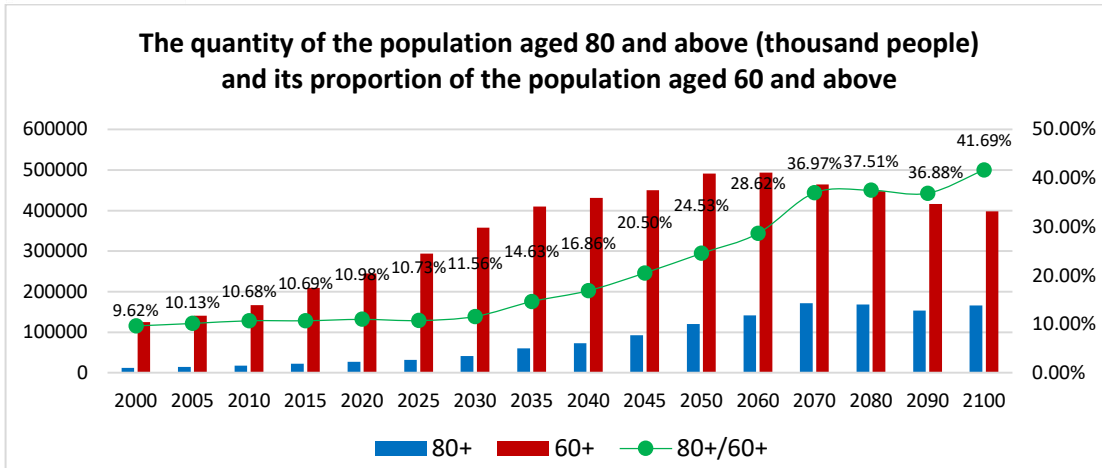


Figure 2-3 The quantity of the population aged 80 and above and its proportion of the population aged 60 and above (thousand population, %)

Source: United Nations, Department of Economy and society Affairs, Population Division (2015). World Population Prospects: The 2015 Revision, custom data acquired via website.

2.3 The comparative of the trend of population aging in the whole world.

2.3.1 The comparative of the quantity and proportion of the aged population

Compared with the developed countries, the time when China step into the population aging society is relatively late. But after entering a population aging society, the speed of the development of aging in China is very quick. The degree of the population aging will be closed to the level of developed countries in about 2030, and it will surpass the level of developed countries by 2050, and it will be much higher than developing countries and the average level of the population aging in the whole world.

Table 2-3 The international comparative of the trend of the quantity and proportion of the population aged 65 and above

		2000	2010	2020	2030	2040	2050
China	Whole population	12.70	13.41	14.03	14.16	13.95	13.48
	65+	0.84	1.11	1.70	2.43	3.43	3.71
	65+/whole	6.65%	8.25%	12.09%	17.18%	24.59%	27.55%
World	Whole population	61.27	69.30	77.58	85.01	91.57	97.25
	65+	4.19	5.29	7.25	9.95	12.99	15.59
	65+/whole	6.84%	7.63%	9.35%	11.70%	14.19%	16.03%
Developed Countries	Whole population	11.89	12.33	12.66	12.84	12.88	12.86
	65+	1.70	1.98	2.46	2.96	3.25	3.41

	65+/whole	14.30%	16.08%	19.40%	23.02%	25.24%	26.50%
Developing Countries	Whole population	49.38	56.96	64.92	72.17	78.69	84.39
	65+	2.49	3.31	4.79	6.99	9.74	12.18
	65+/whole	5.04%	5.81%	7.38%	9.69%	12.38%	14.43%

Source: United Nations, Department of Economy and society Affairs, Population Division (2015). World Population Prospects: The 2015 Revision, custom data acquired via website.

2.3.2 The comparative of the median age in different countries.

Overall, the median age in China will also continue to improve, and it will be gradually close to the most serious aging countries in the whole world. The median age in China will be much higher than the median age in the whole world, and population age structure will become much older.

Table 2-4 The comparative of the median age in different countries

	China	Japan	England	German	America	World
1950	23.7	22.3	34.9	35.3	30.0	23.5
1960	21.1	25.5	35.6	34.7	29.6	22.6
1970	19.2	28.9	34.2	34.1	28.3	21.5
1980	21.7	32.6	34.4	36.4	30.0	22.5
1990	24.7	37.4	35.8	37.6	32.8	24.0
2000	29.8	41.3	37.6	40.1	35.3	26.3
2010	35.2	44.9	39.4	44.3	37.2	28.5
2020	38.7	48.3	40.4	47.4	38.6	30.9
2030	43.2	51.5	41.9	48.6	40.0	33.1
2040	47.7	53.0	43.2	50.6	41.2	34.6
2050	49.6	53.3	43.3	51.4	41.7	36.1

Source: United Nations, Department of Economy and society Affairs, Population Division (2015). World Population Prospects: The 2015 Revision, custom data acquired via website.

3 The influences on the economy and society of population aging

The population has the dual nature of producers and consumers, and it has internal connection with the economy and society development. On the one hand, population is the source of labor force, the quantity, structure and quality of the population determine the total supply of the economy and society; On the other hand, the population is bath consumer and demander, it is also related to the total demand of the economy and society. Therefore, it is intimately related between the population and the supply and demand of the economy and society. As an great change of the population age structure, population aging must have a profound impact on economy and society development.

3.1 The influences on the economy of population aging trend in China.

The economy growth mainly depends on the supply and demand in the whole society. Supply can create demand and the supply can drive the demand, they cannot exist effectively without the other and also they restrict each other for the same goal, that is, they work together to promote the development of the economy. The potential of economy growth is mainly decided by the production capacity and supply capacity, and production capacity and supply capacity depends on labor, capital, technology and other productive elements in a certain period. Thus, the influence of population aging on economy development can be summarized as the influence of population aging on the labor input, the capital investment and technological progress, etc.

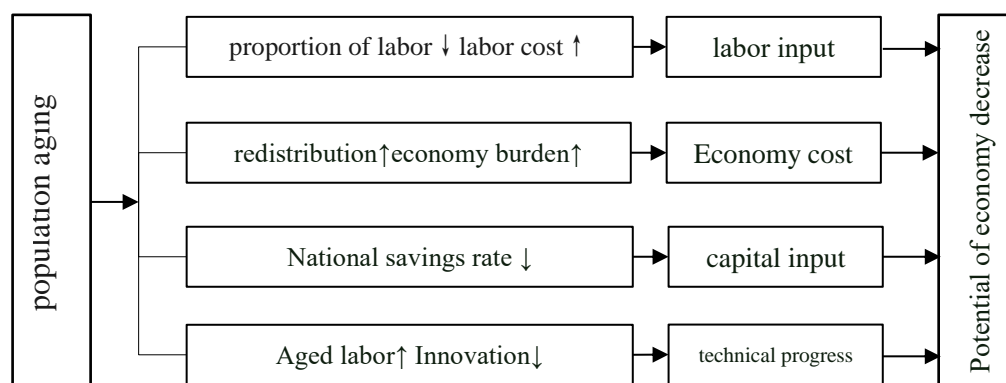


Figure 3-1 the mechanism of the influence on the economy growth of population aging

3.1.1 The proportion of Labor force is dropping and the labor cost will increase.

The most intuitive performance of population aging is the relative decline in the proportion of working age population, it means that the relative reduction of labor resources and the labor supply begin to drop, which will affect the potential development of the economy. In the process of population aging in developed countries, the widespread of the shortage of labor supply and aged labor force leads to lacking in strength of the economy growth.

During the "Twelfth five-year" period (2011-2015), the proportion of the working force aged 15-64 began to appear the inflection point from up to down in China and the demographic dividend gradually disappear. According to the Department of Economy and society Affairs, United Nations, the working-age population aged 15-64 in China will continue to decline in the coming decades. By 2050, the working-age population aged 15-64 in China will fall to 795 million people, about 204 million less than it was in 2010. If the technology or capital cannot effectively substitute labor, then, it would be likely to bring a serious shortage of labor and the labor cost will keep rising.

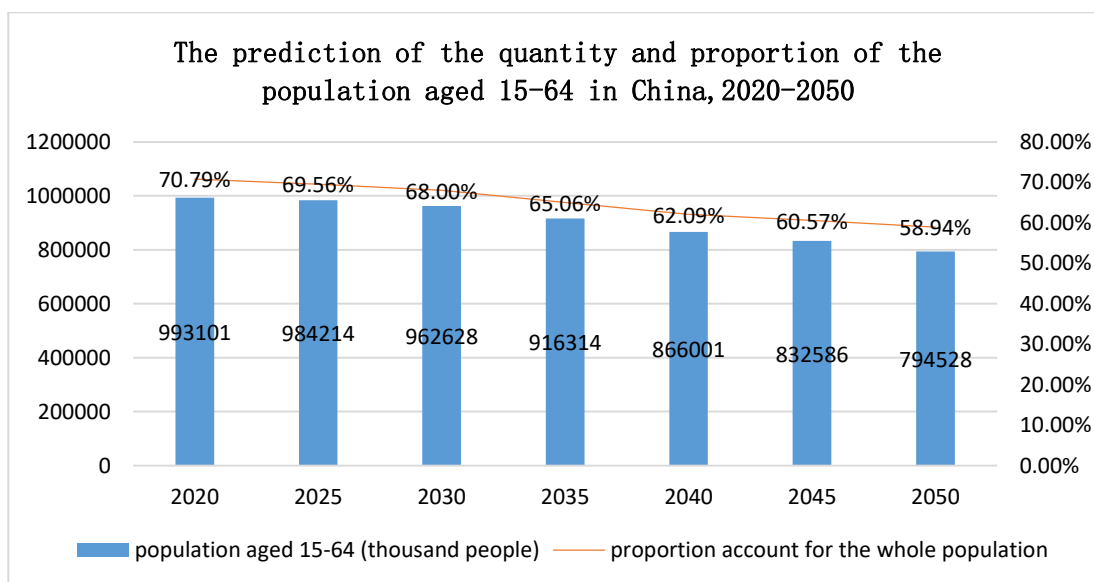


Figure 3-2 The prediction of the quantity and proportion of the population aged 15-64 in China, 2020-2050

Source: United Nations, Department of Economy and society Affairs, Population Division (2015). World Population Prospects: The 2015 Revision, custom data acquired via website.

3.1.2 The cost of redistribution is increasing and the economy burden will be heavy

The increasing of the old-age dependency ratio is another important performance of the population aging, which means that fewer working-age population needs to support more elderly population, and it is bound to increase the spending of the redistribution, the economy and society burden will be increased.

According to the current situation of the development of social security in China, the strategy research team dealing with population ageing in China have made an assumption that the pension and medical insurance are relatively in a low level and done a series of research. The research shows that the economy and society cost of the population aging in China is still increasing year by year, especially, the cost used for the aged, medical treatment, care and service as a share of GDP will increase by 6.97% in 2015 to 21.77% in 2050, increased by 14.8%, it will be close to or even greater than that of many developed countries. The increasing spending dealing with population aging in the future will not only occupy young people's consumer spending, but also reduce the accumulation of capital, and finally, it will influence the economy growth in the long-term. Overall, the economy and society burden caused by the population aging in China will be heavy for a long time.

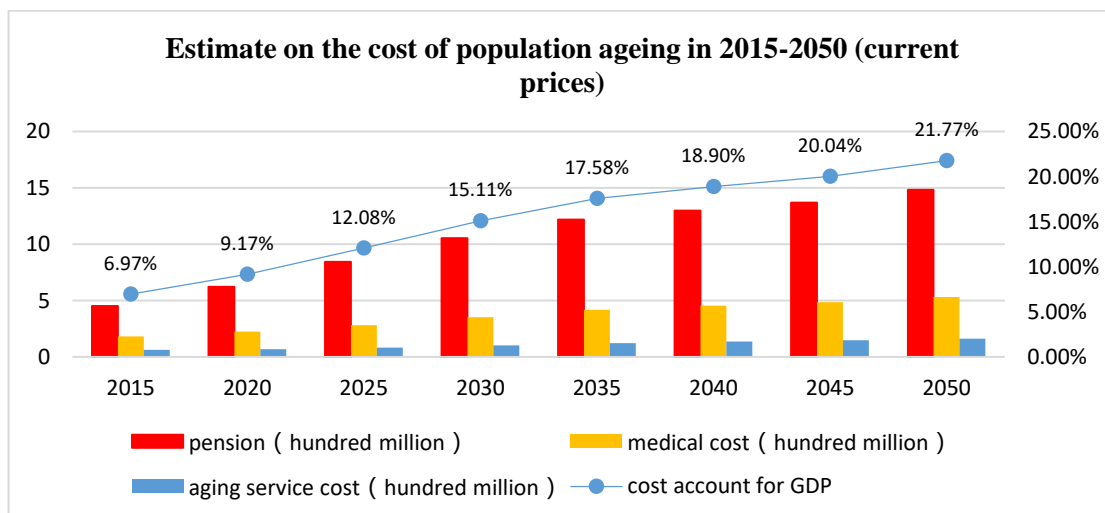


Figure 3-3 Estimate on the cost of population ageing in 2015-2050 (current prices)

Source: Based on the Research of the Strategy Research Team Dealing With Population Ageing in China, Li Jun, etc. Research on the Population Ageing and the Sustainable Development of the Economy[M]. Hua Ling Press, 2014,3

3.1.3 The national saving rate will decline and the capital accumulation will be constrained.

The capital accumulation mainly comes from investment, and the investment mainly relies on savings. Generally speaking, the national savings rate of a country is a key indicator to measure the level of savings and the potential investment growth. According to the Life Cycle Theory of saving, most people are inclined to save money actively when they are young in order to consume when they get old. Therefore, the declining of savings rate seems irreversible along with the deepening of population

ageing. The research from Cutler, Poterba, Sheiner and Summers⁵⁰ also suggests that the population aging has often accompanied by a decreasing national saving rate and an increasing consumption rate in the process of deepening aging in a country or a region.

Specifically, the elderly is consumer population, the proportion expenditure of the economy output that is required for the aged population will continue to increase in the process of population aging. Assuming that the pension level will not be lowered (actually it is difficult to reduce), the increasing of the proportion of output for the aged will decline the proportion of investment along with the boost of the aged people. That is to say, in the process of population aging, it will inevitably lead to the rising of consumption and declining of investment in the economy development because of the increasing of the consumer population and the decreasing of investor population⁵¹, so that the capital accumulation will be restricted and it will finally affect the potential of the economy development.

3.1.4 The labor force is becoming aged and the technology progress will be restricted.

Technological progress is an important factor to improve the labor productivity and promote the rapid development of economy. In general, the innovation ability of young population and middle-aged population in technology is higher than elderly population. However, the consequence of population aging is that the aging population continues to grow and the young and middle-aged labor force continue to decrease. Along with the deepening of population ageing, a large number of labor force is becoming aged gradually and it will bring many restrictions to technological progress. First of all, the spending for the elderly consumer will be increased as the deepening of population ageing and it will result in an increasing of occupying of economy and society resources, so that the resources that can be used for Technology research and investment will be reduced; Second, technology research and development work have the requirement of relative youth employees, while the population ageing will reduce the supply of young workers, thus, it may restrict technology research and development and progress.

3.1.5 Result: the potential of the Economy development is dropping and the development speed is limited.

The labor supply, capital accumulation and technological progress are all affected to a great extent under the influence of population aging, which will form an obstruction of the economy development potential. According to the research from Wang Dewen (2004), When the dependency ratio of population rose 1%, the economy growth rate will slow down about 0.1%.⁵²

⁵⁰ Cutler, David M., James M. Poterba, and Louise M. Sheiner, Lawrence H. Summers. An Aging Society: Opportunity or Challenge [J]. Brookings Papers on Economy Activity, 1990, (1):1-73.

⁵¹ Strategy Research Team Dealing With Population Ageing in China. General Report of strategy research on dealing with population ageing [R]. Beijing: Hua Ling press, 2014:15 to 16

⁵² Wang Dewen, Cai Fang, Zhang Xuehui. Saving and Growth Effects of Demographic Transition:the Population Factor in the Sustainability of China's Economy Growth[J]. Population Research,2004(5)

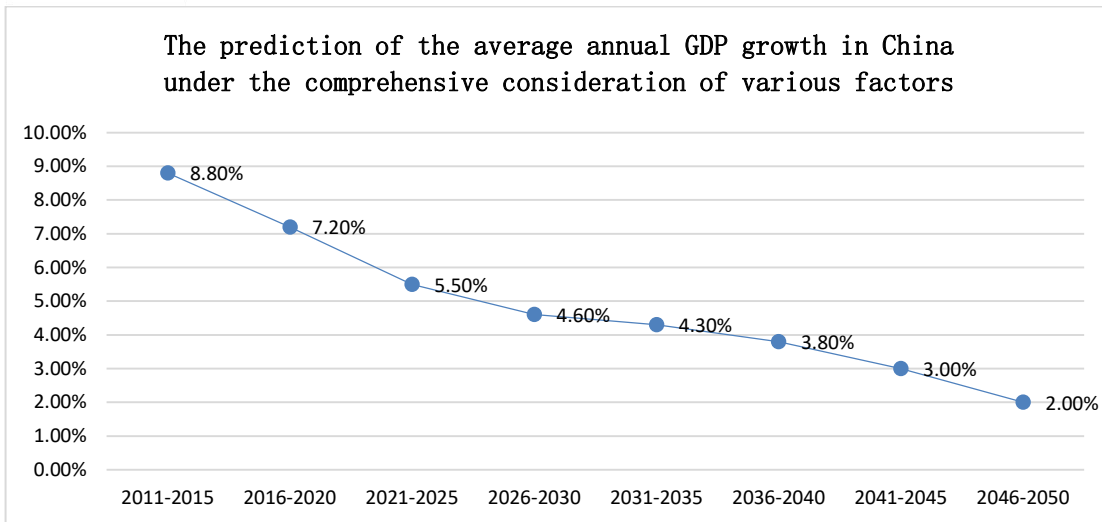


Figure 3-4 The prediction of the average annual GDP growth in China under the Comprehensive consideration of various factors such as population aging

Source: Strategy Research Team Dealing with Population Ageing in China, Li Jun, etc. Research on the Population Ageing and the Sustainable Development of the Economy[M]. Hua Ling Press, 2014,3: Page 230.

Methods: Assume that the scale return is constant, take the capital output elasticity, labor output elasticity and technological progress into consideration, calculate China's economy growth rate in the future under the situation of population aging factors.

According to the prediction from the Strategy Research Team Dealing with Population Ageing in China, and a series of assumptions will be the premise: the scale return is constant, the capital output elasticity and labor output elasticity will both keep at the stage of 0.5 in the future. If the population aging is taken into consideration, the China's annual GDP growth rate will be about 8.8% during the "twelfth five-year" period, and then it will be decreased, the possible economy growth rate in China will be at about 2% in around 2050. If the population aging is not taken into consideration, the economy growth rate may be at about 4% in 2050.

3.2 The influences on the social development of the population aging trend in China.

Population is the main part of the social development, and it will bring a series of influences on many aspects of social development when the population age structure begins to change, especially when the population ageing is growing. Most of the influences reflect in the family ties, relation between generations and social policy, etc. First of all, under the influence of population aging, the family supporting function is no longer the reality structure because of the family miniaturization; Secondly, in terms of inter-generational relations, on the one hand, the "421" family structure will increase the intergenerational conflict within the family, on the other hand, the pension burden of the whole society will be a sharp increase along with the increasing of aging population, which will bring more and more heavy pressure to the working age group and the social intergenerational contradictions will appear; In addition, the increasing population aging will not only increase the spending of pension, but also

increase the pressure on health care and care insurance because of the special demand about medical treatment and nursing care, all of which will bring a series of challenges for the social policy.

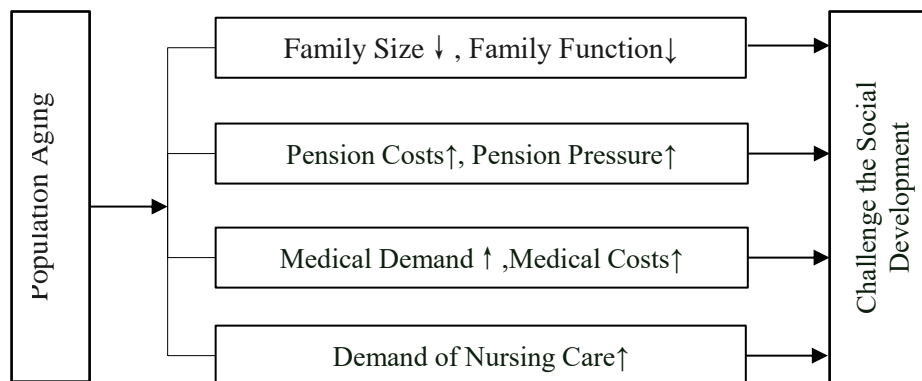


Figure 3-5 the mechanism of the influence on the social development of population aging

3.2.1 The family structure is shrinking and the family supporting function becomes weak.

The realization of the family supporting function is ultimately determined by the family structure. Under the background of population aging, the phenomenon of family miniaturization and few child will weaken the function of family supporting to a great extent.

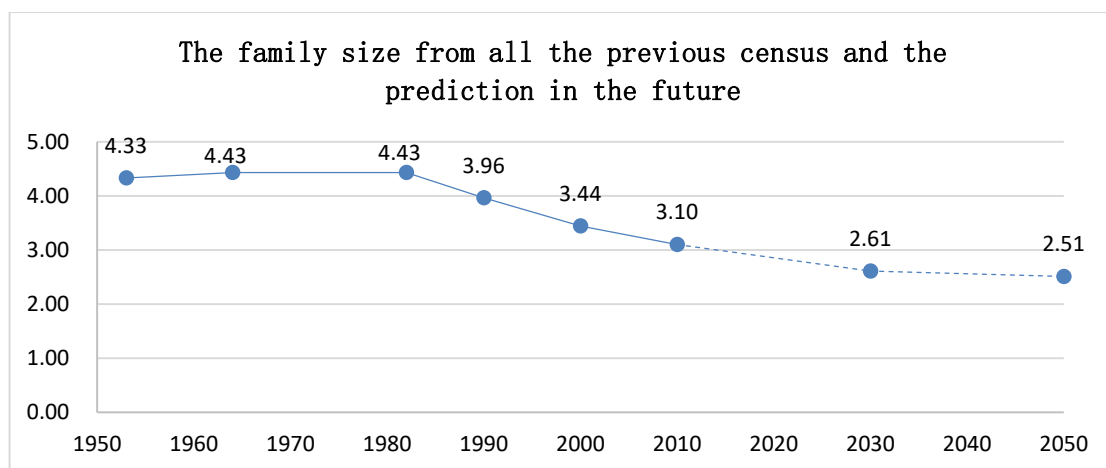


Figure 3-6 The family size from all the previous census and the prediction in the future

Source: The data of 1950-2010 comes from all the previous census in China, the data after 2010 comes from the prediction of the Strategy Research Team Dealing with Population Ageing in China.

Figures show that the average family size in China has fell from 4.33 people in 1953 to 3.10 people in 2010. According to the prediction of the Strategy Research Team Dealing with Population Ageing in China, China's average family size will be further reduced to 2.61 people in 2030 and 2.51 people in 2050. The phenomenon of family miniaturization and few children in China will continue to exist for a long time.

A series of challenges will be inevitably suffered from the case of the narrowing family structure.

The first one is that the elderly family with risks will continue to increase. As the first generation of only child parents step into aging gradually, the pure elderly family, alone and empty nest elderly family will also be increased sharply. Research has shown that by the year of 2030, the quantity of empty-nesters in China will increase to more than two hundred million, accounting for 90% of the total number of the elderly.⁵³

The second one is that the family supporting function becomes weak gradually. The number of elderly who need to be supported is much more than the number of young people along with the changing of the "4-2-1" family structure, and it makes the traditional family supporting function difficult to achieve.

The third one is that the intergenerational burden is increasing gradually. The gradual decrease young generation need to support the increasing old generation with the accelerating aging and the young generation is facing huge pressure to support.

The Forth one is that the traditional culture will be shocked and challenged, the filial piety culture will also be weakened because of the difficulties faced with family support and collective living manner.

3.2.2 The spending of pension is increasing quickly; the sustainability of the pension fund will be challenged.

The realization of the secure of basic life of the old general in China is mainly through the pension system (including the basic pension, occupational pension and individual tax deferred pension) and family internal transfer payments. The total amount of pension for the elderly will be at a sharp rise with the deepening of the population aging, and the sustainability of the pension fund is being challenged.

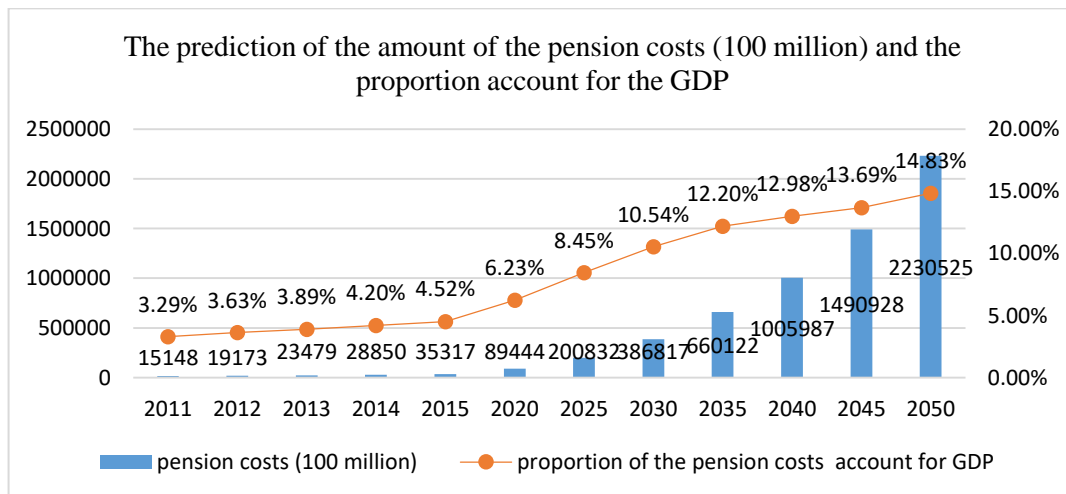


Figure 3-7 The prediction of the amount of the pension costs (100 million) and the proportion account for the GDP

⁵³ The National Working Commission on Aging (2015/02/25). Foreign media: the empty nester is more than one billion in China and it faced the difficulties of becoming old before rich. [EB/OL]. <http://www.cncaprc.gov.cn/contents/34/73702.html> (2014/7/26).

Source: Strategy Research Team Dealing with Population Ageing in China, Li Jun, etc. Research on the Population Ageing and the Sustainable Development of the Economy[M]. Hua Ling Press, 2014,3

Note: the amount of the pension costs is an overall spending, including the basic pension, occupational pension, commercial life insurance and so on.

According to the prediction from the Strategy Research Team Dealing with Population Ageing in China, the overall pension spending as a share of GDP in China is around 4.5% at present, this percentage will increase further with the deepening of population ageing. By 2050, the overall pension spending as a share of GDP will be close to 15%.

3.2.3 The demand of health care is expanding and the pressure of medical costs will increase.

Along with economy and society development and the progress of medical technology, the demand of health care is expanding, resulting in medical expense rise quickly.

In fact, the rising of medical costs in the process of population aging is influenced by the interaction between two factors: one is the expanding of the elderly scale, the second is the increasing of the medical expenses per capita, especially population aged 75 and above. According to the experiences from developed countries, the medical expenses per capita of the population aged 65 and above is about 3 to 5 times than the young⁵⁴. The World Bank also points out that the higher the proportion of people aged 60 and above, the higher medical and health care costs share of GDP. It is because the elderly health services often include expensive technology, hospital and long-term care, the treatment is more complex than the young. Studies have shown that (Xiang Manjun, etc., 1998) in our country, the medical expenses per capita of the elderly was 2.5 times of the national average, 18% of the elderly takes up 80% of the medical treatment cost.⁵⁵

According to the prediction from the Strategy Research Team Dealing with Population Ageing in China, the health care costs share of GDP will be increasing continuously in the following decades.

3.2.4 The demand of nursing service is increasing, professional staff and facilities need to be developed.

Disability is one of the important characteristics of aging society with the deepening of aging. The demand of elderly life care and nursing service will gradually expand along with the weakening of the family supporting function. The demand need to be realized by professional organizations and nursing staff to care, this will result in the rising of related nursing service costs.

⁵⁴ He Zhenyu, li xin. Expensive medical, is the health care industry ill?[N]. The Oriental morning post (Shanghai), 2015-07-07

⁵⁵ Xiang Manjun, Meng Chen, Tang Zhe. Thinking of elderly will be given medical treatment properly from the current situation of the elderly health care in China[J]. Population Research, 1998, 05:44-47.

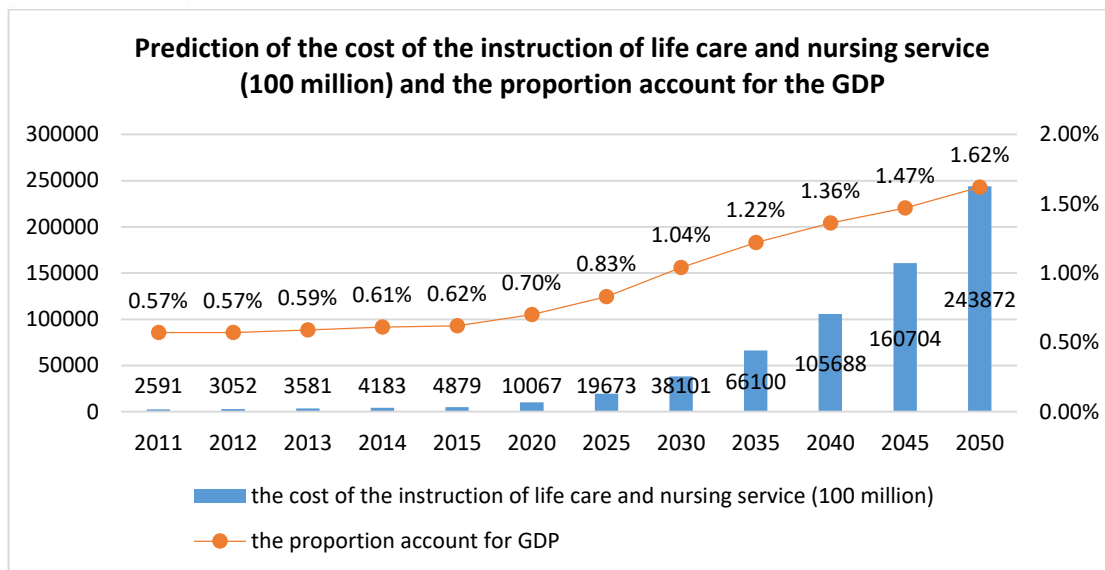


Figure 3-9 Prediction of the cost of the instruction of life care and nursing service (100 million) and the proportion account for the GDP

Source: Strategy Research Team Dealing with Population Ageing in China, Li Jun, etc. Research on the Population Ageing and the Sustainable Development of the Economy[M]. Hua Ling Press, 2014,3

According to the prediction from the Strategy Research Team Dealing with Population Ageing in China, the proportion of the cost of the instruction of life care and nursing service is just 0.6% account for the GDP, the percentage will rise to 1.6% in 2050.

3.2.5 Result: the pressure of social development is increasing, and the policy reform is facing with a series of difficulties.

With the speeding up of the population aging process, the contradictions between diversified requirements of the elderly and the limited resources of the supply is increasingly severe. The contradiction between supply and demand should be released through a variety of policy reform to meet the needs of the elderly. However, the deepening process of population ageing brings a lot of sustainability problems to all the policies related to the elderly life and it will be facing more and more challenges with the deepening of the population aging in the next few decades. Therefore, we need to be well prepared before the peak of the population aging in order to win precious time dealing with the deepening of aging.

3.3 Opportunities of economy and society development brought by the trend of population ageing in China.

Population aging has become a worldwide problem and has produced a serious of challenges to the economy and society development in the whole world. But at the same time, the population ageing will also bring some direct or indirect opportunities, such as boosting domestic demand to some extent, driving the development of older industries in an all-round way so that to create the new economy growth point, besides, it can also promote to perfect the capital market and conducive to cultural development.

3.3.1 Opportunities of balanced population and improving the quality of human resources.

Large quantity of population, high bearing pressure of environment are important factors that restrict China's economy and society development. The population aging curbs the trend of population growth and it is conducive to balance the development of the population. This will help to ease the tensions between population and resources, environment, rapid population growth is contained, beneficial to alleviate environment of tension between population and resources.

In addition, the current population aging in our country is not so severe and there are a large number of young healthy seniors continue who have a lot of experiences. They are valuable wealth of human resources and they have the ability to further play a role in the labor market. In real life, a large number of retirees receive restart again into the job market, shows that they have willing of re-employment. Therefore, making full use of the old human resources, playing its leading role further, can not only form the secondary demographic dividend, but also help the young workers to improve the quality of human resources.

3.3.2 Opportunities of upgrading the industrial structure and developing older industries.

The potential of the economy growth mainly depends on the production factors such as labor, capital and technology. However, the cost of labors will be rise because the population of working age are decreasing along with the deepening of population aging. At this point, continue to develop labor-intensive industry has no advantage. Therefore, most of the companies begin to seek capital, technology and other production factors to replace labor force. Thus, it will promote the transformation of industrial structure from labor-intensive to the technology/capital intensive structural gradually, and it is conducive to promote the upgrading of industrial structure.

At the same time, the demand of the elderly population is becoming increasingly diverse, and the amount of the elderly demand will also rise greatly, which can provide good opportunities for the rapid development of the older industries.

3.3.3 Opportunities of perfecting the pension system and the capital market.

In recent years, the pension system in China is strengthening and the multi-pillar pension system has also been gradually improved. The coverage of the pension system and the size of the pension fund are growing. The huge pension fund need to preserve or increase the value, but the traditional way of single operation is difficult to guarantee the benefit of the fund. So a good capital operation is necessary, which can bring a stable source of capital to the capital market and can effectively promote the perfection and development of the capital market. In addition, most of elderly population reserves a large number of pension funds when they were young and they will have large financial wealth management requirements when they get old, this will create new opportunities for the development of aging financial.

3.3.4 Opportunities of promoting the development of economy, society, and culture.

The trend of population aging may compress the proportion of the production investment to a certain extent on the one hand, but on the other hand, the increasing of the aged population can effectively promote the consumption and thereby give impetus to the coordinated development of economy, society and culture. On the economy front, the increasing of the aged will help to boost the domestic demand and promote the economy development; In terms of society, the multiple demand of the aged

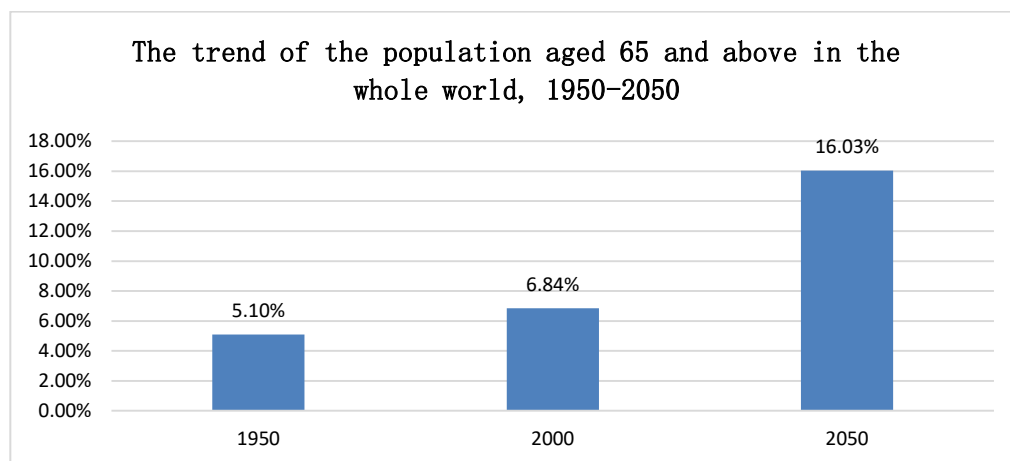
population will help to perfect the pension system, the medical insurance and related service system and promote the construction of livable environment, also it can be an important driving force for the adjustment of public policy and social governance; In culture, the elderly is the main body of mass cultural activities and they have plenty of free time after retirement, it is conducive to increase the cultural supply. The collision of cultural activities will be likely to open up new field culture, and it is good for the development of new activities and practice so as to promote the developing of culture.

4 Experiences of dealing with population aging in foreign countries

4.1 The phenomenon of population aging in global

With the development of society and economy, the birth rate is reducing, the mortality rate is dropping and the life expectancy is becoming longer after entering into the industrialization. Population ageing has become a worldwide, global issue. The research report of the second United Nations world conference on aging in 2002⁵⁶ showed that:

- (1) The population aging phenomenon is unprecedented. There is not a similar situation happened in the history of mankind. The number of elderly people in the world will be much more than young people by the year of 2050, and this phenomenon has already taken place in developed countries in 1998;
- (2) The impact of population aging is profound. In the field of economy, it will shock the economy growth, saving, investment, consumption, labor market, pension and tax; In the field of society, it will affect the family structure, life care, medical care and some other aspects;
- (3) Population ageing will continue for a long time and this phenomenon is expected to persist in the 21st century.



⁵⁶ UN, the World Population Aging 1959-2050, Conference on Aging in Madrid, April 8 to 12, 2020

Figure 4-1 The trend of the population aged 65 and above in the whole world, 1950-2050

Source: United Nations, Department of Economy and society Affairs, Population Division (2015). World Population Prospects: The 2015 Revision, custom data acquired via website.

According to the prediction of the Department of Economy and society Affairs, United Nations, the quantity and proportion of the aged population will continue to increase, the proportion of the population aged 65 and above will reach 16.03% in the whole world by 2050.

4.2 A series of challenges brought by the global population aging.

4.2.1 The economy level.

(1) The quantity and proportion of labor force decline, and the labor costs increase. Labor force is the basic elements that affects production, the declining of the proportion of the working age population is deepening under the background of population aging. According to the prediction of the Department of Economy and society Affairs, United Nations, in the next few decades, the proportion of the global working age population will show generally a downward trend, especially in high-income and middle-income countries, the downward trend of working age population is particularly apparent.

Table 4-1 Changes of the proportion of working age population (15-64) in global (%)

	2000	2005	2010	2015	2020	2025	2030	2035	2040	2045	2050
Whole world	63.0	64.7	65.7	65.7	65.2	64.9	64.7	64.2	63.7	63.3	62.7
High-income	67.2	67.6	67.7	66.5	64.9	63.4	61.9	61.0	60.0	59.3	58.4
Middle-income	62.8	65.1	66.5	66.8	66.5	66.5	66.3	65.8	65.1	64.5	63.7
Low-income	52.2	52.5	53.0	54.1	55.4	56.7	58.0	59.3	60.4	61.4	62.2

Source: United Nations, Department of Economy and society Affairs, Population Division (2015). World Population Prospects: The 2015 Revision, custom data acquired via website.

On the basis of the other elements, the fell of the proportion of the working age population can lead to labor shortages to a certain extent. The absolute number of labor force has already declined in some European countries, including Germany, France and Greece. The reduction of this Labor shortages will undoubtedly promote the wages rise, cause labor costs rise, so that it will influence the vitality of enterprises.

(2) The old-age dependency ratio will enhance, and it will increase the pressure on social and economy costs. The process of population aging is caused by the increasing of the number and proportion of the aged population, that means the increase of the old-age dependency ratio. More and more people are living on pension, and less people involved in production and work, thus the cost of economy and society development will increase.

(3) People involved in work and tax are decreasing, revenue will decline. The decline of working-age population means people participate in the work and pay taxes will reduce continuously, resulting in the decline of fiscal revenue.

(4) Labor force have to pay high tax and it will impact the activity of labor and enterprise. Due to the decline of labor on the number and proportion, the labor taxes have to be increased to meet the demand of growing elderly population. It will affect the production enthusiasm of the enterprises and labor to a large extent.

4.2.2 The social level.

(1) The family structure changes and the supporting pressure of their children rises. When life expectancy is extending continuously and the fertility rate is relatively low, the family structure will inevitably change. More and more aged population need to be raised by fewer children, the support pressure will be heavy, especially in several countries care much more on family supporting function.

(2) The cost of pension is increasing with significant pressure. The working age population is decreasing along with the deepening of population aging, which means less population pay for the pension system and pensioners population are more and more. This will lead to less accumulation of pension and more spending and it will bring huge pressure of the pension funds.

(3) The demand of health care increases and it will strength the pressure of medical costs. With the increase of age, the body function of the elderly begins to fall and various medical and health demand will continue to increase, which will lead to the sharp rise in medical costs. At the same time, the crowd pay for medical treatment are falling so that it will greatly increase the pressure of the expenditure of the medical insurance fund.

(4) The life expectancy extends, postponing retirement age is concerned broadly. Under the pressure brought by population aging, postponing retirement age has become the focus of many countries even though a lot of challenges is still there.

4.2.3 The service level.

(1) The original living patterns face challenges and the demand of new way of living becomes diverse. The condition of the traditional family supporting mode has been more and more weak and different countries begin to explore diversified way of living and the way of supporting, but it is still faced with the contradiction between the demand and supply.

(2) The needs of nursing way are becoming diversify and the professional demands for nursing are enhancing with the increasing of disabled or dementia elderly. The disabled or dementia elderly are becoming more and more and they need diversify and professional nursing. However, the supply of nursing cannot match the demand and it needs to be further improved.

(3) The quantity of labor force is not that much and the nursing staff team is insufficient. Contrary to the need of improving of the professional nursing staff, the decline in the number of labor add the difficulty of increasing the nursing service supply.

4.3 Experiences dealing with aging at the international level.

4.3.1 In the level of economy development.

(1) Postponing retirement age, utilizing the human resource of the elderly. Raising the retirement age is an important way dealing with population ageing in many countries. On the one hand, it can shorten

the time receiving pensions and the leisure time after retirement, it can also alleviate the pressure on the economy development brought by population aging and enhance the vitality of economy development to some extent; On the other hand, it can fully utilize the aged manpower resource and enrich the labor supply. Most developed countries take some reform of the retirement system and put forward the strategic concept of "Living Longer, Working Longer". In the process of operation and practice, many countries have adopted a gradual way to delay the retirement age, the United States plans to raise the retirement age from 65 to 67 in 25 years through 2002 to 2027 gradually, Britain plans to raise the retirement age for women to 65, the same with men during 2010-2020, then to achieve the retirement age of 68 synchronous between men and women in 2050. Delaying retirement age is a world trend under the background of population aging, in spite of national differences in the implementation path, the goal is the same.

(2) Paying attention to the investment of human capital, raising labor productivity. Keeping the economy sustained and healthy is the fundamental guarantee to cope with population aging. In the case of rising labor costs, many countries began to strengthen the human capital investment. They want to improve the labor productivity by education, training and technology research. For example, many developed countries emphasize the lifelong education and vocational education in order to enhance the value of human capital; Also the developed countries attach great importance to the investment of research to foster talents. In Sweden and Finland, for example, their percentage of research spending as a share of GDP are at 3.5%, in Germany, the percentage is 2.5%⁵⁷. This has contributed to the improvement of labor productivity laid a good foundation coping with the population aging.

(3) Developing the elderly industry to promote the adjustment of economy structure. The population aging brings a series of challenges to the social and economy development, but also it offers great opportunities such as elderly industry development. A series of elderly industry such as aging service, elderly health care products and aging finance has a huge development space along the diversity demand and increasing consumption ability. Many countries in the world attach great importance to the development of elderly industry in order to meet the needs of the elderly and improve their life quality, and also, it can effectively promote the adjustment of economy structure.

(4) Actively encourage birth to supplement the labor supply. One of the deepening of population aging is the decline of fertility. Western developed countries have realized that population ageing may lead to serious problems since 1970s. In order to fundamentally improve the population age structure and increase the labor resources supply, they took a series of measures to improve the level of fertility, including encourage childbirth directly and reduce the economy burden of raising children.

(5) Absorb international migration, increase the cheap labor resources. Absorbing international migration is also one of the measures dealing with population ageing in many developed countries. But they are not blind when absorbing international migration, usually they will set up a series of threshold and attract high quality talents from other countries. Take America for example, they are receiving technological / commercial immigration or student. This can not only complement the high quality of

⁵⁷ the Strategy Research Team Dealing with Population Ageing in China, Li Jun, etc. general report of countries dealing with an ageing population [M]. Hua Ling Press, 2014:83

labor resources and enhance the vitality of economy development, but the inflows of young immigrants can ease the population aging to a certain extent.

4.3.2 In the level of social policy.

(1) Reform the pension system and increase life equality of the elderly. Along with the ascension of old-age dependency ratio, the cost of pension is increasing and it challenges the sustainability of the pension system. In order to meet the demand of the elderly, developed countries reform the pension system unceasingly to guarantee its sustainability. On the one hand, they try to raise the pensionable age and restrict early retirement in order to restrain the growth of pension spending; On the other hand, many countries begin to develop a multi-pillar pension system and almost all OECD countries have already established a multi-pillar pension system.

(2) Improve the services of the medical and health system, reduce the spending of health care. The developed countries take a series of measures improving the medical and health service system. On the one hand, they take preventive health care reform direction, turn "treatment" to "prevention". On the specific operation, they pay attention to the research of reducing the incidence of chronic diseases in the elderly and improve the efficiency of the medical and health institutions to reduce the health care spending; On the other hand, developing multiple level medical insurance system and adhering to the combination of government and market function, so that it can meet the diversified health care demand and ensure the healthy development of the medical insurance system.

(3) Construct the long-term care insurance system to meet the care demand of the elderly. The disabled or dementia elderly who need long-term care are increasing with the deepening of population aging. In order to meet all kinds of care demands of the elderly, the United States, Germany, Japan and other countries have established long-term care insurance system. The system can not only separate the aged care from the medical insurance and medical services, so that it can help to reduce the health costs of the elderly, also it can promote the development of elderly care market to be more professional so as to meet the demand of the elderly effectively.

(4) Develop aging finance to increase the pension income. Pension problem is ultimately a question of money. In order to realize the security of the pension funds and effectively support the demand of the elderly, the value of the pension fund must be preserved or increased on the premise of guarantee the safety. Developed countries often strengthen the joint of pension and financial market to achieve this goal and develop aging financial actively. On the one hand, they usually strengthen the construction of the multi-pillar pension system and integrate with financial markets, so as to realize a better value; On the other hand, many countries take care of the innovation of the aging financial product and the aging financial services so that to meet the demand of the elderly.

4.3.3 In the level of aging service.

(1) Attach importance to the social supporting function and innovate the way of supporting. Affected by population ageing, the diversified social supporting ways continue to improve along with the weakening of family supporting. In many developed countries, they try to provide diversified social supporting ways and aging service to meet the demand of the elderly by innovating the way of supporting. In the UK, nearly 80% of the elderly choose the way of community care when they get old instead of living with

their children⁵⁸. Community care can be realized through residential services, family care, elderly community center, elderly apartments and some other ways. This model of "community care" is followed by welfare states in Europe and the United States and it has become the dominant way of supporting the elderly.⁵⁹

(2) Explore the standardization of aging service and promote the quality of aging service. Many countries focus on the standardization of aging service in the process of establishing the long-term care insurance system, especially, a series of index systems are established to determine the level of service for the disabled or dementia so that they can provide the effective services. The standardized model of care should be the long-term care insurance in Germany and Japan, they formulate a series of rules of self-care ability identification, service standards for different degree of self-care ability, the nursing plan and so on.⁶⁰ The specialized care services targeted for the elderly can improve the quality of the aging services effectively.

(3) Encourage social forces to participate in aging services in order to provide diversified services. Social forces are a nonnegligible factor providing aging services, it has natural advantages in the avoidance of market failure and government failure and it also has the impetus to full understand the needs of the elderly and take their own advantages to provide the services. From the point of the status of the United States, Japan and other countries, social forces assume an important role in aging services, including service providing, personnel training, education propaganda and so on, and they have already accumulated strong social influences. On the one hand, it can improve the efficiency of aging services and reduce the cost of public welfare service for the elderly. On the other hand, diversified services can meet the demand of the elderly better.

(4) Pay attention to the family supporting function. As a traditional concept, family supporting function is never ignored but further perfected in some east Asian countries, because they consider the family supporting has an irreplaceable advantage of kinship. In Japan, for example, they attach great importance to the family supporting function. The government in Japan provides very comprehensive assistance in order to encourage the elderly care service return to the family, such as family care-givers door-to-door service, home care and many other service projects. It can not only provide a more convenient way for the elderly, but also reduce the costs of the construction of old-age service facilities.

⁵⁸ Tang Zhongxin. Community care: the dominant way of supporting the elderly in the UK [J]. Journal of communities, 2004, 14:26-27.

⁵⁹ Qi Feng. The community care in the UK and its enlightenment [J]. Journal of northwest population, 2010, 06: 20 - 24.

⁶⁰ Zhang Qi, Zhang Dong. Research on the adaptability of "9064" endowment pattern in Beijing[M]. China Labor & Social Security Publishing House, 2014

5 Possible Strategies Dealing with population aging in China

The population ageing in China is increasingly severe. There is a warning from UN and some other relevant international organizations: population phenomenon is an event which will last for a long period of time and it must have enough preparation to solve the problem.⁶¹ At present, the strategy dealing with population aging in China still lack of overall train of thought and the preparation of thought, material and system is insufficient. There is no time left to prepare for the population aging before it reaches the peak at around 2030. We must seize every opportunity when the population aging degree is not so serious in the current and do our best to meet the challenges brought by the ageing peak.

5.1 The strategy of economy development dealing with population aging.

5.1.1 Developing human resources of the aged to replenish the labor supply.

The current retirement age in China is relatively low compared with many other countries in the world. The life expectancy at retirement is 15 to 20 years or even longer at present. Most of these retirees have relatively rich experience in technology and management after decades of accumulation of experiences, they will still in a very healthy state in a long period of time and have the possibility and willing to continue to work in the corresponding field. On the one hand, working after retirement can not only accumulate more wealth before they get older, but also it can reduce the mentality of loneliness and boredom to help it maintain good state of mind and body. On the other hand, the development of human resources of the aged can provide labor resources with rich experiences and improve labor productivity, and also it can help to form the secondary demographic dividend and promote the economy development.

5.1.2 Enhancing the investment on research and development (r&d) to improve the labor productivity.

The development of modern research and development, makes the economy growth mechanism change a lot and it has greatly raised the labor productivity. At present, the proportion of investment on r&d as a share of GDP in China is far less than many developed countries. According to the data from The Forecast of Global Research and Development Spending in 2014 jointly issued by the Battelle Memorial Institute and Journal of Research and Development, in 2014, the r&d spending as a share of GDP in Israel reached 4.2%, and the proportion were between 3.4% ~ 3.6% in Japan, South Korea, and Sweden, in the United States of the r&d spending accounted for 2.8%. The data from the National Bureau of Statistics of PRC shows that the China's r&d spending as a share of GDP is 2.05% in 2014, which has a large gap with developed countries. In order to dealing with the challenge of population aging, we must focus on the r&d to substitute and further increase the investment of r&d, in response to the challenges posed by labor shortages.

⁶¹ Research group of the Party School of the Central Committee of CPC, Xu Zezhou, douyupei. Speed up to establish and perfect our country's aging service system [J]. Journal of the Chinese party and government cadres, BBS, 2011 01:16-19.

5.1.3 Developing the aging industry vigorously to promote the transformation of economy structure.

The population aging brings a series of challenges, but also it brings some corresponding development opportunities. With the rapid increase of the elderly population, the consumer demand especially the aging service is also increasing rapidly, which will drive the development of the tertiary industry, such as aging service, health care, aging finance and living things for the elderly. The development of the aging industry can not only bring benefits to satisfy the needs of the elderly and provide a rich variety of aging products to the elderly, but also it can effectively promote the economy structure transformation and form a new economy growth point.

5.1.4 Perfecting the income distribution pattern to increase the effective consumption demand of the elderly.

Consumption is the important engine to stimulate the economy growth. The aged population is an important consumer group along with the deepening of population aging and the consumption of the elderly has great significance to the development of the economy and society. But it's worth noting that the consumer demand that can promote the economy growth must be effective consumer demand, so we should make sure the consumer demand of the elderly is effective so that they will have the ability to pay for their demand. At present, the disposable personal income of the elderly in China is at a low stage and the payment capacity is limited, so the willingness to consume is not strong, this is not good for the improvement of life and cannot promote the development of the economy. Therefore, we need to reform the income distribution pattern to improve the income of the elderly, such as perfecting the social security system, strengthening the transfer payment of tax and increasing the transfer payment among family internal and so on. Only in this way, the consumption ability of the elderly can be strengthened, the diversified demand can be realized and the development of economy can be stimulated.

5.2 The strategy of social policy reform dealing with population aging.

5.2.1 Postponing the retirement age timely to alleviate the pressure of the pension fund.

Under the background of the deepening of population aging, the pensionary is increasing gradually but the population pay for the pension is becoming less and less, which will lead to severe pressure of the pension fund in China. Postponing the retirement age is an important measure dealing with population aging and alleviating the pressure of the pension in many developed countries. At present, the retirement age or the pensionable age are low in China compared with the international development experience and the status quo of China's economy and society development and it is necessary and urgent for China to delay the retirement age. Although the policy is facing many disputes, it still represents the general trend and it is a necessary path to deal with population ageing. Of course, it is important to note that this process must be carefully designed, walk step by step and balance the relationship among parties.

5.2.2 Reforming the pension system to enhance the risk resistance ability of the elderly.

The risk of unsustainable pension system is a challenge in China under the background of the population aging. This problem forces us to strengthen the systematic reform of the pension system. On the one hand, the pension age can be delayed to constrain the growth of the pension cost, and actuarial relationship between treatment and pay of pension can be strengthened to better realize the balance of

the pension system; On the other hand, we should take some structural reform of the pension system. In China, the existing pension system mainly depends on the first pillar, we should draw lessons from international experience to construct the multi-pillar pension system with Chinese characteristics: establish the PAYG first pillar with social pooling accounts; refill and separate the personal accounts, to constitute the second pillar with enterprise annuity and occupation pension; develop the third pillars pensions with implementation of preferential tax policies as soon as possible, in addition, improve the zero pillar of the national pension, develop the fourth pillar of internal transfers among families and so on. Only the risks are shared by the multi-pillar pension system and the role of the different main body is full played, the anti-risk ability of elderly group can be better improved.

5.2.3 Perfecting the health care service system to realize the goal of healthy aging.

The rapid development of population aging brings the increasing of the financial burden of disease and the cost of health care, which impact the medical and health service system of China and it must be effectively answered. Firstly, we must implement the strategy of healthy aging. At present we face with the problem of "unhealthy" longevity in the elderly, it is related to the ignorance of preventive but only pay attention to the treatment of disease to some extent. We must turn the treatment of passive to prevention of positive in order to improve the health level of old age; Secondly, most old people suffering from chronic diseases, the chronic care determines the quality of the elderly life to a certain degree, so we must take good care of the chronic through perfecting the community health services and family doctor; Thirdly, the multi-level medical security system should be built to meet the diversified demand of the medical and health care.

5.2.4 Exploring long-term care insurance system and paying attention to the care needs of the elderly.

The proportion of disability and dementia will continue to increase with the deepening of population aging, and the care needs will also increase. The satisfaction of this need not only rely on the professional nursing personnel and facilities, but also the payment capacity. In order to solve these problems, developed countries like America, Japan and Germany have established a relatively perfect long-term care insurance system to meet the demand of the elderly who need long-term care. They successfully address these issues achieve good results. We will face a lot of care needs along with the aging and disability in China, try to build a long-term care insurance system as a long-term planning and timely to explore may also help to solve the problems of the long-term care services.

5.3 The strategy of aging service development dealing with population aging.

5.3.1 Innovating the way of supporting to meet the demand of aging service.

Social supporting has become the option of the elderly to improve the quality of elderly life along with the weakening of the family supporting function. Diversified supporting ways must match the economy development, the living habits of elderly and traditional culture. At present family supporting, community supporting and institution supporting are the main supporting ways for the elderly in China, which accord with the diverse demand of the aged. However, the position of the diversified supporting ways in China at present is not clear and it must be improved. First, the main body of the family and community supporting should be confirmed and the supporting facilities should be strengthened. Second, the institution supporting should be positioned accurately and the service quality need to be

improved. Besides, the other supporting ways like reverse mortgage loan and mutual supporting can also be explored to meet the demand of diversified aging services.

5.3.2 Encouraging social forces to participate in aging services in order to improve the service supply effectively.

The demand of aging services of increasing along with the economy and society development. Compared with the rapid growth of the aging service demand, the aging facilities and services are not enough in China and it has a big gap with the diversified aging service demand. As we all know, the supply only from a single channel of the government will not match the aging service, kinds of forces participate in different ways will be a better way. In China, we should first perfect the supply of the aging service from the government, also we need to strengthen the social forces to participate in diversified aging service supply through a series of preferential policies. Only in this way can we realize the diversification of aging service supply upgrade the quality of the aging services continuously.

5.3.3 Attaching great importance to the construction of the human resources for aging services to raise the professionalization.

The demand of the older caregivers is increasing in China with the deepening on the advance age and disability. However, the older caregivers in China is in a serious shortage. Based on the international standard of 3 disabled old man with 1 caregiver, in China we need about 10 million older caregivers. According to a survey data, the older caregivers in China are less than 1 million and the ones who have certification are less.⁶² In order to improve the specialization aging service, we must pay attention to the he construction of the human resources for aging services and improve the quality of the aging services through developing the vocational education reserve forces and strengthening personnel training of the caregivers.

5.3.4 Constructing better living environment suitable for the elderly to improve the comfort level of the elderly.

Good living environment suitable for the elderly is very important to improve the quality of the elderly. At present, the convenience of the living environment and the integrity of the service facilities for the aged in China are facing with a series of problems. The hardware and software of the elderly living environment should be further strengthened. In the aspect of hardware, it is necessary to strengthen the construction of public infrastructure services for the elderly, including the reformation of elderly-Oriented housing, the construction of community aging facilities, the supply of community aging service and the construction of barrier-free environment and so on; On the software side, we should continuously strengthen the construction of aging culture, promote the respect for the elderly, form the social atmosphere of harmony, so that the elderly are able to enjoy a good social environment in physical and psychological.

⁶² China news, the aging industry in China is facing with a shortage of talents, urgently short of caregivers [DB/OL].
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Redistributive effects of social security system in China



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I. Introduction

While China's economy is entering a new normal stage, social security will play an increasingly important role in economic growth, the balance of income distribution, poverty alleviation and maintenance of social stability. The experience of developed countries shows that with the development of economy, the social security system in the redistribution of income has become more obviously important, becoming one of the means of income redistribution with government taxes.

However, China's social security system in the adjustment of income distribution is quite limited. Therefore, the current social security system needs further reform, not only to achieve full coverage of the social security system, but also to reduce the difference between different groups in the same security system program, to further increase the redistributive effect of the social security system.

Over the past thirty years, the growth of China's economy is quite fast, from the point of view of GDP and family income. Between 1978 and 2008, the average growth rate of GDP was close to 10% annually, and the average growth rate of household income in urban and rural areas was 8%. In recent years, economic growth has declined, but still maintained at a level of more than 6%, compared to other countries have been quite good performance. By the end of 2015, according to the current exchange rate calculation, China's per capita GDP reached 7500 U.S. dollars, becoming an upper-middle-income countries. China has made significant progress in economic growth, but the social development, especially the reconstruction of social security and welfare system is still lagging behind, and there are still inadequate policies of income distribution. The fragmentation of the social security system still exists, the social security benefits of different groups of people have a huge difference, and even played a role in the expanding income inequality.

Although China has made great achievements in poverty alleviation, but has made little progress in terms of narrowing the income gap. Whether it is in urban areas, in rural areas, or in China as a whole, the income gap is far greater than that at the initial stage of reform. The country's current Gini coefficient is estimated to be around 0.47, although it has declined from the highest level in 2008. But compared to 0.30 in the early 1980s, the current Gini coefficient is still at a very high level. At the same time, the Gini coefficient of household income distribution in rural areas rose from 0.26 in 1980 to 0.40 in 2013, and the urban Gini coefficient increased from 0.16 in 1978 to 0.39 in 2013.

China's poverty rate has dropped significantly over the past forty years, but poverty remains a serious social problem. By the end of 2015, China's rural areas still have more than about 50 million of the poor. This is only measured in accordance with the income standard of poverty. If the standard of the multidimensional poverty would be applied, the rural poor people will be much more than that measured by the income standard. There are still a large number of rural families, although their income level is higher than the official poverty line, actually fall into poverty shocked by the disease and natural disasters.

Moreover, the Chinese consumption as a share of the GDP continued to decline since the middle of 90s, partly because of lower proportion of labor income, partly because of the reduction in the average propensity to consume. Propensity to consume tends to decline is largely due to the increasing uncertainty in the expenditure of households on health care, education and housing, especially those that have not been covered by the social security system. Under the impact of the global financial crisis, the government started from the second half of 2008, to stimulate domestic demand with unremitting efforts, but the focus on increasing investment rather than stimulating consumption. Therefore, to achieve full coverage of social security, reduce the difference in social security benefits, raise the level of social protection will help stimulate the consumption of households.

China's aging population is at accelerating increase. According to data released by the National Bureau of statistics, China has 1.37 billion population in 2014, and 212 million population aged 60 years old and over, 15.5% of the total population; 137 million aged 65 and over, accounting for 10.1% of the total population. In accordance with international standards, China has undoubtedly become an aging society. The aging process presents a serious challenge to China's security system, which requires the social pension system to be more sustainable and equitable.

In order to solve the economic and social problems above, the establishment of a fair and full coverage of social security is a wise choice of the Chinese government in 13th Five-Year Planning. This view has formed a broad consensus in the Chinese society. However, how to make the social security system more effective reducing income inequality and poverty, is still the priority issues in the reform of social security system.

The paper is structured as follows. The next section discusses the major challenges faced currently by China. The challenges are that the income gap is too large, the reform of social security system is not in place. Thus to enhance the fairness of the social security system is helpful to narrow the income gap at the same time, also helps to deal with these challenges. The third section discusses some of the main functions of social security, with special emphasis on its role in redistributing income and alleviating poverty. The fourth section is the empirical analysis, showing the effect on the income redistribution of the social security system in China. Due to the limit of the data, here is mainly to investigate the effect

of pension system. This is also the core content of this paper. The fifth section is the international comparison, comparing the income redistribution of the social security system between China and Europe. The last section presents the conclusions and the policy recommendations.

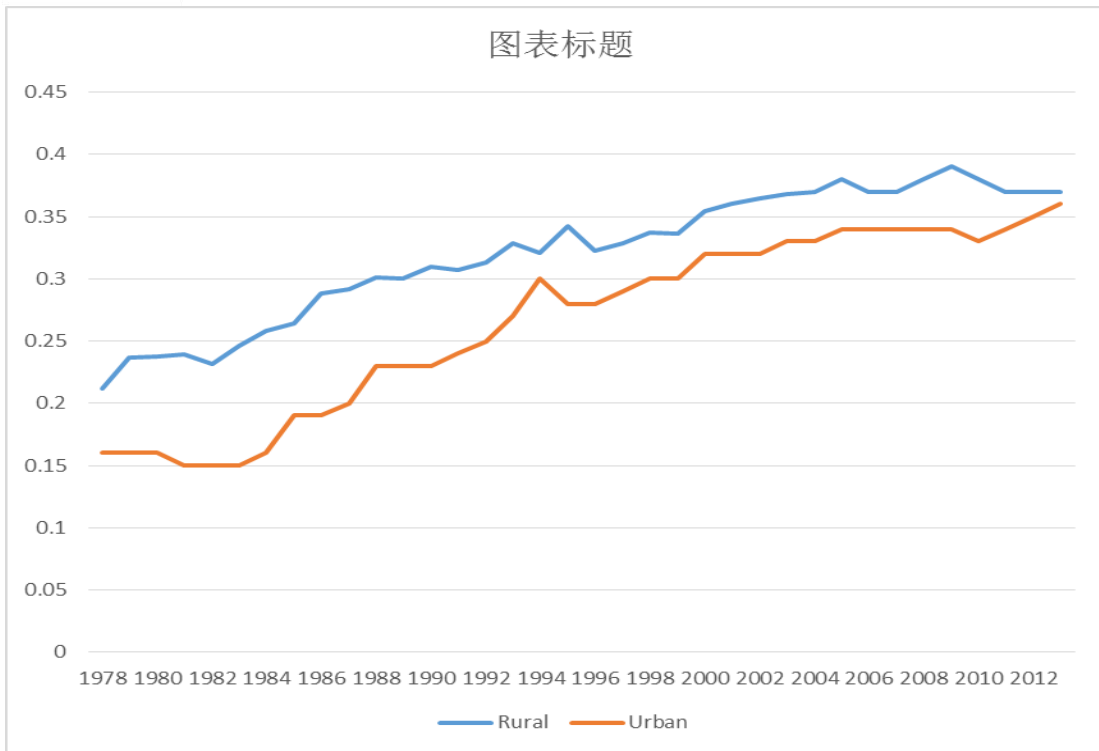
II. China's current social and economic challenges

China's current social and economic challenges, including a large income gap, poverty, a sharp decline in the propensity to consume, increase social conflicts and social instability. There is no doubt that these challenges must be fully recognized and dealt with effectively.

1. High income inequality

China was an egalitarian country 30 years ago, but from the beginning of 1980s, China's income gap has widened sharply. As a developing country, China has implemented different economic and social policies for urban and rural areas, leading to huge disparity between urban and rural households in terms of the income level, accessibility of social security and public service and human development (Riskin et al Gustafsson et, 2001; AI, 2008). Regarding income inequality, different estimates show that the income gap within urban and rural areas in China has increased significantly since the beginning of 1980s . For example, according to the comparable estimates of the household data, the Gini coefficient of urban household income

Figure 1: Gini coefficient of income inequality in urban and rural China, 1978-2013

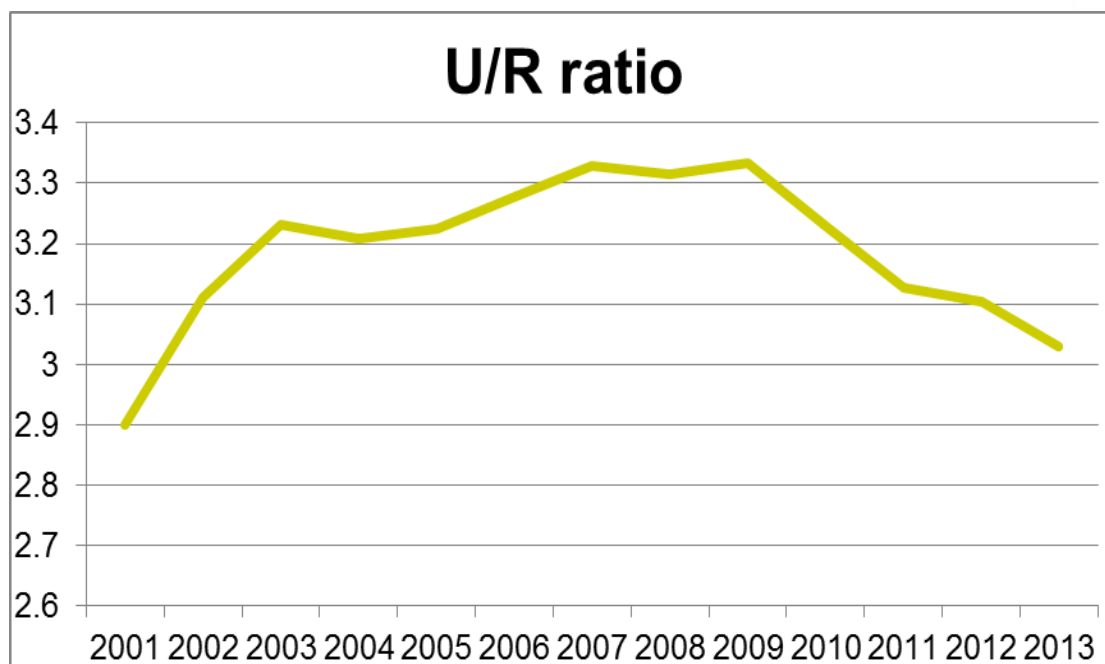


Sources: NDRC, 2014.

rose from 0.16 in 1978 to 0.37 in 2013, and the rural Gini coefficient rose from 0.22 to 0.38 at the same period, as shown in figure 1. The income gap between urban and rural areas in the past fifteen years also showed a trend of rising first and then declining. As shown in Figure 2, in 2001 the per capita income of urban households is 2.9 times of the per capita income of rural households and reached to 3.34 times in 2009, the highest level in history. In the following years the income gap between urban and rural areas has decreased slowly, but it is still higher than the level of the beginning of economic reform and opening up.

The Gini coefficient of national income gap, in the first 30 years of reform and opening up (1978-2008) is basically in a rising trend, from 0.30 in 80s to 0.491 in 2008, reaching the highest point in history. In the later years, the expansion of the national income gap has been under control, and the Gini coefficient has declined. By the end of 2015 the national income gap between the Gini coefficient decreased to less than 0.47.

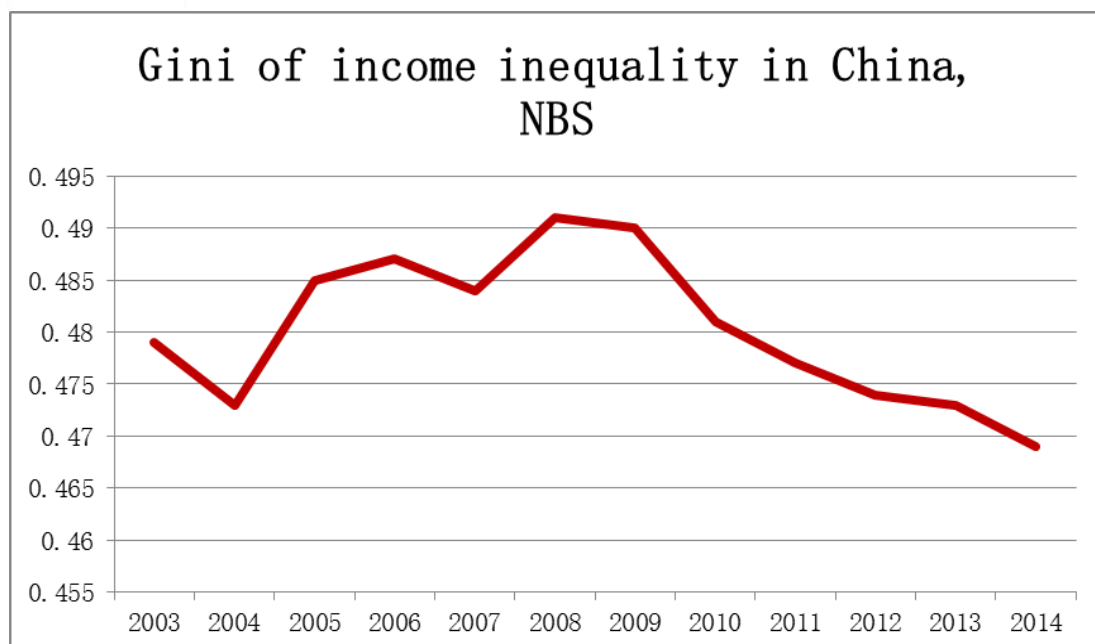
Figure 2: Urban-rural income gap in China, 2001-2013



Sources: NBS, China Statistical Yearbook, 2015.

However, the income gap is still at a high level, and the problem of unfair income distribution has not been fundamentally resolved, not to establish a fair and orderly income distribution system, so rise of the income gap has potentially happened in the future. In the face of these problems, the reform of China's income distribution system still needs to be pushed forward, and through the reform of the social security system, so the redistribution function is one of the important policy options.

Figure 3: Gini coefficient of income inequality in China as a whole, 2003-2014



Sources: NBS, China Statistical Yearbook, 2015.

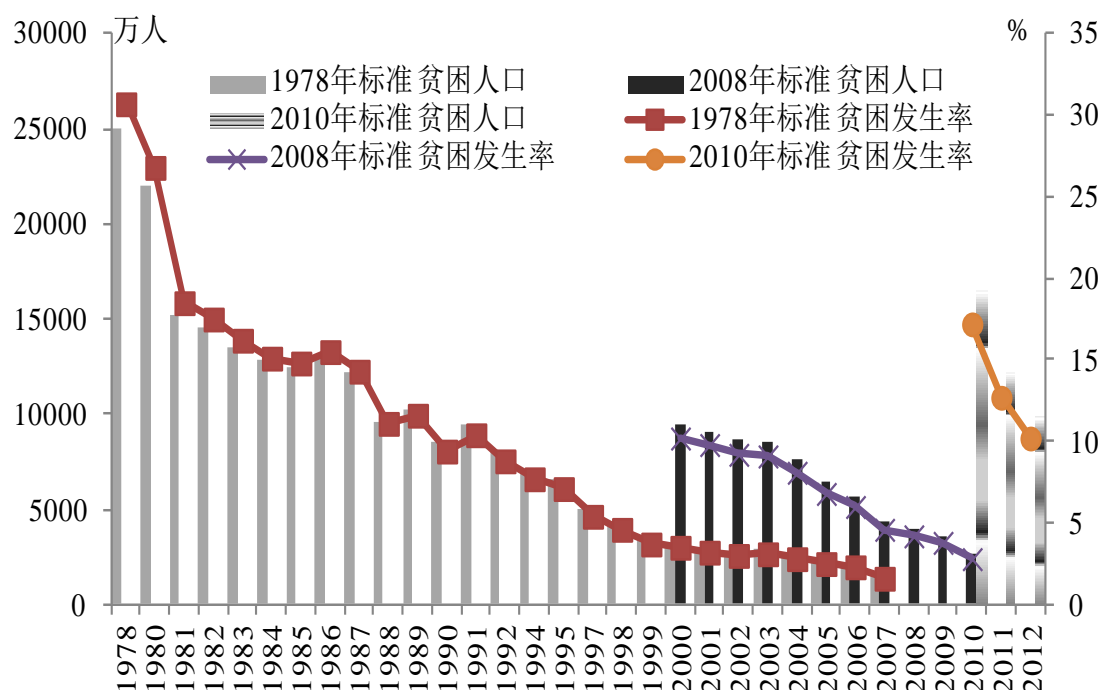
2. A large number of poor people

Over the past 40 years, China has achieved great success in helping the poor. No matter what the use of poverty lines, since the late 1970s, the decline in the size of the poor population has more than 90%. In the past 5 years, the rural poor population continued to decline, and is less than 60 million by the end of 2015 (see Figure 4). In 2011, the Chinese government raised the poverty line in rural areas, which was determined to be 2100 yuan / person / day in 2010. The new poverty line is equivalent to one of 2 U.S. dollars / person / day that the world bank promotes. According to the new poverty line, in 2010 China's rural poverty population was about 150 million, the poverty rate was 17%. In the past 5 years, the rural poor population continued to decline, to 2015 is less than 60 million.

However, poverty is still a major social problem in China, especially in rural areas. As is known, China's poverty line is only a dimension of income / consumption, not a multidimensional poverty line. If in accordance with the multi-dimensional criteria to estimate the poverty status of rural China, rural poor families have increased significantly. In addition to income / consumption poverty, there are a considerable number of rural people in health and education poverty, and housing poverty.

Among the rural poor, the elderly and children need more attention. As in other countries, the incidence of poverty among the elderly in China is higher than that of other people. According to a Research Report of Beijing Normal University , "The new situation of rural poverty structure", the current rural elderly poverty rate is higher than the average level by 5%, while the child poverty rate higher than the average by 10%. To eradicate the poverty of these special people, it is not enough to solve their income poverty. To provide affordable health care and education for these people are often essential.

Figure4: Rural poor population and poverty rate with different official poverty lines



Sources: NBS, 2014.

3. A large number of rural-urban migrant workers

From the beginning of 1990s, China has accelerated the process of urbanization. A large number of rural labor force moved to urban areas, but the vast majority of them are still bird migration, between urban and rural areas. By 2013, the agricultural labor force engaged in non-agricultural employment (migrant workers) has been close to 300 million, 170 million of which in the town (See Figure 5). In addition, there is a part of rural migrant population such as migrant children and the elderly. Coupled with this population, the total number of floating population from rural areas in cities and towns are more than 200 million.

At present, China's urbanization rate is less than 60%, which means that the urban and rural labor force will continue to flow in the next 20 years. Most of the migrant population is with low educational level, lack of skills, high mobility, but low income, uncovered by the social security system (Li, 2008; Deng Quheng, Li Shi, 2009; Li Shi, Xing Chunbing, etc., 2016).

Due to the floating population with registration (hukou) in rural areas, their employment opportunities in the urban labor market, wages, social security and public services are at a disadvantage. Over the next

ten years, it is a major challenge for the Chinese government to solve the problem of large-scale labor migration.

Figure 5: Number of rural-urban migrant workers (million)

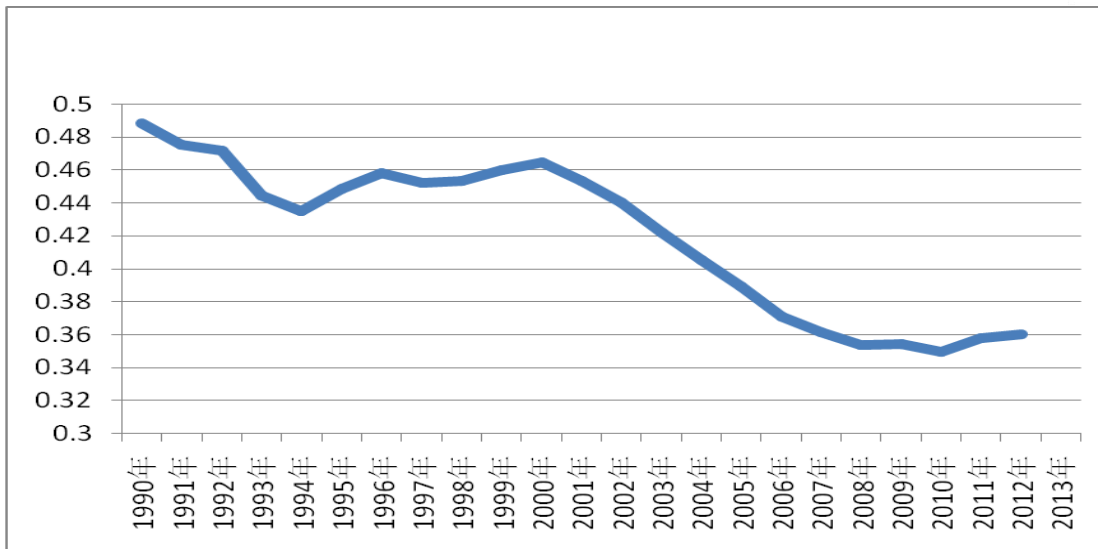


Sources: NBS, 2015.

4. Declining propensity to consume

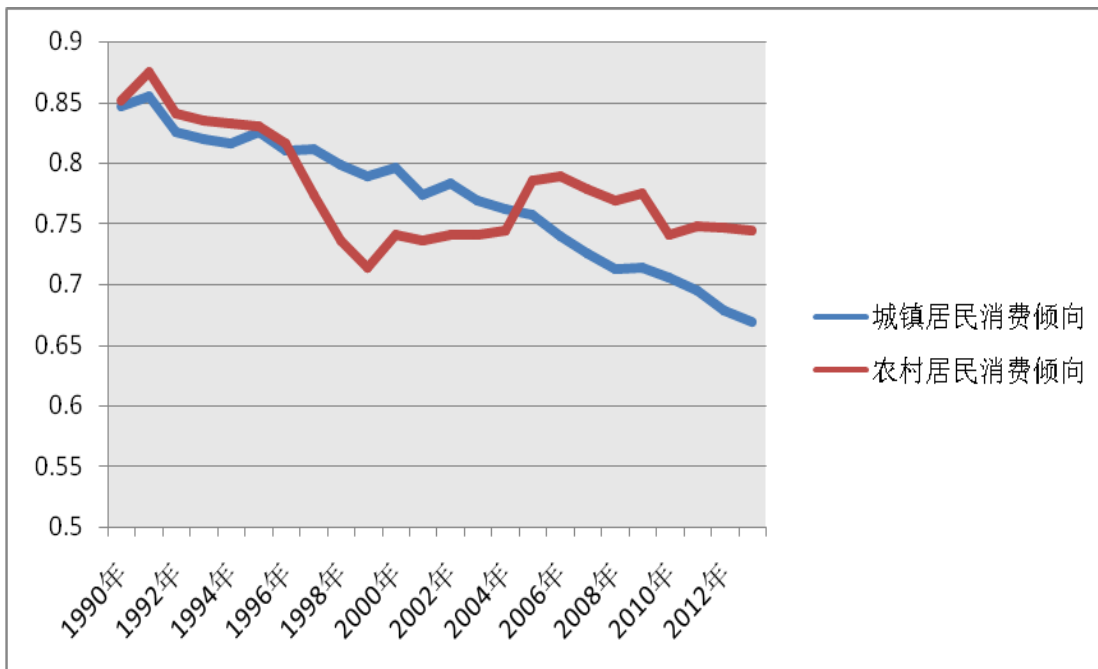
From the beginning of the new century, China's share of consumption in national income has declined sharply. Consumption as a share of the national income fell from 62% in 2010 to 48% in 2000, down by 14 percentage points in ten years (see Figure 6). Although in recent years China consumption share has a slight rise, but still at a very low level. From the perspective of consumption structure, the main factor resulting in a decline in consumption share is the rapid decline in the proportion of household consumption.

Figure 6: Consumption as a share of national income in China



Sources: NBS, 2015.

Figure 7. Propensity to consume of rural and urban households in China



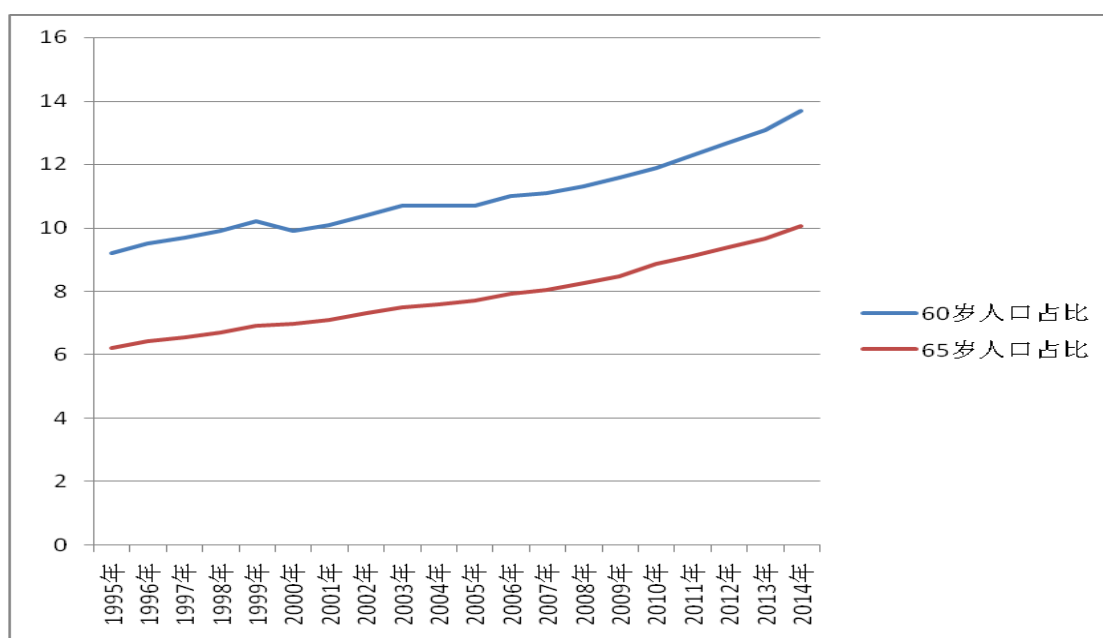
Sources: NBS, 2015.

Since 90s, the share of urban residents' consumption in the total consumption of the whole society increased by nearly 17 percentage points, while the share of rural residents' consumption fell by nearly 13 percentage points. The cause on the one hand, is urban population increase, and on the other hand, the expansion of income gap between urban and rural areas caused by the relative decline in consumption level of rural residents.

5. Accelerated aging society

In the past 20 years, China's aging process is beyond expectations, and especially in recent years, there has been an accelerated aging process. During 1995-2014, the proportion of population aged 65 and over rose from 6.2% to 10.1%, up nearly 4 percentage points; the 60-year-old population and over as a proportion of the total population rose from 9.2% to 13.7%, an increase of 4.5 percentage points.

Figure 8: Aging process in the Chinese society (aging population as %)



Sources: NBS, 2015.

III. Major functions of social security

The major functions of social security in a society can be summarized as follows.

(1) Insurance. Social security consists of two main parts, social insurance and social relief. Social insurance usually refers to unemployment insurance, medical insurance and pension insurance and other social transfer projects (Feldstein, 2005). For China, due to the economic transformation process in employment, income mobility and health uncertainty, social security plays an important role in reducing these risks.

(2) Poverty alleviation. The experience of China and other developing countries shows that without social security and social support, the poor are difficult to get out of poverty. Modern poverty theory

also points out that poverty itself is prone to poverty, when the poor people trapped in poverty will lead to more poverty (Bowles, etc., 2006). In the absence of public services provided for the poor, poverty, illiteracy, and (or) disease form a vicious circle.

(3) Redistribution of income. Social security has the function of redistribution of income, but in the design of the system, whether the redistribution function should be given priority is still controversial (Feldstein, 2005). In theory, social security has a direct and indirect effect of redistribution. The direct role is not so obvious, but the indirect effect can not be ignored.

(4) Smoothing consumption. Social security, such as pension insurance, in the long run, has a significant effect on the individual's consumption smoothing, also known as the piggy bank function (Barr, 2004). The volatility of income inevitably lead to consumption volatility, therefore, social security such as unemployment insurance, medical insurance and subsistence allowances and other income relief, has a strong effect on household consumption smoothing, especially for low income families.

(5) Stimulating consumption. In the long run, it is especially important for countries like China experiencing the falling consumption trend. Under the impact of the international financial crisis, China's export industry has been seriously affected, a significant reduction in export growth. Recently, Chinese economists and sociologists have called on the government to expand the social security and public services, to reduce the risk of consumers and the entire life cycle of uncertainty, increase the propensity to consume (Cai Fang and Yang, 2009).

(6) Social stabilizer. This is also an important role of China's social security system. Many studies have pointed out that crime and social conflict and unemployment, income inequality and poverty are highly correlated (Fajnzylber, 1998; 2002). For the poor and the unemployed in a country without social security, this is a higher degree of correlation.

IV. Redistributive effects of social security system in China

This part mainly discusses the redistributive effect of the social security system in china. In this paper, using the household survey data collected by the Institute of Income Distribution, Beijing Normal University in 2013. First to estimate the total effect on the national income inequality of all the social security programs, and then the effects of different social security programs(pension, medical care, housing, subsistence allowances). The estimates are also conducted for urban and rural separately. The data come from the household survey collected by the Institute of Income Distribution of Beijing Normal University in 2013, which contain 10000 rural households and 8000 urban households .

The method used here is that first the market income inequality is estimated, and then the redistribution effects of the different social security programs (pension, medical care, housing, subsistence allowances and other income transfers) are estimated using the following formula:

$$\text{Disposable income} = \text{market income} - \text{taxes} + \text{transfer income (public and private transfer income)}$$

Gini coefficient is used to measure the income gap, respectively, the calculation of market income distribution (usually referred to as the primary distribution), after deducting taxes, plus transfer income. The difference between the Gini of market income and the Gini of disposable income is seen as a redistribution effect.

Table 1. Redistributive effects of taxes and fees and transfer incomes in China, 2013

	Gini	Change in Gini	Change in Gini (%)
Market income	0.51740		
- Taxes and Fees	0.51767	0.00027	0.05
+ Public transfers	0.47203	-0.04564	-8.82
+ Private transfers	0.44135	-0.03069	-5.93
=Disposable income	0.44135		

Sources: The author's calculation using CHIPs Data 2013.

Table 1 indicates market income inequality in China measured by Gini coefficient is about 0.52 in 2013, while the Gini coefficient of disposable income inequality is 0.44. Thus, with the function of taxes, fees and transfer payments, the Gini coefficient of the national income inequality decreased by 8 percentage points. In other words, the Gini coefficient of the market income gap, after the redistribution policies, fell down by 14.7%.

Table 2. Redistributive effects of taxes and social security contributions, 2013

	Gini	Change in Gini	Change in Gini (%)
Market income	0.51740		
- Taxes and Contributions	0.51767	0.00027	0.05
- Pension	0.51808	0.00068	0.13
- Medical insurance	0.51931	0.00123	0.24
- Unemployment insurance	0.51905	-0.00025	-0.05
- Other contribution	0.51914	0.00008	0.02
- Personal income tax	0.51767	-0.00147	-0.28

Sources: The author's calculation using CHIPs Data 2013.

Table 2 presents the results of redistributive effects of taxes and social security contributions attached to households. It is quite clear that personal income tax has a role in narrowing the income gap, but its role is very limited, making the Gini coefficient of the market income decreased only less than 1%. Several social security contributions, in addition to the unemployment insurance having a weak role in narrowing the income gap, have an effect of expanding income inequality. The reason is that low-wage workers pay as the same contribution as the higher wage/income earners. As shown in Table 2, social security contributions are expanding the income inequality, such as endowment insurance and medical insurance contributions respectively make the market income gap increased between 0.13% and 0.24%. This means that social insurance contributions are certainly regressive.

Among the public transfer incomes, all of them have the effect of narrowing income inequality, but the size of the effects is different from one to another. Pension of the urban retirees has a more obvious redistribution effect, which makes the market income gap narrowed by nearly 6%. Endowment insurance income received by urban residents and rural residents, and other pension income also help to narrow the income gap, but with a very small effect. The combined effect of the three types of pension income is just to make the market income inequality measured by the Gini coefficient decreased less than 1.5%. Urban and rural social relief, as well as various grants, can be seen as a social welfare programs, also help to narrow the income inequality, but its effect is not significant. As shown in Table 3, the comprehensive effects of urban and rural subsistence allowances (dibao), social relief, and policy grants to make the Gini coefficient of the market income gap to fall less than 1%. Finally, a variety of agricultural subsidies (including grain subsidies) also helps to narrow the income gap, resulting in decline in the Gini coefficient of income inequality by 0.61%. Because this type of the subsidy is mainly

obtained by the rural residents, it has a positive effect on narrowing the income gap between urban and rural areas.

Table 3. Redistributive effects of transfer incomes in China, 2013

	Gini	Change in Gini	Change in Gini (%)
Market income	0.51740		
+ Public transfers	0.47203	-0.04564	-8.82
+ Retired pension	0.48691	-0.03076	-5.95
+ Urban elderly subsidy	0.48366	-0.00325	-0.63
+ Rural elderly subsidy	0.48098	-0.00269	-0.52
+ Other pension	0.48040	-0.00058	-0.11
+ Dibao	0.47848	-0.00192	-0.37
+ Social relief	0.47741	-0.00107	-0.21
+ Other relief	0.47657	-0.00084	-0.16
+ Rural medical reimbursement	0.47568	-0.00090	-0.17
+ in-kind subsidies	0.47519	-0.00049	-0.09
+ Various agricultural subsidies	0.47203	-0.00315	-0.61

Sources: The author's calculation using CHIPs Data 2013.

What are the effects of various taxes and fees and social security programs on income distribution in urban and rural areas respectively? In this regard, we need to examine the changes in the market income gap before and after the tax and social security projects. Table 3 is the change of the Gini coefficient of urban residents' income gap and the relationship between tax and social security. From table 3 can be seen in the estimation results, the Gini coefficient of urban residents income gap in the market in 2013 is 0.453, after tax and transfer income, the Gini coefficient of household disposable income gap decreased to 0.349. If you do not include the impact of private transfer income, after income redistribution policy adjustment, the Gini coefficient of income gap between urban residents decreased by 9.5 percentage points, or that the Gini coefficient of income inequality fell 21%. It should

be said that the current tax and social security projects on the adjustment of urban residents' income distribution is still quite obvious. However, if we examine the effect of the fine items and the transfer income, we can find that the effect of taxes and fees is very small, but also to expand the income gap. This is mainly because the cost of endowment insurance and medical insurance fee has a certain income inequality, and personal income tax helps to narrow the income gap, but because of its limited role, not enough to offset the two premium increase income difference.

Table 3. Redistributive effects of taxes and fees and transfer incomes in urban China, 2013

	Gini	Change in Gini	Change in Gini (%)
Market income	0.45295		
- Taxes and Contributions	0.45502	0.00206	0.45
- Pension	0.45574	0.00278	0.61
- Medical insurance	0.45690	0.00116	0.26
- Unemployment insurance	0.45683	-0.00007	-0.01
- Other contribution	0.45698	0.00015	0.03
- Personal income tax	0.45502	-0.00197	-0.43
+ Public transfers	0.35745	-0.09757	-21.54
+ Retired pension	0.36813	-0.08689	-19.18
+ Urban elderly subsidy	0.36101	-0.00712	-1.57
+ Rural elderly subsidy	0.36044	-0.00057	-0.13
+ Other pension	0.35989	-0.00055	-0.12
+ Dibao	0.35827	-0.00162	-0.36
+ Social relief	0.35769	-0.00058	-0.13
+ Other relief	0.35733	-0.00036	-0.08
+ Rural medical reimbursement	0.35778	0.00045	0.10
+ in-kind subsidies	0.35762	-0.00017	-0.03
+ Various agricultural subsidies	0.35745	-0.00017	-0.03

+ Private transfers	0.34868	-0.00877	-1.94
Disposable income	0.34868		

Sources: The author's calculation using CHIPs Data 2013.

In the transfer income, the greatest impact on the income distribution is from the pension. As shown in Table 3, resulting in a 19.2% drop from urban workers pension market Gini coefficient, the income gap between urban residents and other urban residents pension insurance revenue decreased by 1.6% the Gini coefficient of income gap between urban residents in the market. In addition, other transfer payments are very limited income redistribution effect of the project, making the Gini coefficient of income gap is less than 1%.

Table 4 shows the income redistribution effect of tax and social security in rural china. Generally, the effect of redistribution of social rural smaller towns, tax and public transfer income just makes the Gini coefficient of income gap of rural residents and urban market fell 4.9% to 21%. Similar to the situation of urban residents is the burden of rural residents not only did not reduce the income gap, but to expand the income gap. The redistribution of tax and fee makes the Gini coefficient of rural residents' income gap increased by 1.23% (see Table 4). Due to the development of the rural pension system is seriously lagging behind, the new agricultural insurance system after the establishment of the rural elderly pension subsidies obtained for farmers income proportion is still very low, so the income redistribution effect of farmers received pension income brings is very limited, but the peasant household market income gap narrowed by 1%. Of course, many rural transfer income than the towns, in addition to low premium income, rural residents also received other subsidies, such as subsidies for grain etc.. These transfers have a certain effect on narrowing the income gap between the rural areas. As shown in Table 4, a variety of agricultural subsidies to make the Gini coefficient of the rural income gap narrowed by about 1.34%.

We should also pay attention to the role of redistribution of private transfer income of rural residents. A large part of the rural private transfer income is the income from the family members to go out to obtain employment. In 2013 the private transfer income made the market income gap between the rural residents of the Gini coefficient decreased by 12.24%, which is equivalent to two times the public transfer income. Of course, the redistribution of private transfer income and the public transfer income has a strong alternative. That is to say, the increase in the transfer of public income will be squeezed out of private transfer income.

Table 4. Redistributive effects of taxes and fees and transfer incomes in rural China, 2013

	Gini	Change in Gini	Change in Gini (%)
Market income	0.46435		
- Taxes and Contributions	0.47005	0.00570	1.23
- Pension	0.46684	0.00250	0.54
- Medical insurance	0.47004	0.00320	0.69
- Unemployment insurance	0.46998	-0.00005	0.01
- Other contribution	0.47013	0.00015	-0.03
- Personal income tax	0.47005	-0.00009	-0.02
+ Public transfers	0.44161	-0.02843	-6.12
+ Retired pension	0.46452	-0.00552	-1.19
+ Urban elderly subsidy	0.46330	-0.00123	-0.26
+ Rural elderly subsidy	0.45838	-0.00492	-1.06
+ Other pension	0.45781	-0.00057	-0.12
+ Dibao	0.45474	-0.00306	-0.46
+ Social relief	0.45288	-0.00186	-0.40
+ Other relief	0.45127	-0.00160	-0.36
+ Rural medical reimbursement	0.44864	-0.00263	-0.57
+ in-kind subsidies	0.44781	-0.00083	-0.18
+ Varies agricultural subsidies	0.44161	-0.00620	-1.34
+ Private transfers	0.38479	-0.05683	-12.24
Disposable income	0.38479		

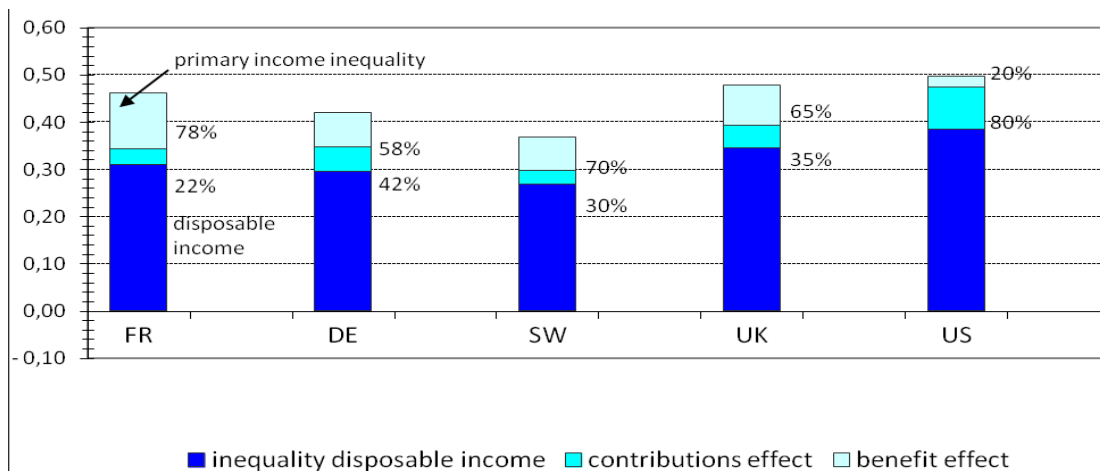
Sources: The author's calculation using CHIPs Data 2013.

V. International comparison: China VS Europe

As a developing country, China's social security system has a short history. The system and mechanism are still in the process of continuous reform and improvement. Thus, compared with European countries, the function of redistribution of the Chinese social security remains weak.

European countries, especially the Nordic and Western Europe countries, social security and social welfare system has a hundred years of history, the formation of a complete set of policy system. It has a positive effect on reducing inequality, alleviating poverty and stabilizing society. However, excessive social security and welfare system will also bring some negative effects, it will not be conducive to the efficiency of the increase and bring serious social burden. From the beginning of the last century in 80s, European countries are different reforms in social security and welfare system, the introduction of active labour market policies, in order to reduce the negative effects of excessive protection and benefits. However, the continuous reform of the European social security and welfare system still has a strong function of redistribution of income, for narrowing the income gap, to achieve equality of income distribution, and play a positive role.

Figure 9. Redistribution effects of social security benefits in the four countries of Europe and the United States

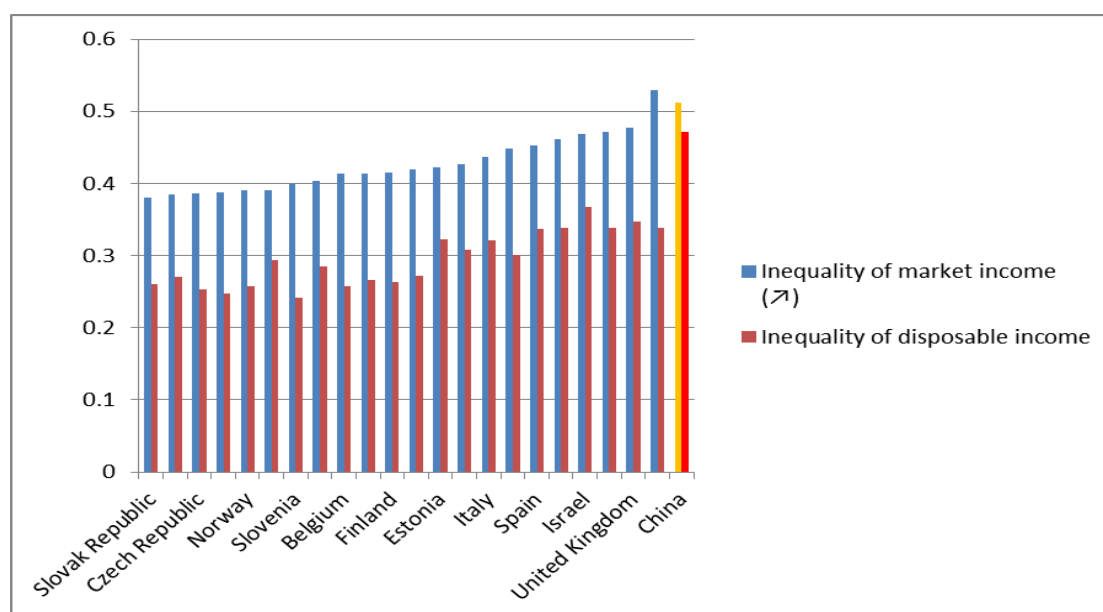


Sources: Data of European countries come from Jean- Yves Hocquet (2016) .

Social security and welfare play a role of income re-distribution through two ways, one is to pay (contribution) to the social security and welfare programs, another one is the public transfer income received by households. The payment is similar to the personal income tax, have a certain progressive, namely the higher income, pay more, which has played a role in narrowing the income gap. Public transfer income is reflected in a variety of social security and welfare, often low-income families will get more transfer income, thus narrowing the income gap. Figure 9 shows the impact of the European countries and the United States on the income distribution of social security. It is not difficult to see that the initial income distribution of these countries are quite large, except for Sweden. The other four

countries have the initial distribution of income in terms of Gini coefficient higher than 0.4, that of the United States and the United Kingdom is close to 0.5. After social security payment and transfer payments, disposable income inequality has a significant decline, such as Denmark's income inequality decreased from 0.42 to 0.3, the UK from 0.47 to 0.34. Figure 9 also shows the different effects of social security contributions and transfer payments. Compared to the United States, the effect of the payment of social security is smaller than that of the transfer income in European countries such as France, the redistribution of income transfer income has accounted for 78% of the total effect of social security, and the effect of payment accounted for only 22%. In contrast, the U.S. income redistribution effect of the transfer income accounted for only 20% of the total effect of social security, while the contribution of the effect is 80%. From this point of view, China is more similar to the European countries, the role of social security contributions to play a very limited role, and the role of public transfer payments is stronger.

Figure 10. Redistribution effects of social security and welfare: China VS Europe

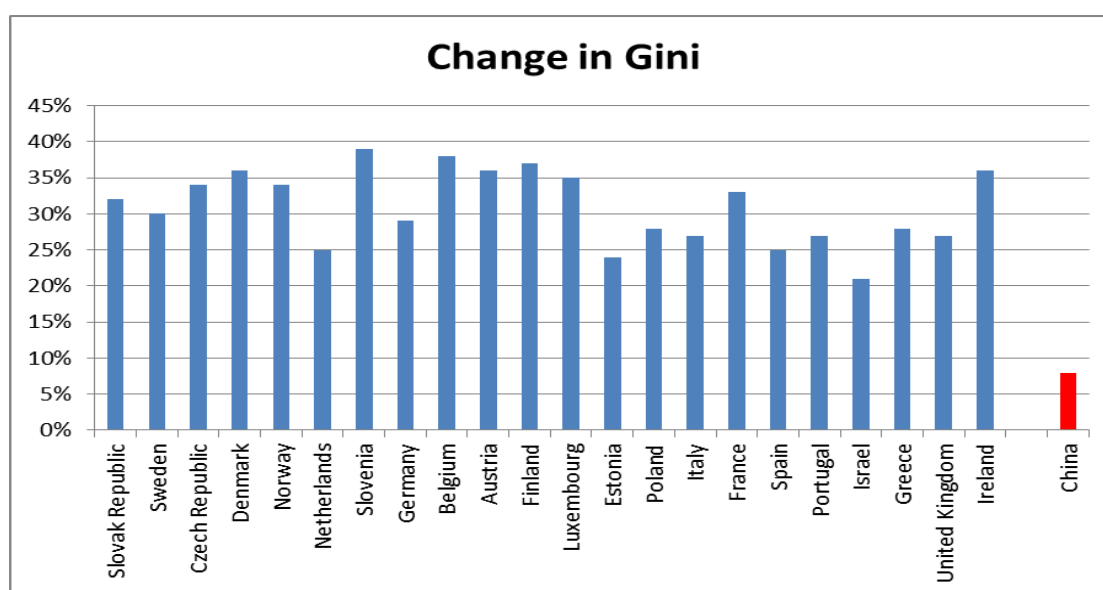


Sources: Data of European countries come from Jean- Yves Hocquet (2016) and the data for China come from the table 2 of this paper.

As mentioned before, China's social security and welfare system generated by the income redistribution effect is not large, just make the market income gap is a slight decline in the Gini coefficient. So, in contrast, to what extent income inequality can be reduced by social security and welfare in the European countries? Figure 10 shows the Gini coefficient of market income and disposable income gap of China and major European countries. It is not difficult to see that some European countries in the table shows the market income (initial distribution) of the Gini coefficient and disposable income (redistribution) have a greater difference between the Gini coefficient, which is significantly lower than

the former. This means that the income redistributive system, including the social security and welfare system, plays a significant role in reducing the income gap in the European countries. In contrast, the difference between the Gini coefficient of China's market income and the Gini coefficient of disposable income is not obvious in China, which shows that the effect of China's redistribution policy is very limited. Even more remarkable is the difference between Britain and China. Britain's market income gap is even higher than China, after redistribution, the UK's disposable income gap has a significant decline, with its disposable income inequality much lower than that of China (see Figure 10).

Figure 11. Falling Gini due to social security and welfare: China VS Europe (%)



Sources: Data of European countries come from Jean- Yves Hocquet (2016) and the data for China come from the table 2 of this paper.

Figure 11 shows the difference between China and European countries in terms of income redistribution. In major European countries, social security and welfare will lead to a decline in the income gap is much more than it? As shown in Figure 14, in 22 countries in Europe, after the adjustment of social security and welfare system, the income gap has decreased significantly. The smallest decline was in Israel, whose income gap between the Gini coefficient fell by 22%, the largest decline in Slovenia, the income gap of the Gini coefficient decreased by 38%. The average fall in these countries is around 30%. In contrast, China's social security and welfare system is very limited regulation, the income gap between the Gini coefficient just dropped by 8%.

Figure 11 also shows the Gini coefficient of China's market income and disposable income gap compared with major European countries. It is not difficult to see that some European countries in the table shows the market income (initial distribution) of the Gini coefficient and disposable income (redistribution) have a greater difference between the Gini coefficient, which is significantly lower than the former. This

means that the income redistribution policies, including the social security and welfare system, plays a significant role in reducing the income gap. In contrast, the difference between the Gini coefficient of China's market income and the Gini coefficient of disposable income is not so significant, which shows that the effect of China's redistribution policy is very limited. Even more remarkable is the difference between Britain and China. Britain's market income gap is even higher than China, after redistribution, the UK's disposable income gap has a significant decline, much lower than China.

In addition to the social security and welfare system in the transfer of income, the European countries of public services such as free medical care, education, affordable housing also played a role in regulating the distribution of income. Table 5 shows the effect of redistribution of public services in the European countries. On the basis of the disposable income of residents, if the market value of the public service, the Gini coefficient of income gap has a significant decline, which shows that the public service has narrowed the income gap. Some countries have a greater impact on the redistribution of public services, such as Sweden, and some countries are less like Germany. From the breakdown, play a main role is the public health, its impact on the distribution of income accounted for the overall effect of 40-70%. Due to the lack of research results in this area, we can not make international comparisons. However, from the existing experience, the income distribution effect of China's public service will not be too large, this is mainly because the equalization of public services has not been a good solution. Between urban and rural areas, between different groups of people in the enjoyment of public services, there are significant differences, to a large extent, undermine the effectiveness of public service income redistribution.

Figure 5. Redistributive effects of public services in European Countries

	Gini coefficient of disposable income	Gini coefficient of (disposable income+public services)	Redistributive effect	Effect of each public service as a percentage of the total effect				
				Health	Education	Child-care	Housing	others
Germany	0,300	0,249	-16,9%	61,5%	30,2%	7,1%	1,8%	-0,6%
Austria	0,270	0,220	-18,5%	56,8%	34,1%	7,6%	1,6%	
Spain	0,340	0,276	-18,7%	60,4%	32,1%	5,3%	0,5%	1,6%
Finland	0,270	0,220	-18,7%	57,8%	23,0%	5,3%	0,5%	13,4%
Italy	0,320	0,259	-19,0%	48,4%	41,1%	7,9%	2,6%	
Netherlands	0,270	0,218	-19,2%	42,2%	33,3%	9,4%		15,1%

Slovakia	0,250	0,200	-19,9%	60,8%	33,7%	3,0%	2,5%	
Poland	0,320	0,256	-20,0%	43,0%	49,5%	5,5%	2,0%	
Estonia	0,310	0,246	-20,6%	56,3%	31,1%	6,8%	1,9%	3,9%
Greece	0,340	0,270	-20,6%	46,6%	28,6%	2,4%	22,3%	
Czech	0,260	0,206	-20,8%	63,9%	24,5%	7,7%	3,8%	
Luxembourg	0,270	0,213	-21,1%	50,7%	36,0%	10,9%	2,4%	8,3%
Belgium	0,260	0,204	-21,7%	65,9%	20,3%	6,9%	6,9%	
Denmark	0,250	0,196	-21,8%	45,9%	26,1%	5,0%		22,9%
France	0,280	0,217	-22,5%	57,8%	25,8%	8,0%	4,9%	3,6%
Portugal	0,370	0,286	-22,6%	60,2%	35,4%	4,0%	0,4%	
Hungary	0,260	0,201	-22,8%	46,1%	36,0%	12,3%		5,7%
Britain	0,330	0,254	-22,9%	54,6%	30,6%	3,1%	4,8%	7,0%
Ireland	0,320	0,246	-23,2%	53,9%	43,5%	0,4%	2,2%	
Sweden	0,240	0,183	-23,8%	52,1%	23,5%	6,3%	0,4%	17,6%

Sources: From Jean- Yves Hocquet (2016)。

VI. Conclusions and reform suggestions

The paper has the following major conclusions.

(1) In the past forty years of reform and opening up, China made great achievements in terms of economic growth, but social security and welfare system did not play an effective role in narrowing income inequality. China is facing a series of social and economic problems, such as the widening income gap and large scale of poverty population, economic slowdown brought the pressure of unemployment, massive rural migrant population, the lack of consumption demand and the increasingly serious aging.

(2) China has initially established a social security and welfare system covering the whole population, especially the pension and health care system covering the whole population. However, since the current social security system is fragmented, the system implements different systems for people with different employment status within a city, lack of cohesion and coordination between different groups.

(3) The results of this study show that the social security and welfare system, especially the endowment insurance system, has a positive impact on narrowing the income gap, but the impact is not very significant. In particular, the personal income tax and social security contribution to the income distribution is negative, that is, the role of increasing income gap. A variety of social security and welfare programs with public transfer income has played a role in narrowing income gap, which is mainly derived from the role of pension insurance system.

(4) The EU countries have greatly reduced income inequality through social security and welfare systems. In addition, the EU's public service equalization level is high, but also to reduce the inequality of income distribution. In this regard, China has a lot to learn from the experiences of the EU countries .

The paper provides the following suggestions for further reform of social security system in China. In the future reform of social security and welfare system, China should pay more attention to its role in reducing income inequality.

First of all, the social security contribution needs to increase the progressivity of payment and the payment must be linked to their income level. In the pension system, the reform of civil servant pension insurance system should be accelerated, merged as soon as possible into the enterprise workers and public institutions staff pension insurance system.

Secondly, to reform the existing fragmentation of the social security system, to establish a unified national social security system as soon as possible. Reducing the differences in social security benefits for different groups of people. The current dibao program needs to improve targeting, also needs to improve its low premium level.

In addition, increase the number of welfare programs for poor people and low-income groups, such as subsidies for children from low-income families.

Finally, the simulation analysis of social security and welfare system should be encouraged, especially the effect of income redistribution is simulated and analyzed, which provides scientific basis for policy making.

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The Financial Sustainability of Urban Basic Old Age Insurance System in China



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Abstract: According to the different employment sectors, China's urban basic old age insurance system can be divided into enterprises employee's old age insurance and government organs and public institutions pension system(hereinafter, GOPI pension).In 1997, Urban enterprise employees' old age insurance system has formally established the framework of social pooling and individual accounts. Social pooling is a pay-as-you-go pension system, while the individual account is fully funded. In 2005, some adjustments are made in the system, such as the adjustment of the proportion of individual account and the benefit formula. And the system has run up to now. Although the urban basic old age insurance system has made great contribution to reforming the economic system and constructing the harmonious society, the problems of the fairness and sustainability of old age insurance system are increasingly prominent. Currently, urban old age insurance system is in the period when pension benefits are increasing rapidly and the financial subsidies are in the largest amount, which has increased from 54.4 billion Yuan in 2005 to 471.6 billion Yuan in 2014. At the same time, China's urban old age insurance is still in the enormous pressure on how to adjust system parameter, reform the structure of the system and to establish some sub systems. As the "double track" of the urban basic old age insurance breaks down, the problem of system unfairness will be solved, then the sustainability of the system will become the main contradiction.

At present, there are six main problems existing in the financial sustainability of pension system. Firstly, the income ability of the system is low. Due to the negative incentive, the principle of "pay more and gain more" has not be established in the system, then the contributions and benefits disconnected with each other, resulting in the problems of real contribution rates lower than statutory contribution rates and smaller real contribution bases. All these factors are contributing to the low income ability. Second, the automatic balance mechanism to resist the aging is absent. The automatic adjustment mechanism has not been set up in the social pooling system financing on the pay-as-you-go basis. And the pension divisor in the individual account system has not adjusted dynamically with the increasing life expectancy. Third, due to the low pooling level, the sustainability of social pooling is increasingly highlighted. Low pooling level results in the large amount of financial subsidies, and it does not help to promote the establishment of pension fund investment system. Fourth, the design of individual account system is birth defects. The individual account system cannot live without government transfer. Social Insurance Law has provided that the assets in the account can be inherited. Otherwise, the people who live longer than life expectancy can receive the benefits until they die. Moreover, it is difficult to fully fund individual accounts. The scale of empty account has expanded to 3095.5 billion Yuan at the end of 2013, and the real account is only 415.4 billion Yuan. The goal of partial funded pension system has not achieved. The fifth is that the management system is not order, which affects the financial capacity of the system. The Interim Regulation on the Collection and Payment of Social Insurance Premiums in 1999 has provided that the social insurance premium should be collected by the tax authorities directly or by the social insurance agencies. Due to coexist of double system, the contribution incomes cannot reach its designated position. Besides, the social insurance agencies are administrated by the local administrators, which reduce the efficiency of the system. The six is that workers put excessive reliance on the basic old age insurance governed by the government. The retirement income coming from the market share is too low. The multi-level old age insurance system has not been set up.

To predict fiscal sustainability of basic old age insurance system, it should make some hypotheses to system parameters such as the long-term ROI (7%), accounting interest rate (equals to wage growth which is decline linearly from 10.01% in year 2015 down to 6.71% in year 2050), reasonable pension divisor (should be adjusted dynamically and be lower than the existing divisor at the same retirement age level) as well as population, economic growth, revenue growth, and then the conclusion is as follows: from 2015 to 2050, the Basic Pension revenue increases gradually. In 2020, the revenue growth rate will increase slower than before, accounting for 23.87% of homochronous fiscal revenue in 2035 down to 22.97% in 2050. Accordingly, before 2030, fund expenditures have expanded slowly. Thereafter, due to the increasing dependency ratio, the fund scale expands, accounting for 15.59% of homochronous fiscal revenue in 2030, and then up to 24.13% in 2050. At the same time, The prediction of the GOPI pension indicates that from 2015 to 2050, the Basic Pension revenue increases gradually, accounting for 4-5.5% of homochronous fiscal revenue; between 2015 and 2035 the Basic Pension expenditure will decrease slightly and after 2035 increase sharply, accounting for 4-9% of homochronous fiscal revenue; the current value of history debt accounts for 5 percent of fiscal revenue of the year, almost reducing 1 percent every 10 years. The Pension Divisor in the reform is too low, which will speed up the depletion of Basic Pension funds of GOPI.

In recent years, due to the aging and negative incentives, the costs of the system are rising. Thus, many EU countries reform their public pension systems. The major reform measures include: Firstly, reduce pension benefits via cutting down payment or strengthening the link between the contributions and benefits or introducing automatic adjustment mechanism; Secondly, Raise retirement age, gradually realizing the equal retirement age of men and female; Thirdly, establish the rewards and punishments linked with the retirement age, making the best use of human capital by punishing the early retirement and rewarding the later retirement. The fourth is to use actuarial technical to adjust the parameters and introduce the aging population factor under the double constrains of contribution rates and replacement rate. Fifthly, enhance the portability of basic old age insurance system by improving the pooling level. The six is to make full use of market mechanism and then to push the pension system from a single mode to multiple-level pension system.

In order to establish a more fair and sustainable basic pension system, it needs to be reformed as follows: Firstly, reduce the contribution rate of old age insurance and establish the reasonable contribution base. The contribution base should be public and under the supervision of employees. Secondly, advance the implementation of nation pooling to enhance the portability. Thirdly, enhance the financial sustainability of basic pension system via the principle of actuarial balance. The measures include: Develop a more dynamic and scientific pension divisor, and establish a normal and reasonable pension adjustment mechanism; all of these measures will promote basic pension system more scientific and more sustainable. The forth is to improve individual account, which helps to promote the incentive mechanism. It is suggested to expand the scale of individual accounts and promote the new form of hybrid social pooling and individual accounts; the fifth is to introduce the role of market mechanism and pay more attention to other pillars. It should set up a more independent investment institution to improve the investment performance of pension fund. Besides, make full use of the role of the second and third pillar via preferential tax policies and open the limited investment options.

Key Words: Urban Basic Old Age Insurance System; European Union; Financial Sustainability

According to different employment sectors, basic old age insurance system for urban workers can be divided into enterprise employees' old age insurance system and government organs and public institutions pension system(hereinafter, GOPI pension). These two systems have evolved from "unification" to "differentiation" and finally to "reunification". Enterprise Employees' old age insurance system has formally established its framework of social pooling and individual account in 1997. In 2005, some adjustments are made in the system, such as the adjustment of the proportion of individual account and its benefit formula. And the system has run up to now. The GOPI pension reform in 2015 has ended the double-track operation of these two systems. Basic old age insurance system for urban workers has made remarkable achievements in reforming the economic system and constructing the harmonious society. From the 21st century, urban basic old age insurance system has developed fast. However, the issue of the fairness and sustainability of old age insurance system is increasingly prominent, which has a big gap compared to the objective requirement of promoting national governance system and management ability.

1. The Background of Urban Basic Old Age Insurance System reform: Three Tasks Stacked

China has proposed to establish a more equitable and sustainable pension system. Over the past decades, the fairness and sustainability of urban basic pension system become the most important problems. The issue of financial sustainability is currently in the most difficult and sensitive period. It embodies in the following two aspects.

1.1 The system is in the period of rising pension benefits and substantial financial subsidies

From 2005 to 2015, the basic pension benefit has never stop to rise by 10% every year. Per capital pension in China has increased from 714 Yuan per month in 2005 to 2100 Yuan in 2014. At the same time, financial subsidies have grown fastest in the past 11 years from 54.4 billion Yuan in 2005 to 471.6 billion Yuan in 2015⁶³.The public have high expectations on the pension system. Any tightening reform on the financial sustainability will be in a passive situation.

1.2 Urban basic pension system is under the great pressure of three stacked tasks

China's urban basic old age insurance system is still under the great pressure, which needs to adjust system parameters, reform the system structure and to establish sub systems as soon as possible. The adjustment of system parameters means that some parameters need to be adjusted, such as rising the statutory retirement age and reducing social insurance contribution rate. Now the statutory retirement age is very low and the contribution rate is very high in China, which pose great threats on the sustainability of pension system. Reforming the system structure means that individual accounts cannot be fully funded over the past 13 years. The size of empty account has expanded year by year, which has bad influences on the creditability of government. The establishment of sub systems means that the GOPI pension needs to be reformed together with the enterprises employees' pension system; the

⁶³ Ministry of Human Resources and Social Security, Human Resources and Social Security Development Statistical Bulletin,Website: <http://www.mohrss.gov.cn/>。

normal pension adjustment mechanism and pension fund investment system need to be set up as soon as possible. The absence of these sub systems has great impacts on the fairness and sustainability of the pension system. Three tasks are overlapped, making pension system reform difficult.

After the breakdown of double-track pension system, financial sustainability will become the main problem. Due to the trend of aging population, the implicit debts and the financial sustainability have become important issues in China.

2.The sustainability status quo of basic old age insurance system: Six problems

The fund revenue of urban basic pension system is more than the expenditure, and the fund balance is as high as hundreds of billions Yuan. The scale of accumulated funds expands gradually. It seems that the financial status of pension system is good at present, which is mainly affected by the following three factors: firstly, the coverage expands unceasingly. The new hires are young workers who make contributions to the system and withdraw pension benefit in a few decades. The demographic dividends have covered the real situation of the system; secondly, financial subsidies have expanded year by year, which have increased from 2.4 billion Yuan in 1998 to 471.6 billion Yuan in 2015. The total amount of fiscal subsidies is up to 2.66 trillion Yuan from the year 1998 to 2015. Total fund balance is about 3.53 trillion Yuan at the end of the year 2015⁶⁴. That is, more than two-thirds of the fund balance come from fiscal subsidies. Thirdly, the proportion of abnormal contribution revenues is rising. The supplementary contributions and the prepay account for 10 percent in all revenues⁶⁵. These revenues are collected by the local governments, who allow the new retirees to participate in the system by one-time contributions. Therefore, if abnormal contribution revenues are removed, the incomes will not cover the expenditures.

The contribution rate of urban basic pension system is 28 percent and the dependency ratio is 0.33. In theory, the replacement rate should be 80 percent. But the real replacement rate is less than 50 percent⁶⁶. All these indicate that the system parameter don't match with each other. The financial risks have been covered by the coverage expansion and large amount of fiscal subsidies. The problem of financial sustainability of urban basic old age insurance system is serious, which embodies in the following six aspects.

2.1 Low income ability of pension system

As an insurance system, the urban basic old age insurance system inevitably involves the revenues and expenditures. Generally, the scale of pension expenditures and pension benefit are rigid. If the revenues can't cover the expenditures, it means that the income ability is poor. In China, the fund revenue consists of contribution incomes and investment return. Both of them are not good.

⁶⁴ Ministry of Human Resources and Social Security, Human Resources and Social Security Development Statistical Bulletin, Website: <http://www.mohrss.gov.cn/>.

⁶⁵ Zheng Bingwen, China Pension Report. Beijing: Economy & Management Publishing House, 2014.

⁶⁶ Calculate from the public data provided by the Ministry of Human Resources and Social Security.

2.1.1 The negative incentive of pension system

The revenues of basic old age insurance system almost come from employer and employee's contributions. The principle of "Pay more and gain more" has not been established in China's urban basic old age insurance system, the contributions don't link with benefits. The participants don't know how much benefit they will receive when they retire. The employers, employees and the local governments are filled with moral hazard. They take all kinds of way to escape contributions into the system, causing a big gap between the real revenues and the expected. They are embodied in the following three aspects.

First, actual contribution rate is lower than the statutory contribution rate. Due to the mobility of workers, developed areas, such as Guangdong and Zhejiang, have accumulated a large amount of pension funds. They are favor of reducing contribution rate to attract foreign business and investments. Thus, it is difficult to enforce a flat rate throughout the country. For the sake of the local interests, the local governments in developed areas support the lower contribution rate to reduce the risk of fund devaluation.

Second, make the contribution base smaller than the real base. As we all know, the best way to reduce the burden of the enterprises and workers is to narrow the contribution base. The employers and the employees often conspired to narrow the contribution base. The social insurance agencies, tax authorities and local governments will not take any punitive measures. Now the wage base for contribution is only about 60 percent of real wages calculated from the contribution proportion of the national participants.

Third, social average wage of previous year is used to account contribution base. From the year 1995 to 2014, the social average wages of urban workers in China is higher than 12 percent. Using the last year's social average wages will immediately reduce revenues. Overall, there are many problems in collecting revenues, which become the great threats of old age insurance system.

2.2 The absence of automatic balance mechanism to resist aging population

China is experiencing the aging population. The one-child policy will reverse the dependency ratio in the near future. The aging in the year 2021 of China is lower than any one of G8 country. However, in 2049, it will higher than most of developed countries, such as US, UK, France and so on.

Table 1 Comparing the aging degree between China and most developed countries (population aged 60 years old and above)

Year	China	US	UK	France	Germany	Italy	Canada	Spain
2010	12.3	18.4	22.6	23.0	26.0	26.5	19.9	22.3
2021	17.4	22.4	24.5	26.3	30.2	29.2	25.0	25.1
2049	33.9	26.6	29.6	30.5	37.5	38.4	31.0	38.3

Source: http://esa.un.org/unpd/wpp/unpp/panel_population.htm.

As the financing and benefit calculation methods are very different between social pooling and individual accounts in China, it needs to establish different balance mechanism to resist aging population.

2.2.1 The absence of automatic adjustment mechanism in the social pooling system

The financing of social pooling is pay-as-you-go, which involves three important parameters: contribution rate, replacement rate and the retirement age. All these factors have not adjusted dynamically with the dependency ratio, which pose potential threats to financial sustainability. In addition, China has not established annual actuarial report system up to now, which don't help to short-term and long-term prediction of financial status. Now there are only three actuarial people in the Ministry of Human Resources and Social Security (MoHRSS). The pension reform and society propaganda in the future are lack of data support.

2.2.2 The pension divisor in the individual account system has not adjusted dynamically with the increasing life expectancy

According to international experiences, countries which adopt the fully funded system will update their pension divisor with the increasing life expectancy to improve the financial sustainability. But in China, the pension divisors of individual account never change. The average life expectancy in China has changed significantly in the past ten years. The unchanged pension divisors will become the major financial risk.

2.3 The sustainability of social pooling is increasingly highlighted

The total contribution rate of urban basic old age insurance system is 28 percent. The contribution rate of social pooling is 20 percent, which is the main part of the system. As the fund management level is hard to improve, which is still in the city and county level over the two past decades. It will do damage to pension system.

2.3.1 Low pooling level requires large amount of financial subsidies

There is a large amount of fund balance in the developed areas due to the inflows of floating population, while the revenues in less developed areas don't cover the fund expenditures. Because the fund can't be used nationally, the less developed areas can only rely on the financial transfer to pay the pension benefits every year. The financial subsidies to social pooling system gradually expanded from 2.4 billion Yuan (accounting for 0.02% of GDP) in 1998 to 471.6 billion Yuan (accounting for 0.7% of GDP) in 2015⁶⁷. However, more and more fund balances in developed areas are deposited in the bank, which is in the risk of depreciation. In the nationwide, large amount of fund balance indirectly comes from

⁶⁷ Subsidies Date comes from Human Resources and Social Security Development Bulletin; GDP Data comes from National Economic and Social Development Bulletin.

financial subsidies and they are deposited into the state-owned banks at the expense of low interest rates. If the system structure does not change, more financial subsidies are needed.

2.3.2 Low pooling level can't help to set up investment system

Because of the low pooling level, the pension fund investment system has not been established in China. The rate of return which the fund deposited in the bank is lower than 2 percent⁶⁸. From 1993 to 2012, the average annual compound growth rate of CPI is as high as 4.8 percent⁶⁹, and it is as high as 3.28 percent from 2003 to 2012. If it is measured by the rate of return of National Council for Social Security Fund in China, the loss is higher than 550 billion Yuan⁷⁰. It is important that the rate of return is too low, which leads to the poor system credibility and reduces the enthusiasms of the workers.

2.4 The birth defects of individual account

Since the establishment of individual account, the design of the system has some defects, which lead to the result that the system can't live without government financial transfer. This is why the financial subsidies increase year by year.

2.4.1 The individual account cannot live without government transfer

The individual account system operates openly. The fund gap can be paid out by the social pooling system. If the social pooling has fund gap, then it can be paid out by the fiscal subsidies. Therefore, the individual account is paid indirectly from the government. Actually, it is provided in the Social Insurance Law that if the participants die earlier, the fund assets in the individual account can be inherited. And if they live longer than the average life expectancy, they can receive the pension benefits to death. This provision violates the law of great numbers. It means that the greater scale of individual account, the greater scale of empty account, which is far from the principle of actuarial neutral. In order to implement the principle of "pay more and then gain more", it is urgent to amend the Social Insurance Law.

2.4.2 It is difficult to fully fund individual account

China has been trying to fund the individual account fully since 2001. However, for various reasons, the governments and enterprises are not active to fully fund the individual account. The scale of empty account has expanded year by year. It has reached 3.09 trillion Yuan at the end of 2013 and the real account assets are 415.4 billion Yuan. The goal of partially funded system has not attained until now.

⁶⁸ Wang Yaping, "the accumulated funds of social insurance are 2.5 trillion Yuan and the rate of return is less than 2%", China Securities Journal, Nov 2008, A01-A02.

⁶⁹ Chinese Statistic Yearbook 2013.

⁷⁰ Zheng Bingwen, Research Report on Fund Investment Management Reform of China's basic Old Age Insurance, China Labour & Social Security Publishing House, Nov 2014.

Table 2 Change of assets in individual account from 2006 to 2014

Year	Accounting Balance		Real Account Assets		Empty Account Assets		Pension Fund Balance	
	billion	%	billion	%	billion	%	billion	%
2006	999.4		—	—	—		548.9	
2007	1174.3	17.5	78.6		1095.7	—	739.1	34.7
2008	1383.7	17.8	110.0	39.9	1273.7	16.0	993.1	34.4
2009	1655.7	19.7	156.9	42.6	1498.8	17.7	1252.6	26.1
2010	1959.6	18.4	203.9	30.0	1755.7	17.1	1536.5	22.6
2011	2485.9	26.9	270.3	32.6	2215.6	26.2	1949.7	26.9
2012	2954.3	18.8	349.9	29.4	2604.4	17.5	2394.1	22.8
2013	3510.9	18.8	415.4	18.7	3095.5	18.9	2826.0	18.1
2014	4097.4	16.7	500.1	20.4	3597.3	16.2	3180.0	12.5

Source: Zheng Bingwen, China Pension Report. Beijing: Economy & Management Publishing House.

2.5 Disorder Management System affects financial capacity

The disorder management system in China has great influence on the financial capacity. The management loopholes make the pension system unable to maximize the revenues.

2.5.1 The coexist of double collection system leads to insufficient income

In 1999, Interim Regulation on the Collection and Payment of Social Insurance Premiums provided that the contributions can be collected by the tax authorities or by the social insurance agency organizations. At present, both of them account for 50 percent. Besides, in the contribution process, some tax authorities collect contributions towards using the minimum threshold to reduce the mission in the next year.

2.5.2 Social insurance agency organizations are administrated by the local administrators, which reduce the efficiency of the system

The overall pooling level has not improved since 1991; it is still in the county level, which makes the local interests more crystallized. Besides, Social insurance agency organizations are administrated by the local administrators. The personnel and administrative budget are administrated by the local authorities, which make it difficult to improve the pooling level.

2.6 workers put excessive reliance on the basic old age insurance governed by the government

At present, urban basic pension system responsible by the government is the main income source of the retirees. The income from the market share is too low. That is, the revenues and expenditures of the first pillar's pension as a share of GDP increases year by year. The development of the second and third pillars is relatively lagged behind. The development of multi-level old age insurance system is imbalance. Although the amount of fiscal transfer increases year by year, China has not established a unified social pension system.

3. Prediction and Evaluation to urban basic Old Age Insurance System Operation

This chapter we will make some assumptions based on the future population development and the economic growth, and then predict the fiscal sustainability of enterprise employee s' basic pension system and GOPI pension system.

3.1 Prediction and Evaluation to urban Enterprise Employees' Old Age Insurance System

3.1.1 Hypothesis

Before predicting the financial status of urban basic pension system, the article needs to make some hypothesis according to the population and economic conditions.

The average remaining life expectancy of the population aged 60 will gradually increase from 20.65 years projected by the sixth census in 2010 to 25.13 years in 2090.

The total fertility rate will gradually increase from 1.44 in rural areas and 0.98 in urban areas according to the sixth census in 2010, and will remain unchanged when it reaches the generation replacement standard of 2.1 for rural areas and 1.6 for urban areas in 2050.

Urbanization rate will gradually increase from the 53.7 percent to 75 percent in 2050 and it peaks at that point.

Assuming the actual GDP growth rate will drop from 7.5% in 2014 to 4.3% in 2050.

It is forecasted and assumed that the proportion of fiscal revenue accounting for GDP will gradually increase from 22.7% in 2013 to 25% in 2030, and then will remain stable afterwards, from which, it can be calculated that the fiscal revenue growth rate will drop from 10.15% in 2014 to 6.28% in 2050.

It is calculated and assumed that the growth rate of average salary of staff in post will drop from 9.36% in 2014 to 6.71% in 2050.

It is assumed that accounting interest rate of Individual Pension Account equals the growth rate of average salary of staff in post in the previous year, which will decrease from 10.01% in 2015 to 6.71% in 2050.

Increasing the retirement age from 2018, to delay the retirement age for female and male at the same time, increase the retirement age of female workers by 12 months every 2 years, and increase the retirement age of female cadres and all male workers by 12 month every 4 years; by 2037, the retirement age for female will reach 60 years old, and the retirement age for male will be 65 years old.

Assuming rate of return of accumulated balance of Urban Basic Pension system is 7%.

The contribution index (The ratio of contribution wages divided by average salary of staff) will increase from 74% in 2015 to 78.28% in 2050.

3.1.2 Demographics of enterprise employee s' basic pension system

The calculation result shows that the total population in 2015, 2030 and 2050 is 1.37 billion, 1.41 billion and 1.35 billion respectively. Among them, the population aged 60 and above respectively accounts for 15.80%, 25.12% and 34.87%. The population aged 65 and above accounts for 10.15%, 17.10% and 26.25%. The town population in 2015, 2030 and 2050 is 770 million, 991 million and 1.02 billion respectively.

Under the scheme of delay retirement age, the participants covered by the enterprise employees' basic pension system in 2015, 2030 and 2050 are 330 million, 496 million and 550 million. The peak is 550 million in 2050. Among them, the contributors are 250 million, 385 million and 359 million respectively. The retirees are 80 million, 111 million and 191 million. Accordingly, the system dependency ratio is 0.324, 0.29 and 0.534.

The development trend of contributors is similar to the urban population, which increases firstly and then decreases during the prediction period. In the first 20 years, the total contributors grow rapidly due to the coverage expansion and delaying retirement age. In 2037, the number of contributors will peak at 392 million and then decrease gradually. The reasons are as follows: firstly, the population structure is aging; secondly, the urban employment population begins to decrease from the year 2030. However, the dependency ratio will gradually increase in the prediction period .Before the year 2024, the dependency ratio will decrease slightly due to the impacts of coverage expansion and delaying retirement age, and then it will rise rapidly from 0.27 in 2024 to 0.56 in 2050.

Table 3 Dependency Ratio of enterprise employees' Pension system (prediction value, 2015 to 2050, %)

Year	2015	2018	2020	2024	2030	2037	2040	2045	2050
Dependency Ratio	1:3.1	1:3.4	1:3.6	1:3.7	1:3.4	1:2.9	1:2.6	1:2.4	1:1.8

Note: National population dependency ratio equals to the amount of population aged 65 and over divided by the amount of population aged 15 to 64. The prediction value is based on medium rate of fertility.

Source: Zheng BingWen (ed.), *China Pension Development Report 2014*, Economic Management Publishing House, December 2014:p.139..

3.1.3 Financial Sustainability Prediction of Enterprise Employee s' Basic Pension System

(1)The sources of Enterprise Employee's Basic Pension System Revenue

The revenue of Enterprise Employee s' Basic Pension System comes from the following four parts:

Firstly, employers' contribution which is at the ratio of 20 percent bases on total payroll and is used to pay the benefit of current retirees.

Secondly, employees' contribution which is at the ratio of 8 percent bases on their wages. Employees' contribution is credited to their own Individual Pension Account which will be used to pay for Individual Account Pension in the future.

The third is investment return of accumulated funds.

The forth is fiscal subsidy in the case of deficit.

(2)The prediction of pension fund revenues and expenditures

The calculation results are as follows:

Revenue. In the calculation period, the fund revenue will keep increasing. Before 2020, the growth rate of fund revenue will keep at 14% and then the growth is slow down. Fund revenue will account for 17% to 24% of homochronous fiscal revenue. The ratio will increase from 21.02% in 2020 to 23.87% in 2035, and then gradually decrease to 22.97% in 2050.

Expenditure. Fund expenditures will account for 13%~24% of homochronous fiscal revenue. Before 2030, the ratio increase gradually. And then the dependency ratio is at the high level, the fund expenditures begin to expand and the ration will increase to 24.13% in 2050.

Current Fund Balance. The ratio of current fund balance accounting for homochronous fiscal revenue will increase and then decrease. The ratio will increase from 4% in 2015 to 7.8% in 2025. As the dependency ratio continues to rise, the ratio will continues to decrease to 2.22% in 2045. Current gap between fund revenue and expenditure will appear in 2049. The ratio of gap accounting for the fiscal revenue will reach 1.17% in 2050.

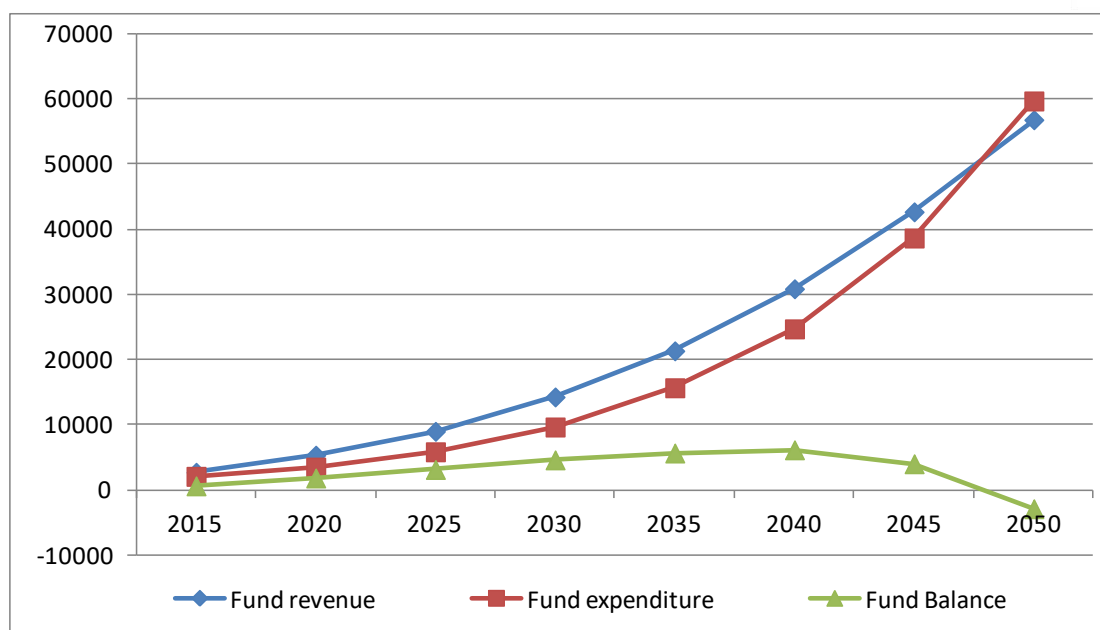


Figure 1 Fund Revenue and expenditure of Enterprise Employee's Basic Pension System (prediction value, 2015 to 2050, Billion Yuan)

Source: Data is provided by the Actuarial team.

3.1.4 Evaluation to Enterprise Employee's Basic Pension System Operation

Before 2020, the dependency ratio will be diluted by the coverage expansion and delaying retirement age policy. The fund expenditures can be covered by fund revenues at present. However, after 2035, the fund expenditures will increase because of higher dependency ratio. The fund balance will shrink and then the problem of financial sustainability highlight.

3.2 Prediction and Evaluation to GOPI Pension System Operation

3.2.1 Demographics of GOPI

China's public sector has 37.91 million in-staff employees and 16.28 million retirees⁷¹. Assuming the staff amount of GOPI will not increase and be stable at 37.91 million in 2015-2024 and change in accordance with the overall demographic after 2025. It can be predicted that in-staff employees will reach 42.21 million and retirees will reach 25.51 million by 2050.

Table 4 Demographic Prediction of GOPI (2015 to 2090, 10 thousand)

	2015	2020	2025	2030	2035	2040	2045	2050	2060	2070	2080	2090
Staff in post	3791.0	3791.0	3848.3	4121.4	4173.6	4210.6	4228.8	4220.7	4011.2	3798.0	3606.0	3452.3

⁷¹ Data is provided by the Ministry of Human Resources and Social Security.

retirees	1628.3	1729.1	1799.7	1898.5	1971.1	2107.6	2308.0	2550.7	2572.4	2684.8	2872.5	2993.9
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Source: Zhang, Yinghua, "Notional Defined Contribution Pension System of GOPI and Analysis on Its Long-term Fiscal Sustainability", *Research on Development*, No.3, 2015, p.8.

The average age of GOPI staff is higher than that of enterprise employees because GOPI staff has experienced longer period education in general, which results in higher dependency ratio in GOPI. Assuming retirement age is deferred gradually from 2015 to 2035 and reaches 65 years old for male staff and 60 years old for female staff by 2035. The dependency ratio in GOPI is 43% in 2015, reaching 50% in 2040, and in the whole prediction period 10 to 15 percentage points higher than dependency ratio of Urban Enterprise Pension system as well as 15 to 30 percentage points higher than dependency ratio nationwide (see Table 5).

Table 5 Dependency Ratio of GOPI or Urban Enterprise Pension system (prediction value, 2015 to 2090, %)

Year	2015	2020	2025	2030	2035	2040	2045	2050
GOPI pension system	43.0	45.6	46.8	46.1	47.2	50.1	54.6	60.4
Urban Enterprise pension system	32.2	27.5	27.0	29.1	32.9	38.3	44.6	53.4
National Population	13.7 ⁷²	18.0	-	25.6	-	38.1	-	44.0

Note: National population dependency ratio equals to the amount of population aged 65 and over divided by the amount of population aged 15 to 64. The prediction value is based on medium rate of fertility.

Source: Zhang, Yinghua, "Notional Defined Contribution Pension System of GOPI and Analysis on Its Long-term Fiscal Sustainability", *Research on Development*, No.3, 2015, p.7; Zheng Wei, "Characteristics of China's Aging Trends and the Potential Impact on Economic Growth", *Quantitative and Technical Economics Research*, No.8, 2014, p. 14.

3.2.2 Financial Sustainability Prediction of GOPI Basic Pension System

The calculation results are as follows.

Revenue. In the calculation period, the fund revenue will keep increasing, but the growth rate will increase first and then decrease. The growth rate of fund revenue will be constant at 7% between 2040 and 2046, and it will decrease to 6.8% in 2050(see Figure 2). Besides, fund revenue will account for 4%~6% of homochronous fiscal revenue. Before 2050, the ratio will rise from 4% to 5.5%, after 2050, it will rise slightly from 5.5% to 6%, primarily as a result of expectation that the permanent staff of GOPI will increase first and decrease.

Expenditure. In the calculation period, fund expenditure will decrease first and then increase, which will account for 4%~9% of the homochronous fiscal revenue. The growth rate of fund expenditure will be about 7%, and after 2034, the rate will increase from 8.1% in 2034 to 11.4% in 2041. Before 2035,

⁷² Data comes from: National Bureau of Statistics, *National Economic and Social Development Statistics Bulletin 2014*, February 2015.

the delay retirement policy restrains the growth in the number of beneficiaries, and the ratio of fund expenditure to homochronous fiscal revenue drops; after 2035, the transition period of delay retirement will be over, and the dependency ratio will rise and remain high, the scale of the fund expenditure will begin to expand (see Figure3).

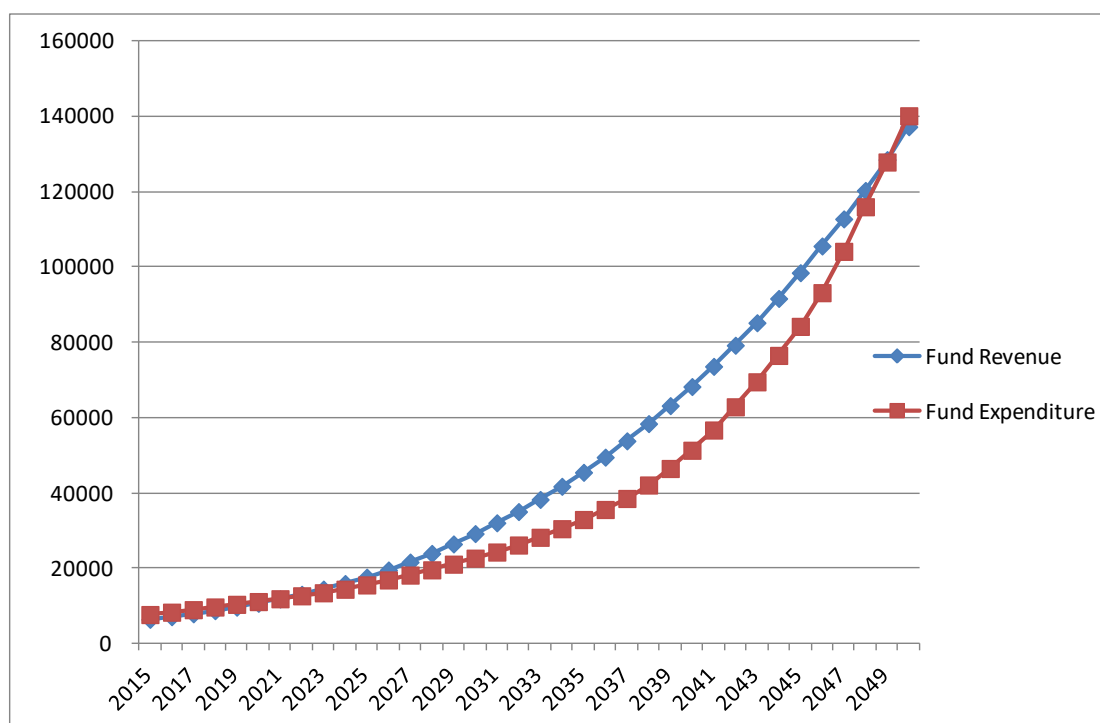


Figure 2 The fund revenue and fund expenditure of GOPI (%)

Source: The data is provided by the actuarial team.

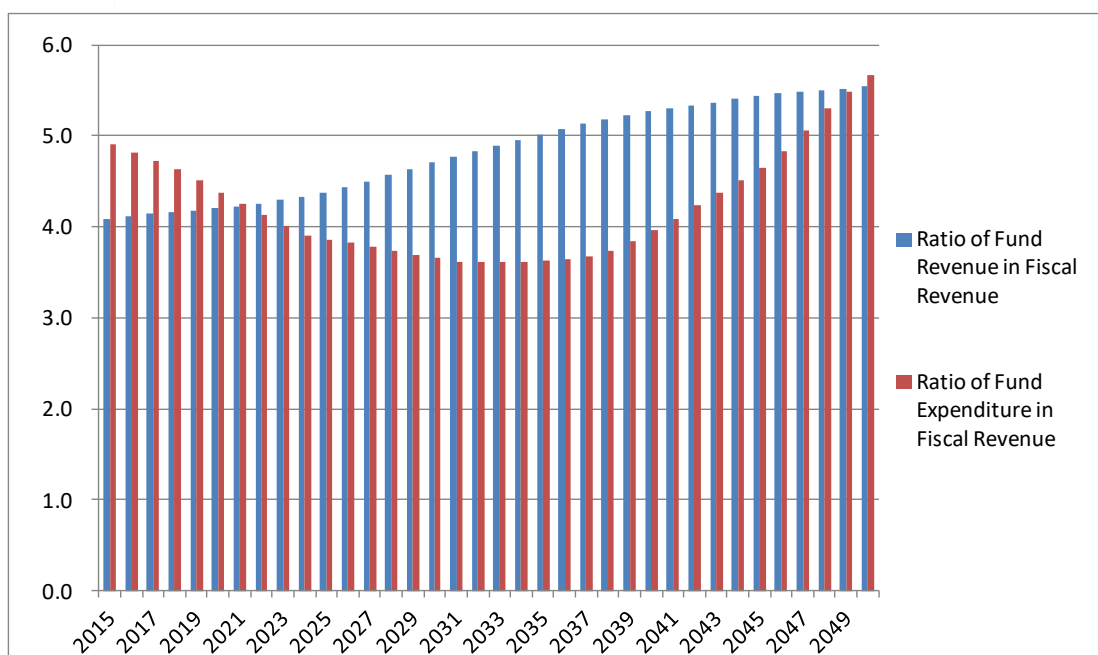


Figure 3 The ratio of fund revenue and fund expenditure to homochronous fiscal revenue respectively (%)

Source: Zheng Bingwen, China Pension Report 2014. Beijing: Economy & Management Publishing House.2014.

Accumulated fund balance. In 2015-2021, due to unbalanced contribution revenue and pension expenditure, there is no accumulated fund balance in the Basic Pension. After 2021, the accumulated balance will begin to increase, the ratio of which to homochronous fiscal revenue will increase from 0.1% to 26% in 2050.

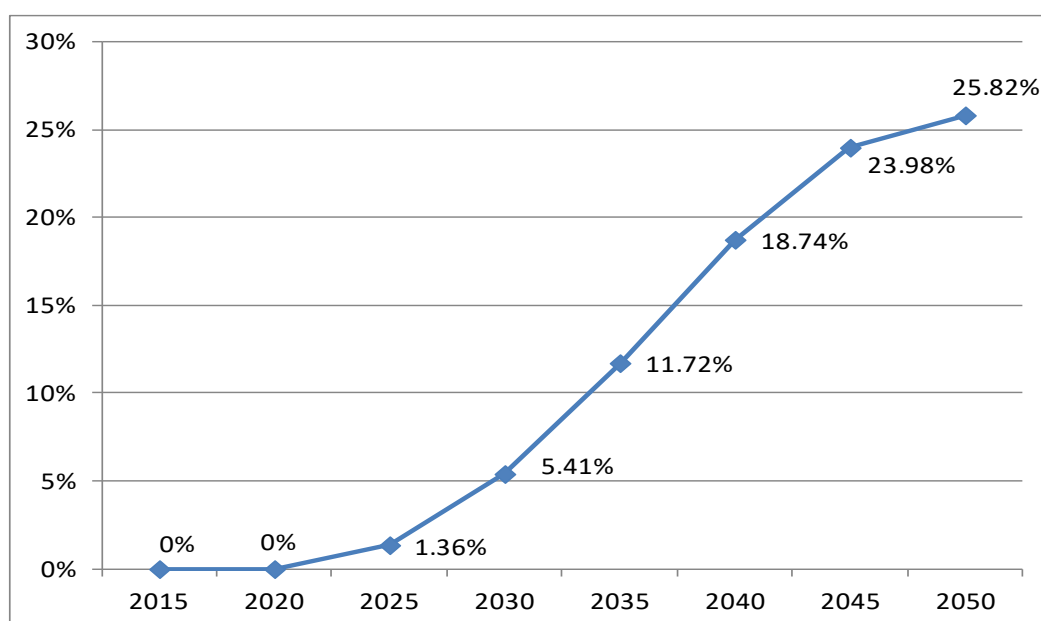


Figure4 The ratio of accumulated fund balance to homochronous fiscal revenue

Source: Zheng Bingwen, China Pension Report. Beijing: Economy & Management Publishing House.2014.

History Debts of the system. That is Transition Cost of pension system which equals to the current value of the pension rights and interests accumulated under the old system, including two parts of the “old workers” pension expenditure and “transition workers” pension expenditure which is corresponding to deemed contribution. The overall historic debts are expected to 60.6 trillion Yuan which accounts for 430% of fiscal revenue in 2014. The history debts will be shared year by year, which declines by one percentage point approximately every 10 year (see Figure 4).

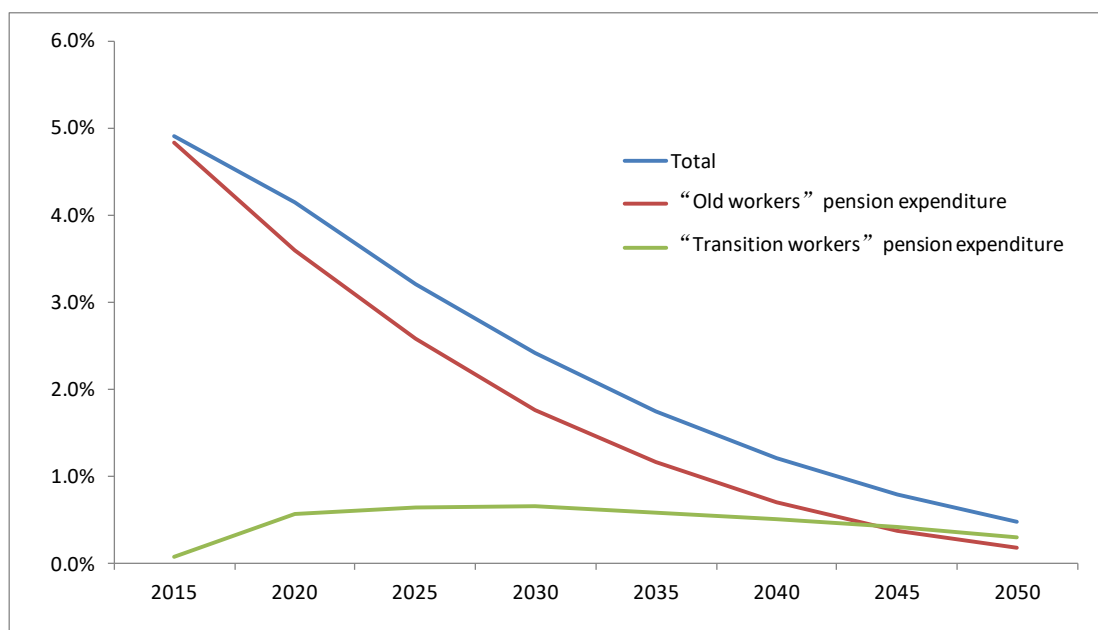


Figure5 The proportion of history debts in homochronous fiscal revenue (in 2015 to 2050, %)

Source: Zheng Bingwen, China Pension Report 2014. Beijing: Economy & Management Publishing House.2014.

3.2.3 Evaluation to GOPI Pension System Operation

Firstly, in the beginning period of GOPI pension system, the scale of accumulated OP fund is too small to raise the whole pension level. The staff of GOPI is aging, and the dependency rate has reached 40.7% in 2013. According to principle of PAYG system, the replacement rate must be 49.1% in the existing employers' contribution rate 20% to social pooling. This replacement rate 49.1% is much lower than before reform. For ensuring adequate pension of those "transition workers", fiscal subsidy is necessary.

Secondly, financial risk is amplified just because the existing Pension Divisor is too low. The dynamic divisors in prediction above are higher than those of existing system. The sixth census shows that the Chinese population life expectancy was 74.8 years in 2010 compared with 71.4 years in 2000. The dynamic divisor is 161 when retiring at 60 years old, which is much higher compared with 139 in existing system. Pension divisor must be adjusted periodically according to demographic change and economic growth. Explicitly, the existing divisor does not take the change of life expectancy into account, which means the Individual Pension Account fund will run out long before participants' death quite possibly. So, if the Pension Divisor is static, the pension system will suffer to longevity risk.

4. EU public pension system reform and its experiences

In recent years, the costs of pension system continue to rise for the reason of the aging population and negative incentive. EU countries have reformed their public pension system⁷³. The measures that they adopt include as follows⁷⁴.

First, reduce the pension benefit of public pension system, including Finland, French, Germany, Italy, Portugal and Sweden.

Second, pension benefits are adjusted with dependency ratio of pension system, including Sweden, Germany and Spain;

Third, require strict conditions of early retirement. The legal retirement age should be adjusted with the extending life expectancy.

Fourth, introduce defined contribution into pension system. The role of private pension system is increasingly important, such as the pension reform of Germany.

4.1 EU public pension system reform

4.1.1 Germany

Germany is the birthplace of modern social insurance system. Since Germany established old age and the disable insurance law in 1989, it has been more than 120 years. Germany has reformed its pension reform for many times, but German public pension system adheres to the principles of autonomy, risk-sharing and intergenerational equity. Since Germany has adopted a pay-as-you-go pension system, it has provided generous and stable benefits for the retirees. German basic pension system is a point system. The benefits are not only related to the contributions, but they are adjusted with the retirement age. Retirees who have contributed 35 years can receive pension benefits from 63 years old to 65 years old.

With the aging and the change of labor market, German pension system is facing huge financial pressure. Since 1992, German pension system has experienced several reforms. The main reform measures include: one is to delay the legal retirement age. Germany has passed delay retirement age policy. It regulates that the retirement age will increase from 65 year old to 67 years old from 2012 to 2029. It extends one month every year from the year 2012 to 2023, and then extends two months every year from 2024 to 2029; Second, pension benefit calculation adheres to the principle of actuarial fairness. Workers who receive their benefits ahead of the legal retirement age, their benefit will decrease 3.6%, while workers who delay their retirement age will increase 6% every year⁷⁵; Third, adjust

⁷³ Kings J., E. Turkisch and N. Manning, "Public Sector Pensions and the Challenge of an Ageing Public Service, OECD Working Papers on Public Governance, No. 2, OECD Publishing, 2007.

⁷⁴ Eduard Ponds, Clara Severinson and Juan Yermo, The International Comparison of Public Sector Implicit Pension Debt, Social Security Studies No.4, 2012:p.10.

⁷⁵ Axel Börsch-Supan and Christina B. Wilke, "The German public pension system: how it was, how it will be" [J], *National Bureau of Economic Research Working Paper 10525*, May 2004:p.17.

the method of pension benefit calculation. Germany has reformed its pension benefit indexation for many times since 1992, which reduce its benefit indirectly. It introduced the net wage growth into benefit indexation to replace gross wage growth. In 2003, Rerup introduced “sustainable factor”, which links the pension benefit with dependency ratio. Thus, the replacement rate of basic pension system will decrease from 70% to 68% or so⁷⁶. Fourth, realize the single mode to the multiple-level pension system. In 2001, Germany has made innovative reforms to the system. Government encourages the old to save for retirement by financial subsidies. Fifth, given the slide of replacement rate, Germany decided to introduce the minimum pension system based on means test. The fund of minimum pension comes from general revenue. When pension benefit is lower than the poverty line, individuals can apply for it, which provide a safe net for the poor. The minimum pension is regressive.

4.1.2 Sweden

Sweden is the window of western welfare state. Sweden has provided national safety net to citizens from the cradle to grave. After pension reform in 1998, Sweden has established the three-level public pension system⁷⁷: the first level is guaranteed pension system based on means test, which provides minimum pension for low income workers. It is funded by the government revenues. The second level is notional defined contribution system. The third level is fully funded system. The double account pension system in Sweden provides a new paradigm for the world.

Non-financial Defined Contribution and the fully funded pension system are the main part of the public pension system. The feature of the new system is to combine defined contribution with defined benefit by a clever form. In the process of contributions, Income-related pension system is financed from the payroll tax, shared by the employers and employees equally. Now the total contribution rate is 18.5%, of which 16% goes into the NDC pension system and the remaining 2.5% into the fully funded pension system. In the NDC pension system, the accumulated pension funds are used to pay pension benefit for the current retirees. When participants who are unemployed, raising children, disabled, sick or on active service, the government will make contributions for them and the fund will enter into nominal individual account.

Initial pension benefit of the NDC pension system is calculated by the formula that the accumulated pension funds are divided by the pension divisor. Pension benefit will be adjusted annually according to the specific rule. Pension divisor is the function of the average life expectancy of retirees aged 65 years old, the retirement age and the real rate of return (1.6%). If the legal retirement age is unchanged, pension benefit will reduce gradually when the life expectancy increases. Pension divisor uses unsex life expectancy, contributing to the redistribution between the male and female. The contributions of NDC pension system in Sweden are closely linked with pension benefits. If workers born in 1990 want to get the same benefit as those born in 1930, then they are required to delay one year and eight months. The design of Sweden NDC pension system makes individuals deciding on when to retire. Now the retirees can receive full pension at 65 years old. If workers chose to retiree at 61 years old, their pension benefit

⁷⁶ Axel Börsch-Supan and Christina B.Wilke, “Shifting Perspectives: German Pension Reform”[J], *Intereconomics* ISSN 0020-5346, 2005: p.249. This Version is available at: <http://hdl.handle.net/10419/41881>。

⁷⁷ Website: <http://www.government.se/sb/d/15473/a/183496>.

is only 72% of the standard retiree. Accordingly, if workers retire at 70 year old, their pension benefit will be 157% of the standard retiree⁷⁸. Besides, Sweden public pension system has introduced the automatic balance mechanism, which link the pension benefit with the long term solvency. If the costs increase due to the aging population in the future, then it requires reducing the pension benefit gradually.

4.1.3 France

According to different employment groups, French pension system can be categorized into four types: general system, special system, independent workers system and agricultural worker's system. French government increases the universality of old age Insurance system by repairing the blank. Due to the effects of declining economy, low birth rate and increasing dependency ratio, France is forced to reform its public pension reform. The measures taken by pension reform are as follows: first, French government created pension reserve funds in 2001 to make up for the deficits. From 1999 to 2011, the accumulated pension funds reached 35.1 billion Euros⁷⁹. Second, France has provided the minimum pension system, financing from the tax revenue. Third, Nicolas sarkozy government reformed the special system, and he put forwards to extend contributions periods and to abolish early retirement in 2007. Forth, in 2010, France government increase the age of receive full basic pension from 65 to 67, and the legal retirement age will be delayed from 60 to 62. Fifth, France has announced to retirement reform act in 2013, which provides that increase the contribution rate of employers and employees gradually before 2020 and extend contribution periods afterwards without changing the minimum retirement age (62 years old). Early in 2003, France advocated that the participants can receive their full pension after contributing for 160 quarters, and it will be extended to 42 years old in 2020⁸⁰.

4.1.4 Spain

The Spanish parliament has passed old age insurance law in 1990, which stipulated that workers who aged 65 years old or the disable can receive pension benefit. The basic pension is calculated by the contribution periods. Workers who contribute 15 years can receive 50% of basic pension. If workers contribute 16 years to 25 years, pension benefit will increase 3% with every extra contribution for one year. If they contribute more than 26 years, pension benefit will rise 2%. If they contribute for 35 years, they can receive full pension. If pension benefit cannot meet the minimum pension, the gap will be made up by the government⁸¹.

Spanish pension system has confronted long-term financial solvency pressure because of the aging population since the 21st century. Spanish government has reformed its pension system in 2011 and

⁷⁸ Goran Normann and Daniel J. Mitchell, Pension Reform in Sweden: Lessons for American Political makers, The Heritage Foundation Backgrounder Executive Summary, June 2000: p.4.

⁷⁹ Chen Tianhao, The enlightenment of France Pension Reform on China, Administration Reform, April 2013: p.52.

⁸⁰ Bernhard Ebbinghaus, Promoting Funded Pensions in Bismarckian Corporatism? In book: The Varieties of Pension Governance: Pension Privatization in European, Oxford: Oxford University Press, March 2011: pp.10-37.

⁸¹ Alfonso R. Sánchez Martín, Endogenous Retirement and Public Pension System Reform in Spain, Economic Modelling 27, 2010: p.338.

2013. The reform measures in 2011 include: first, raise the retirement age gradually from 65 years at present to 67 years; second, increase contribution periods to calculate pension benefit; third, introduce the automatic balance mechanism (ABMS) in 2027. In 2013, Spain has put forward the concrete design of ABMS, which required that pension benefits are not linked with inflation. Pension benefits will be adjusted according to the life expectancy and solvency ability of the system. In 2013, the law of Spain pension system requires to set the upper and lower limits of the adjustment indexation⁸².

4.2 The Experiences of EU public pension system reform

EU public pension system reform indicates that no single measure can make public pension system sustainable and stable. Reforming public pension system needs combined measures. It requires to adjust DB pension and to introduce DC pension, which help to realize the financial sustainability. Under the aging pressure, pay-as-you-go pension system needs to increase the contribution rate to keep the current pension benefits, which will influence the economic growth and enterprise competitiveness. Therefore, the experiences of EU public pension system show that the measures to financial balance include two aspects as follows: one is that pay-as-you-go pension system needs to adapt to the change of economy and the population structure under the constraints of contribution rate; the other is to introduce defined contribution pension system.

4.2.1 Benefits of DB plan will reduce gradually

According to the report released by EU policy committee, it states that the amount of benefit reduction accounted for -2.7% of GDP in 2012, which was -2.9% in 2009⁸³. DB pension benefit are reduced by three methods: first, cut the pension benefit directly; second, strengthen the link between contributions and benefits, for example, France requires to increase the contribution periods of receiving the full pension from the 160 quarters at present to 42 years in 2020. Portugal has required its contribution periods to extend to 40 years starting from 2005. Luxemburg and Finland have extended from 30 years to 40 years. Third, introduce the automatic balance mechanism to control fund expenditures in the future, which will reduce the pension benefit indirectly, for instance, Denmark, Ireland, Italy and Finland has linked their pension benefit to life expectancy.

4.2.2 Raise retirement age, gradually realizing the equal retirement age of male and female

Denmark, Finland, Greece and Holland have made the early retirement conditions strict. In the past ten years, rising the retirement age has become the common pension reform method. Spain will delay its legal retirement age from 65 to 67, and UK will increase it from 65 to 66. Romania has delayed its retirement age to 65 for male and 60 for female. Male who contribute for 35 years and female who contribute for 30 years will get full pension. Now the retirement age of developed countries in Europe is almost 61 years old. Besides, it is common that female's legal retirement age will be close to the male.

⁸² Alfonso R. Sanchez, The Automatic Adjustment of Pension Expenditures in Spain: An Evaluation of the 2013 Pension Reform, 2014:p.7.

⁸³ Natali David, Pension Reform in Europe: What has happened in the Wake of the Crisis? DICE Report, Summer 2015: pp.31-35.

At present, the retirement age of male and female is equal in most developed countries. The legal retirement age in Iceland and Norway is 67 years old, while legal retirement age in Sweden, Denmark, Finland, Ireland, German, Netherlands, Spain and Portugal is 65 years old⁸⁴.

4.2.3 Establish the Rewards and Punishments Mechanism linked with Retirement Age

If linking the benefits with contributions can encourage workers to delay retirement indirectly, the Rewards and Punishments Mechanism will play the direct role. Many countries, such as France, German, Italy, Netherlands, Finland, Portugal, Greece, Luxembourg and Hungary, have provided that early retirement will reduce some percent of pension benefit. France has provided that workers retire every one year in advance, the pension will reduce 5% annually, and using the date of birth replaces the time they participating in the work. Luxembourg stipulated that retiring late for every one year; the pension benefit will increase 2.3% of the final salary till the replacement rate reaching 110%. In Hungary, if workers retire late for every one year, their pension benefit will increase 0.5% of final salary. If workers retire after 55 years old in Finland, pension benefit will increase 2.5% every one year. After 2005, workers who retired between 53 years old and 62 years old, pension benefit will increase 1.9%. workers who retired between 63 years old and 68 years old, it will increase 4.5%⁸⁵. The design of rewards and punishments mechanism can effectively raise the real retirement age and then improves the dependency ratio. The rewards and punishments mechanism ensures the relative fairness of benefits. As we all know, raising retirement age is facing great political resistance in some voting countries. Linking the benefits with retirement age is an important option to reform public pension system.

4.2.4 Establish Financial Balance Mechanism via introducing the aging population factor

Since the 21st century, due to the economy recession and population aging, parts of developed countries have reformed their public pension system by fixing the contribution rate, which is different from the traditional method by increasing contribution rate. Both of Germany and Sweden put more emphasis on the close link between contributions and benefits. The sustainability factor introduced by Germany and the automatic balance mechanism created in Sweden are under the context of increasing financial burden. The benefit adjustment has considered the factor of population aging and the change of macroeconomic, enhancing the independence of pension system. In addition, the practices from Poland and Spain state show that introducing population and economy factors into pension benefit calculation will automatically realize the long-term financial balance.

4.2.5 Enhance the portability of basic old age insurance system

EU Social Security Law provides that the common goal of solving the issue of international transfer is that the benefit of transnational flow population is not poor than persons who always live or work in one country. For example, Belgium implemented one reform in 2003, if the pensioners delegate to

⁸⁴ Zheng Bingwen, The Pension Reform under the Debt Crisis: lessons from the Welfare State to Debt Countries. Chinese Journal of Population Science, 2011:p.7.

⁸⁵ Monika Queisser and Edward Whitehouse, "Neutral or Fair: Actuarial concepts and Pension-system Design", OECD Social, Employment and Migration Working Paper No.40, OECD Publishing, 2006:pp.29-33.

international organizations, the pension rights and interests can work with the mobilization and transfer. Firstly, pension rights and interests must be one-time settlement in the country, and then the funds can be transferred to the new pension system in the workplace. The previous provision is a subrogation mechanism without the transfer of one-time financial transfer. Enhancing the portability of the basic old age insurance system will contribute to the rational flow of labor resources.

4.2.6 Make full use of market mechanism to push the pension system from a single mode to multiple-level pension system

Most of EU countries will introduce the minimum pension, basic pension or DC plan to support pension reform. The design of a multi-level pension system helps to reduce the reform resistance and risk diversification, and then to safeguard the retirees. Therefore, the establishment of a multi-level pension system is a good way to build up a national basic living standard safety net.

5. Policy proposals on improving Urban Basic pension insurance system

The overall goal of the urban basic pension system in China is to pay more attention to the fairness and financial sustainability. The fairness is embodied in the horizontal and vertical aspects. Horizontal fairness means resolving the problem of the privilege system between different groups and departments. The GOPI pension system should be reformed synchronously with the enterprise employees' pension system. The longitudinal fairness requires establishing a normal pension adjustment mechanism. Financial sustainability means that the fund revenue should be matched with fund expenditures. Fund expenditures put emphasis on the self-adjustment mechanism to realize the balance of fund revenue and expenditure. The income ability of the system is directly related to the system parameters. Therefore, the parameter adjustment is an effective way to solve the problem of financial sustainability.

5.1 Reduce the contribution rate of old age insurance and establish the reasonable contribution base

At present, the urban basic old age insurance system in China operates in low efficiency, which has fallen into the vicious circle. The higher the contribution rate, the lower the contribution base. Given that the nominal contribution rate is high, it will have great influences on the economic development and labor market. Reducing the contribution rate means that the normal contribution revenues will decrease, it may expand the income gap. Recently, the Chinese government has proposed to reduce the contribution rate gradually, which may further reduce the fund revenue under the current pension structure, so the government should provide funds to make up for the temporary gap. Besides, use the actuarial technology to make the contribution base real, which requires the strict audit. At present, social insurance agencies in China have not set up a professional audit department. China should construct a stable and professional audit team equipped with professionals. In the same time, give full play to audit supervision, especially pay more attention to audit the large and advantage enterprises. Moreover, standardize enterprises' contribution behaviors to enhance the sense of contribution, which contributes to ensure the full collection of the contributions. Therefore, reducing the contribution rate and making the contribution rate real is helpful to avoid adverse selection.

5.2 Implement the national pooling as soon as possible to reduce financial risks and enhance the portability of the system

It is provided that if the insured leaves the original work unit, and continues to insure in the new unit, the pension contribution periods can be accumulated; the transfer of pension relationship can be divided into two types: First, flows within the same areas, only transfer pension relationship, without transferring pension funds; second, the overall range of flow between different areas, both transfer pension relationship and fund, with all fund in personal accounts of the basic pension insurance and 12% of the social pooling fund according to actual wages for each year to transfer. According to the operation, local governments, especially those areas of fund deficits, are unwilling to transfer the funds due to the local protectionism and vested interests groups.

Improving the pooling level is still the different task. At present, the dependency ratio, contribution pressure and fund balance are divided in different areas. More than half of the fund surpluses are concentrated in the eastern provinces. Some Midwest provinces need fiscal subsidies from the central governments to ensure the pension payment. Improving the national pooling level helps to expand the regulating range and gradually changes the regional fund balance. The financial conditions and benefits are different all over the country, which restricts pension relationship transfer between provinces. Therefore, we should break the interest barrier to realize the national pooling of basic pension system. Unifying the policies of basic pension system in the national regions contributes to solve the problem of relationship transfer and rights protection issues. The key to implement national pooling is to divide the financing and payment responsibility between central and local governments. It should allocate the rights and obligations clearly. With the realization of national pooling, it is useful to make pension system adapting to the fairness and labor liquidity, promoting the sustainable development of pension system.

5.3 Enhance the Financial Sustainability of Basic Pension System via Actuarial Balance

Insisting on the principle of actuarial balance is not only an ideological problem, but also a realistic problem. It provides measurement tools to ensure the healthy development of pension system and to cross over the middle income trap. Meanwhile, it will provide a basic principle to evaluate the quality of pension system. Actuarial Balance is a useful tool to measure sustainability.

5.3.1 Taking long-term actuarial technology and use reasonable system parameters

Recently, with the economy entering into the new normal, the situation of fund revenues and expenditures are reserved. During the period of the 11th five-year plan, fund revenues growth rate were 20.9%, 24.5%, 23.4%, 18.9% and 16.5% respectively. The fund revenues growth rate is 25.6% in 2011, and then it decreased from 18% in 2012 to 13.2% in 2013. And it fell into the single digits for the first time in 2014. The growth rate of fund expenditure has decreased a little and the financial subsidies rose slightly

from 16.3% in 2011 to 12.5% in 2014⁸⁶. In the above, the financial sustainability of urban basic pension system is directly related to the system parameters. Similar to NDC pension system, the individual account is defined contribution. The pension divisor, accounting rate and the pension adjustment rate have significant impacts on financial sustainability.

Pension insurance actuarial is a relatively mature subject, which has been widely used by the governments. According to the foreign experiences, it should make full use of actuarial technology to determine the reasonable pension calculation formula. At present, the accounting rate is the one-year deposit interest rate, which is only higher than CPI. It will make the actual purchasing power declining. We can establish a guaranteed rate of return. When the market rate of return is lower than the guaranteed rate of return, we adopt the guaranteed rate of return. Moreover, under the current regime, the number of personal accounts of payment months of basic pension insurance is fixed, such as 60-years-old, the count number of months is 139. This means that for people retired at 60-years-old, the amount of personal savings accounts can only be distributed to 71.6 years, thereafter it will be a long-term risk system that individual account pension needs full financial subsidies. It is recommended to use dynamic counting of months, considering changes in demographic trends, the wage growth and changes in market interest rates in the payment number of months.

5.3.2 Establish Normal Pension Adjustment Mechanism adapting to China's New Normal

Enterprises employees' pension system in China has adjusted its pension benefit at the rate of 10% for eleven years since 2005, which put great pressure on the pension funds. For the social pooling and individual accounts pension system, using the unified pension adjustment rate makes the actuarial neutral factor of individual account vanished. The link between the contributions and benefits weakens, and the incentive degree has fallen into a minimum level. Many retirees are trying to retire earlier, which erode the fund revenues and expenditures. Besides, the unified benefit adjustment rate has widened the gap between the high income retirees and low income retired. The long-term external intervention adjustment method is a supplementary means, which helps to curb declining pension replacement rate. But it has damaged the credibility of the system and increased the financial pressure. Therefore, this article suggests that given the aging population and the economy entering into the new normal in China, it is urgent to establish automatic adjustment mechanism considering the CPI, wage growth rate, economic growth rate and dependency ratio. Linking the benefit with the change of economy and population structure helps to provide a stable and safe expectation for the public.

5.3.3 Delay Legal Retirement Age and Construct Rewards and Punishment Mechanism

China has put forward delay legal retirement age policy in the Third Plenary Session of the 18th Central Committee. China should put the policy into practice as soon as possible, gradually adapting to the extension of education periods and life expectancy. The policy of delay retirement age and the abolishment of early retirement require a solid labor market, especially the elderly labor market. It is wise to make the flexible retirement age policy. Besides, the benefit should put more emphasis on the

⁸⁶ Zheng Bingwen, Comprehensive thinking on deepening the old age insurance system, Human Resources Development, March 2016:p.24.

fairness and then set up rewards and punishments mechanism as a supplement. For example, the United States has not stipulated the legal retirement age. Workers can choose to retire from 62 years old to 70 years old. In order to encourage delay retirement, pension benefit will increase 0.25% working for extra one month after 65 years old. When workers choose to retire between 62 years old and 65 years old, pension benefit will reduce by 0.56% for early one month. The legal retirement age stipulated by Czech Republic is 63 years old. If workers choose to retire between 60 and 63, the pension benefit will reduce 5.6% for one year, and if they choose to delay retirement, their benefit will increase by 8.1% for one year⁸⁷. The link between pension benefit and retirement age helps to reduce the distortions of labor market.

5.4 Reform the system structure and improve individual Accounts

The formulation of improving the individual account is to redefine the pension system of social pooling and individual account. The traditional formulation of trials to fully funded individual account emphasized since 2001 has been replaced, which solved the empty account problems caused by the huge transition cost and low pooling level. Improving individual account means to insist on incentive mechanism of “pay more and gain more”. The key to incentive mechanism is to strengthen the connection between the contributions and benefits. But the problem lies in how to determine the implementation path. In the current system, expanding the individual account scale (at the same time to reduce the social pooling scale) helps to realize the goal. The article suggests that the principle of NDC can be used into the current basic pension system. In order to maintain the policy stability and continuity, it is useful to change the current pension system into hybrid social pooling and individual accounts. The policy implications are as follows.

First, 8% of employee’s contribution and 20% of enterprises’ contribution are delimited into individual account, which can eliminate the obstacles of improving national pooling. Then it also helps to overcome the unbalanced development among regions and moral hazard.

Second, in the benefit payment period, improving individual account is based on DC, which embodies actuarial neutral relations by linking the contributions and benefits.

Third, the central government adopts centralized investment management system to diversify and internationalize the pension funds.

Forth, the accumulated pension fund in the individual account can be converted to a lifetime annuity products after retirement. The funds finances from the current worker’s contributions. The actuarial neutral design can really make the enterprises employees’ pension system and GOPI unified.

5.5 Give full use of market mechanism and pay more attention to other pillars

According to the EU experiences, urban basic pension system should make full use of market mechanism to cope with the challenge of aging population. According to the current operation, the

⁸⁷ Monika Queisser and Edward Whitehouse, “Neutral or Fair: Actuarial concepts and Pension-system Design”, OECD Social, Employment and Migration Working Paper No.40, OECD Publishing, 2006:pp.29-33.

funds of social pooling and individual account are together used to pay the benefits. The current gap should be covered by the financial subsidies from the central government. In 2015, the total fund balance of enterprise employees' basic pension system has reached 3.53 trillion Yuan⁸⁸. Due to the low pooling level, the central government should fund for the deficit provinces and then the surplus provinces have accumulated some funds balance. Then it will face the problem of fund investment. Second, improve the second and third pillar to move the single system model towards multiple-level pension system. Now the development of the second pillar lags behind. Make full use of preferential tax policy to promote the development of the second and third pillar pension reform. For example, establish specialized pension management companies and reduce the market barriers by providing the integrated trust products. Meanwhile, it is helpful to give the participants some limited investment options and to introduce fund products such as life cycle to improve the rigidity of investment system.

⁸⁸ Ministry of Human Resources and Social Security, Human Resources and Social Security Development Bulletin 2015, 2016.

