

Major Measures and Lessons Learned from German Practice in Labor, Employment and Social Protection Areas

—A Report on Study Tour and Training in Germany

(February, 2018)

As planned under the EU-China Social Protection Reform Project, the National Development and Reform Commission attended a thematic training on “Social Protection Reform and Employment Policy Evaluation” in Germany and later visited University of Mainz, Federal Statistic Office, Federal Ministry of Labor and Social Affairs, Association of German Chambers of Industry and Commerce, Delegation of German Industry and Commerce, German Employers’ Association, Pension Association, Ministry of Health and the other institutions for an in-depth understanding of the major practices, challenges and reform trend in the area of labor, employment and social protection. Overall, Germany has stable economy, employment status and an optimal social protection system. It also has been playing active role in tackling aging of population and has gained certain experience to cope with structural employment risk. The report is hereby to present relevant experience and measures learnt as following:

1. Overall status of economy and basic information for employment and social protection

Right after European Debt Crisis, the economic growth in Germany had maintained around 1.9 percent from 2012 to 2013. In 2017, the economic growth had reached 2.2 percent, 0.3 percent higher than that of last year, achieving a new peak in the last six years. The budget surplus of the government, which was 384 Euro, had also created a historic record that it accounted for 1.2 percent of GDP. The investment, consumption, public expenditure and export had grown by 3.5 percent, 2 percent, 1.4 percent and 4.7 percent respectively. The country has been making steady progress in employment as it now has 44.3 million employed population with 0.15 percent year-on-year growth; the unemployment rate remained 5.7 percent with 0.4 percent year-on-year decrease; Compared to the last year, the number of the unemployed was decreased by 4.5 percent to 17 million. With social protection and Hartz unemployment subsidy system as foundation, social insurance system that ensures basic old-age insurance, medical insurance, unemployment insurance and long-term care playing major role and occupational pension, Riester Pension and other complementary medical insurance as supplement, the multi-layer protection system is constantly improving. As a consequence, the coverage rate of the social protection has reached more than 90 percent. The unemployment rate has remained at low level while the employment scale is still expanding. Basically, Germany has achieved the overall objective of ensuring adequate employment. In the area of social protection, it has established a thorough multi-layer protection system within which, the basic insurance has realized universal coverage for eligible residents.

1.1 Basic information on employment in Germany

First of all, Germany has basically achieved full employment. According to the data from Federal Statistic Office, up to 2017, the number of employed population had reached 44.3 million with

year-on-year growth at 1.5 percent. The absolute figure of the employed population and employment growth had reached a new peak since 2007. The number of the unemployed had been decreasing steadily with 2.6 million registered unemployed population and less than 1 million long-term unemployed population. The unemployment rate had dropped to 5.7 percent, still hitting the range of full employment.

Secondly, employment is more flexible in Germany. Currently, more and more people are employed in a flexible and informal manner. Up to now, 20 percent of the employed population are informally employed while for employed women more than 50 percent are doing part-time jobs. Mini-job and other new forms of jobs are constantly emerging.

Thirdly, the employment structure has been upgraded. The employment rate in third industry has been increasing in recent year. In 2017, there were 536 thousand newly employed in all sorts of service industry, making up 84 percent of all the newly employed population. Especially in the areas of public service provision, health care and other nursing related positions, there is a trend of employment increase.

Fourthly, employment quality has been constantly increasing. At present, salary income for workers in Germany has shown dramatic increase that growth rate of salary has reached 2.7 percent in 2017, 0.4 percent higher than last year.

1.2 An overall view of social protection system in Germany

First, Germany has established solid foundation for the protection system to meet the basic needs of the vulnerable groups on the basis of social assistance that covers people with disability, women in breast-feeding period and other groups which have difficulties in getting employed and social assistance-frame-based Hartz unemployment pension system that tackle the basic needs of long-term unemployed. The two systems are fully funded through complementary fundraising by governments with 80 percent of the fund raised at federal level and 20 percent at state level. The treatment is in line with the basic consumption of a beneficiary and a family and takes under consideration the necessary cost for heat supply and accommodation. Currently, the standard of social assistance for the single adult is 409 Euro per person per month.

Second, the German government has actualized universal coverage for the eligible employed. The basic social insurance is the major component of the social protection system in Germany, it provides five insurance including basic old-age insurance and insurance for basic health care, unemployment, industrial accident and long-term care. (see table 1) In general, the social insurance in Germany has following attributes:

a. Fundraising through pay-as-you-go method: Under this method, the employers and employees are charged in certain proportion. The total rate is now around 39 percent. By breaking down the rate, it can be seen that basic old-age insurance, basic medical insurance, unemployment pension and care insurance account for 18.6, 15, 3 and 2.55 percent respectively.

b. All citizens are legally bind to get insured: All the formal employees and some of eligible flexible employees are legally bind to pay for insurance. Among all the insurances, the basic old-age

insurance and basic medical insurance have covered 74 percent and 90 percent of the employers respectively.

c. Reasonable standards: The basic old-age insurance replacement rate remained at around 67 percent; the average pension was about 1396.35 Euro, making up 70 percent of the income of old-age group; the unemployment insurance replacement stabilize at 60 percent; the proportion of individual payment for medical insurance was about 1.8 percent. All the standards maintain at moderate level of high-income countries.

d. Ensuring insurance payment relevant to income: Within the basic insurance system, Germany adheres to the principles of income-relevant and pay-more-gain-more. The treatment delivered by basic old-age insurance is based on one’s salary and contribution years. The treatment provided by both unemployment and industrial accident insurance is directly relevant to contribution years. In terms of regulating the reverse re-distribution caused by income relevant nature of the system, the basic old-age insurance has formulated the floor of payment base. At present, the ceiling for the payment from western and eastern regions are 6350 and 5700 Euro respectively.

Table 1

Insurance	Basic Old-age Insurance	Basic Medical insurance	Unemployment insurance	Industrial Accident Insurance	Long-term Care Insurance
Year of establishment	1889	1883	1927	1884	1995
Payment rate	around 18.6 percent	Around 15 percent	Around 3 percent	Around 2.4 percent	Around 2.55 percent
Contributor	Employers and employees	Employers and Employees	Employers	Employers	Employers
Levels of Insurance	Replacement rate: 67 percent	Self-contribute ratio: around 1.8 percent	Replacement rate within contribution years: 60 percent	Replacement rate within contribution years: 90 percent	The subsidy ranges from 125 to 2005 Euro according to the level of disability and care methods.

Third, multi-pillar social protection structure has been formed. In the 21st century, Germany has put a new premium on the establishment of a multi-pillar social protection system and strengthened the old-age protection through tax preference, direct subsidy, investment expansion and other measures. As introduced by Federal Ministry of Labor, Employment and Social Affairs, Germany now has 70 percent of employees has been covered by with occupational pension and voluntary pension saving scheme with 57 percent covered by occupational pension and 33.8 percent covered by voluntary pension saving scheme and Reister scheme. With the support from the second and the third industry, the replacement rate of comprehensive old-age protection for retirees has exceeded 80 percent.

2. Employment and major risks for social protection in Germany

Influenced by population aging, changes in employment system, digital economy development and other factors, Germany is facing major challenges in the areas of employment and social protection. The challenge of structural unemployment has been strengthened while the pressure on finance supportive to social insurance has also increased.

2.1 Flexibility of employment aggravates instability of occupations

In recent years, digital economy and other new forms of economy in Germany have been booming, driving the creation of massive platform economy for employment. In addition, Hartz reform provides tax reduction and exemption for flexible employment that brings a trend of employment flexibility. On one hand, employment has become less plannable and caused the constant increase of unstable factors in labor market. On another hand, higher requirements for flexible employers are being raised. The Federation of Trade Unions indicated that in industries such as retailing industry primarily making up of mini jobs and part-time jobs, the permeation by the Trade Union is only limited to 10 percent of the trades. The conventional mode of partnering labor relations and collective negotiation mechanism are facing the challenge of empty shell. Meanwhile, some companies are taking advantages of mini jobs to replace formal occupations for sake of cost saving. Given that mini job employees are not required to contribute to basic old-age insurance and other insurance, their rights can be hardly secured.

2.2 The rapid development of digital economy has deteriorated the risk of structural unemployment

The acceleration of Informatization and the implementation of German Industry Scheme 4.0 has boosted the development of intelligent manufacturing, smart factories, smart service industry and other digital industries, which has made it possible for replacing human workers with machines. However, it seems to deteriorate the structural employment challenges. So far, the digitalization in industrial sector has caused the loss of 490 thousand occupations. In Rhineland-Palatinate and other developed industrialized regions, "machine replaces human" has reduced 37.5 percent jobs for workers. University of Mainz has predicted that in the future 15 percent of jobs will reduced by digitalization.

2.3 Technology development and industrial reform lead to unequal distribution of job opportunities

As technology has developed and the industrial reform has accelerated, workers of high quality are able to adapt to the changes in labor market while a huge proportion of the unemployed that have the motivation and capacity to work is not able to meet the needs of new knowledge structure and employment skills. For such unemployed labors, there is a huge risk of being excluded by labor market in a long term, which results in polarization of access to jobs. According to Employers' Association, while 2.6 million people became registered unemployed, there are still 760 thousand high technique occupations remaining empty, showing that the supplies and demands are not matching well. The issue has been worsening as short supply of high tech workers can hardly meet great demands while low-skilled workers are having difficulties in employment.

2.4 Basic insurance system is facing financial imbalance as the population aging aggravates

Under the trend of prolonged life expectation and low birth rate, the population in Germany has been rapidly aging. Currently, the old-age population over 65 years old has accounted for 34.1 percent of the total population, rendering Germany one of the countries whose population is seriously aging. According to a predication, in 2025 the population of more than 65 years might climb up to 41 percent and could reach above 56 percent in 2050. The issue of population aging directly shakes the basis of pay-as-you-go system, further results in financial imbalance to all sorts of basic insurance.

Firstly, the expenditure scale of all sorts of basic insurance has been rapidly increased. As introduced by Pension Association in Germany, the insurance period for male and female retirees has grown up from 13.8 and 18.9 years respectively in 2001 to 17.5 and 21.7 years respectively in 2015. Such measure hence increased the expenditure on retirees greatly. Based on the data provided by Statistic Office, the expenditure on basic old-age insurance, basic medical insurance and long-term care insurance will rise up to 15.1, 15.4 and 9.0 percent respectively by 2021.

Second, the ratio of care provided by system for the old-age group has dropped fleetly from 4.2:1 in 1972 to 2.0:1 in 2014. The Employers' Association has indicated that if the structure reform was not taking place in time, the total rate of statutory social insurance would go up to 48 percent in 2040 that might weaken the competitiveness of German corporations globally.

3. The major measures to prevent risks in the areas of employment and social protection

Germany has taken measures to encourage old people to get employed, to strengthen the digital skills of employers through training and to enhance the management of flexible employment. Meanwhile, regarding policy changes, Germany has increased the ceiling of age for retirement and has improved social protection system through providing policy measures, which are aimed to increase participation rate of employment and job opportunities, to solidify social protection system basis and further improve the level of social protection.

3.1 Respond actively to the challenge of digital economy and increase the overall level of vocational skills of employees

The first major measure to deal with the issue is strengthening the adaptability of dual vocational education system to digital economy. Germany is making best use of the dual vocational education system to promote employment. Such initiative is led by Chambers of Commerce and Industry at local level that closely combine skill-oriented education and digital economy, replace basic industrial attachment with first-line production activities. Through such measure, new employees can be able to adapt to the change of production mode and innovation of production technology. The assumption behind the measures is that only when the goals of education are aligned with new demands of digital economy, can the labor supply structure be upgraded promptly. Meanwhile, it should be also emphasized that dialogue between corporations on personnel training will help to take advantage of the best practice of leading corporations to drive the human resource development of small and medium sized corporations.

The second important measure is to commence an overall vocational training programme targeting

certain groups. The Federal Ministry of Labor, Employment and Social Affairs has sponsored short-term vocational training within twelve weeks for in-service workers so that they can upgrade vocational skills required by the development of digital economy. For refugees that are capable of blending in the traditional dual vocational system, the Ministry specially set up a training programme to provide them with vocational skills and required large corporations such as Siemens, Volkswagen and Rhein to offer special work placements aiming to empower refugees be become effective labors for German society.

Thirdly, Germany has taken measures to regulate all sorts of employments. On one hand, the government require all the mini-jobs to be based on legally valid labor contract which can protect the basic legal rights of employers. On the other hand, all the mini-job workers shall be covered by basic medical insurance and shall contribute to statutory social insurance according to relevant regulations if the person has two or more mini-jobs.

3.2 Promote the employment of women and older workers, improve the social care structure

Firstly, Germany has been actively encouraging women to return to labor market. In recent years, Germany has provided a series of acts that protect woman workers' rights. At the same time, the government has been constantly expanding the supply of early childhood care and development positions so as to ensure every employed woman can have at least one child care and nursing diploma. The relevant policies to some extent has reduced women's stress from roles in family and provided more space for career development of women. Statistic has indicated that the labor participation rate was greatly increased in the country as the employment rate gap between female and male workers has dropped from 20 percent in 1995 to 8 percent in 2015. The employment rate for female workers of over 60 years has increased to 70 percent from less than 20 percent.

Secondly, the government has paid special attention to unitization of older labor resources. On one hand, Germany provided acts to eliminate age-based discrimination and clarify that except in special vocations such as pilot, in other areas age shall not be referred to when evaluating job seekers' qualification. In corporations that have more than ten workers, old-age workers shall be entitled to priority of being free from dismissal. The government has relaxed the age restriction for labor contract as it is enacted in Contract Law in 2007 that workers over 52 years old have the right to sign the fixed term contract unconditionally, which providing an enabling environment for older workers to be chosen to work. At the same time, the increase of old people's capacity for employment also drives corporations to voluntarily hire the old. In addition, Germany initiated re-employment promotion programme for the old, formulated vocational training programme based on different needs, helped the old to acquire relevant employment skills to adapt to digitalized jobs in colleges for the aged and supported the old to get employed in the positions in line with their skills, knowledge and physical conditions. According to the Statistic Office, in every 100 employees there are 35 workers older than 65 years old. This number is predicted to reach 49 in 2020.

3.3 Strengthen and improve employment and social protection information management to inform policy making with productive and reliable evidence

The first important measure under this theme is to establish a well operating employment information management system that can provide reliable reference for research and judgements on employment level and its structure. In this aspect, Germany has established some independent and comprehensive systems for employment statistics, registration of employment and unemployment and other issues. All the unemployed need to process unemployment registration at Federal Ministry of Labor, based on which they can apply for unemployment insurance and other insurances. The procedure thus helps to provide data on unemployment indicators based on all-sample registration. The Statistic Office then carries out independent statistics on employment and evaluate the overall status of labor market for adjusted unemployment rate based on scientific sampling and through commissioned survey, questionnaires and other approaches. At present, such surveys have shown adequate reliability as the gap between pre-unemployment rate and post-unemployment rate remained stable while they also fluctuate in same direction. Apart from surveys, based on the employment and unemployment statistics, Ministry of Labor regularly publish information on number of unoccupied vocations, demand structure and the unemployed for workers and employers. The existence of the information system to some extent solves the problems of incorrect employment information, unregulated employment mechanism and non-transparent information on occupation demands and supplies, thus provides evidence basis for employment guidance, recruitment of corporations and job application.

Second, Germany regularly carries out evaluation on the basic old-age insurance, which informs more accurate judgments on security of the system. As introduced by the Ministry of Labor, Employment and Social Affairs, according to relevant regulations, German government has the obligation to regularly process the information on financial balance status of the basic old-age insurance, adequacy of pension, feasibility and social recognition of pension reform policies. It is also responsible for compiling a report based on the information for Parliament's reference and helped the Parliament with accurately evaluating the scale of contribution obligation for pension and the operation of the system to inform policy making on pension reform. The report for submission shall include three items, including an actuarial report on pension, a report on living status of the aged and a report on postponed-retirement reform (see table 2).

Table 2 Report activities on basic old-age insurance by German Government

Report subject	Frequency	Content	Function
Annual Actuarial Report on Old-age Insurance	Once a year (30 th November)	The expenditure scale of basic old-age insurance next year; prediction on the influence of economy and employment status upon the insurance system.	To provide important evidence for rate adjustment and for determining the scale of financial aid by government.
Old-age Protection Report	Once every four years	Evaluate the living status and quality of the aged over 65 years old	To evaluate the adequacy and appropriateness of the basic old-age insurance, occupational pension and other old-age protection system.
Postponed	Once every	Evaluate the social acceptability of	To slightly adjust the number

Retirement Reform Report	four years	postponed retirement age.	of postponed years, frequency for relevant groups.
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3.4 Actively promote the reform of social protection parameters and improve the sustainability of basic insurance.

In this aspect, at first, the pension reform act issued in 2007 has specified that retirement age for new retired workers will be postponed in a progressive mode that allow them to delay the retirement for one month for each year. Meanwhile, the government has formulated and implemented flexible retirement policy which ‘punishes’ those who apply for earlier retirement by charging 0.3 percent of the base figure of pension per year. For those who voluntarily postpone retirement, the workers will be given 0.5 percent of the base figure per year as incentive, which encourages more insured workers to be willing to postpone retirement. Currently, the actual retirement age for male and female workers has risen from 63.2 and 63.1 respectively in 2005 to 63.9 and 64.2 respectively in 2017.

Secondly, the government is working on achievement of actuarial balance and establishment of old-age and health risk adjustment mechanism. On one hand, the government has introduced actuarial balance factor to facilitate the measurement and calculation of the base figure for basic old-age insurance. It specifies the cash value of subsidy base figure according to contribution rate, fund revenue and expenditure, structure of care providing systems and other factors. At the same time, the basic medical insurance risk balance mechanism has been established. The Ministry of Health coordinates for fund to ensure basic medical insurance, guarantees equal distribution based on actuarial result on contribution demands for fund and balances the difference of various basic medical insurance providers in terms of age structure of the insured population and disease risk distribution.

Thirdly, the government takes measures to improve the grading evaluation and regulated long-term care payment. In terms of dealing with the financial waste under three-layer service system of care insurance, Germany re-formulated the care grading system in 2015 that refers to 88 standards covering 8 aspects including beneficiaries’ ability to act, cognitive level, communication capacity, psychological fitness and other aspects. The grading system stipulates five grades of disability for management purpose, lowering the standards for payment targeting low-mild and low-moderate disabled groups, regulating standards for people with disability and unifying the self-paid amount as 580 Euro. Measures were also taken to control excessive requests for care made by the low-grade disabled. (see table 3)

Table 3 Long-term Care Insurance Payment Standards (Unit: Euro)

Care grade	1	2	3	4	5
Care subsidy	N/A	316	545	728	901
Clinic care	125	689	1289	1612	1995
Care providers	125	770	1262	1775	2005
Self-paid care		About 580	About 580	About 580	About 580

3.5 Based on the principle of risk sharing, reasonably strengthen responsibility of government and family in responding to population aging

The first essential measure in the aspect is to maximize government finance's role as "the final insurer" to provide the dynamic minimum guarantee for the function of basic insurance system. The Ministry of Labor, Employment and Social Affairs evaluates the operation of basic old-age insurance in first half fiscal year, examines financial status of the insurance system and adjusts rates. In the situation that the end year settlement shows balance, government finance shall make up the balance. At the same time, the government provides direct subsidy to women in pregnancy, children, unemployment and other groups not capable of paying for insurance, ensuring that the basic insurance has realized universal coverage for eligible residents. At the moment, the ratio of government's yearly subsidy to the basic old-age insurance has remained steadily at around 24 percent

Second, the ceiling for corporation and individual payment was stipulated to actualize risk sharing in response to population aging. The 2002 Act of Sustainable Development of Basic Old-age Insurance specifies that the payment rate shall stabilize at less than 20 percent by 2020 and 22 percent by 2030. Under the prerequisite of fixed level of the payment rate, the government finance is addressing the newly increased payment demands caused by population aging, forming a risk sharing structure with government, corporation and individuals as three pillars.

Third, a direct government subsidy system has been established while at the same time the using personal savings as pension is being encouraged. Since the third pillar-personal saving-is lagging behind for long time that cause financial overburden for supporting basic old-age insurance, in 2001 Germany initiated Reister Pension Reform, in which the federal finance subsidizes employees who set up Reister accounts with no less than 175 Euro. For those who have low income, the subsidy has even reached 89 percent of all savings, resulting in progressive re-distribution. Led by the government subsidization measures, the overall social demands for keeping personal saving as pension have been created. The amount of Reister insurance policies increased from less than 2 million in 2001 to approximate 16 million in 2017 with coverage of 33.8 percent of all the employed population.

3.6 Stick to the idea of family development and emphasize the function recovery of families and mutual support mechanism within family

Firstly, Germany has built up a child bearing and rearing friendly treatment determination mechanism that contribute to reduction of child rearing pressure. In recent years, the society has gradually realized that women's role in family caring and economic boost is of same value for a stable society. In 2014, Reister Pension Reform Act has set up an 'Infant and Mom Pension' mechanism that underscored the recognition of women's contribution during childrearing. For mothers who give birth, every child can add 2 to 3 points to payment scores for pension. The act is also applied to single fathers who actually shoulder the responsibility to take care of children. In general, the number of beneficiaries has exceeded 9.5 million.

Secondly, the government determines level of protection based on the situation of each family,

which fully considers the needs for child rearing. Subsidy of all sorts of protection systems is relevant to the number of family members and children that need to be taken care of by a family. The level of the unemployment replacement rate of the unemployed that have children is higher than that of singletons by 7 percent. People who have children can be entitled to higher amount of subsidy under Reister pension programme than singletons by 150 to 300 Euro.

Thirdly, in terms of care insurance, family subsidy mechanism has also been established to encourage mutual support within family. Population aging is growing with the shrinking of family structure and collapsing of extended-family system. For the purpose of encouraging family members of different generations to live together, recovering the mutual support mechanism within family and reducing the pressure upon social care providers, in terms of long-term care insurance, Germany has set up a special payment method for family subsidy, providing direct cash payment that amount from 316 up to 901 Euro to members who take care of elders with over grade-two disability.

4. Lessons learnt and recommendations for policy making

Although China and Germany are at different stage of development, they share similar risks and challenges when lashed by digital economy and experiencing population structure transition. First of all, against the background of booming new economy, platform employment and other new forms of employment are emerging every second while also bringing risks of replacing human with machines, which challenges stability of employment. Secondly, as the population aging is being rapidly strengthened, by 2017, the population at the age of over 60 years exceeded 240.9 million that makes up 17.3 percent of the total population. In this context, the mismatch between fast population aging and slow increase of wealth has been strengthened and leads to imbalanced aged-dependency ratio for social protection system, huge pressure for ensuring insurance, increasing needs of care for the aged with disabilities and the other problems, which has upgraded the demands for the sustainability of social protection system.

As socialism with Chinese characteristics has now stepped into a new era, the principal contradiction facing Chinese society has evolved to the contradiction between unbalanced and inadequate development and the people's ever-growing needs for a better life. Therefore, the mission to provide increasingly comprehensive social protection policy and improve people's life quality is getting tougher. Employment and social protection are the most essential component for the overall social policies. At the moment and in a relatively long run, China shall move forward under the guidance of 'Xi Jinping Thought on Socialism with Chinese Characteristics for a New Era' to achieve the 'Two Centenary Goals' through learning advanced practice from Germany. To actualize higher quality and more sufficient employment, we shall stick to employment priority strategy and active employment policy, carry out large scale of vocational training, focus on addressing the challenge in structural employment, provide comprehensive public service for employment, improve coronation mechanism that engage government, workers' union and corporations and harmonize labor relations. China shall accelerate the equalization of public service and establish a sustainable and multi-layer social protection system covering all the people, planning urban and rural social protection as a whole and providing appropriate protection, in line

with the requirements of building up a basic safety net, ensuring there is a cushion in place for those most in need, and making due institutional arrangements. Chinese government will do its best and what it can to strengthen sense of achievement, happiness and security of people and to ensure protection and sustainability.

4.1 Promote institutional innovation, strengthen management efficiency of labor market

The first lesson learnt is to improve the employment statistic system that provide comprehensive employment status through accelerating statistic system reform, perfecting statistic calibers and survey methods, exploring and establishing statistic monitoring indicators for new employment modes including flexible employment. The second lesson we have learnt is about regulating flexible employment and other new employment modes and social protection systems. The government shall seize the opportunity to adjust the coverage of Labor Law and Labor Contract Law so that the flexible employed workers and workers who get employed through new employment modes can be protected by law. In addition, research on and implementation of new forms of social insurance that adapt to new employment modes are in great needs. The overall reform goal shall be lowering threshold for social insurance and providing flexible public service.

4.2 Perfect vocational education and training system, promote industrial structure transformation and improve labor skills simultaneously

First of all, there is need to improve the mechanism that translate social needs to the output of vocational education and training. It is essential to further promote the infusion of industry and education, to promote joint efforts of both corporations and colleges in education and achieve the accurate match between industry development with education outcomes. Under this objective, measures such as constructing automatic adjustment mechanism on vocational education subjects, upgrading majors and arrangement of courses, ensuring major setup responds to industrial demands, course content are in line with professional standards and needs of teaching and industry. The second lesson learnt is on building up a diverse vocational education and training system. The Dual Vocational Education mode encourages large and medium-size corporations to deliver vocational education, which enlightens us to explore new modes of apprenticeship. It is also important to change the current funding mechanism for vocational education that relies mainly on government finance to a more diverse fundraising that engage government, corporations and society. Thirdly, it is important to strengthen training for digital human resources through speeding up education system reform, increasing the proportion of programming and other digital technology related courses in general education courses, and improving graduates' capacity of applying digital skills. In addition, it is necessary to innovate forms of vocational training and implement the basic vocational training system, accelerate vocational training course reform that can integrate internet, big data, cloud computing and other new subjects into vocational education and training curriculum system.

4.3 Cultivate old-age human resources and actively respond to challenge brought by population aging that face employment

Firstly, it is learnt that it is necessary to improve labor market for old-age re-employment that require more labor market information provided to the old, more support linking supplies and

demands, more facilitation for labor contract signing and other services. The importance of improving utilization of old-age human resources, setting up a mechanism to ensure human resource flow and regulating access for re-employment has also been learnt through reflecting on experience of Germany. Secondly, it is essential to create a fair and equal employment environment for old people, promote the enactment of relevant laws and regulations, provide legal protection for re-employment and ensure appropriate pay and working hours for elders. It is also important to guide corporation to change the mentality that discriminate the old based on age and to equally recruit qualified elders through encouraging employers to stipulate flexible recruitment system that attract qualified elders based on the uniqueness of corporations. Thirdly, there is need to enhance adult education for old people through developing re-education platforms, encouraging lifelong learning and sensitized the old with skills to harness resources provided by universities for the aged, online courses, training for the aged and other platforms to continue education and get prepared for re-employment with skills and knowledge.

4.4 Dedicated to build a multi-layer social protection system

The first measure to achieve a multi-layer social protection system is to expand the coverage of occupational annuity, which requires to accelerate the establishment of occupational annuity system and formulation of preferential tax policy through piloting automatic enrollment mechanism and encouraging more corporations to plan for establishment of occupational annuity. In addition, it is necessary to further open the annuity market which may improve fund management efficiency and level of product management and to improve the capacity and efficiency of annuity system. The second measure is to maximize the role of complementary subsidy in address needs not covered by basic medical insurance. This requires government to increase the ratio of preferential tax for supplementary medical insurance, to establish a unified guidance for supplementary health products, to allow such insurance to cover the expenditure in special needs clinics and to strengthen the role of supplementary medical insurance in ensuring value-added security that allow beneficiaries to register in clinics more conveniently, to obtain treatment with accompanies of doctors and to access care assistance, further improves beneficiaries' experience in hospitals or clinics. Apart from the two aforementioned measures, it is also of vital importance to enrich the supply of multi-layer protection products. This measure requires stipulation of personal tax-deferred old-age insurance system, further improvement of the taxation preferential methods of insurance and payment and support private insurance providers to develop more diverse commercial old-age and medical insurance that can be well associated to basic old-age insurance and basic medical insurance. In this way, the needs of insurance for finance management, supplementary insurance and risk control at individual and family level can be met.

4.5 Improve risk prevention in social insurance

First, it is essential to promote coordination for basic old-age insurance for employees. The government shall formulate and implement the adjustment funds plans by the Central Government, under which the ratio of adjustment funds withdrawal will be gradually increased and the risks caused by population aging can be shared nationwide among different regions. Second, there is need to improve the subsidy determination and adjustment mechanism. This

measure requires to regulate the subsidy adjustment methods for occupational basic old-age insurance under the consideration of government financial capacity, revenue of the system and the personal contribution rate in the past. Third, it is also of importance to improve medical insurance payment system through total budget management, focusing on disease-based payment, expanding diagnosis-based payment by group and the scope of piloted point system. Through the measure, a diverse combined type of medical insurance payment can be constructed that can be connected to health service system reform to also reduce overtreatment and economic pressure for urban and rural residents to access treatment. Last but not the least, there are demands in accelerating the formation of feasible care insurance system framework, which can timely provide experience of the piloted areas and lessons learnt from other countries which implement care insurance system ahead, reasonably determine standards for fundraising, regulate the payment method and coverage of beneficiaries and apply a more scientific disability grading assessment and care expenditure subsidy system. It should be also emphasized that the payment rate shall be further improved to avoid tricky trap of unsustainable welfare.

Team leader: Chang Tiewei

Team members: Cui Lin, Chang Hao, Pan Dahai, Che Song, Han Feichi, Guan Bo, Dai Bowen, Zhou Jianlong, Chen Jianhua, Liu Shuhua, Han Lili, Zhang Peng, Yu Nan, Chen Xiaoying, Lou Qian.