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Social Security in the Age of the 4th Industrial Revolution

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I . Introduction



South Korea's New President Moon Jae-in's administration on September 1 proposed a budget for 2018 worth 429 trillion won (\$382 billion), an increase of 7.1% from this year and the largest since the 2008 global financial crisis -- a clear sign that the new government selected its goals of expanding income and welfare.

The budget largely focuses on creating jobs and providing welfare. About 34% of the budget has been set for health, welfare and labor spending, representing a 12.9% increase, the largest among the budget items.

Spending on jobs alone will be 19.2 trillion won (\$17.1 billion), up 12.4%. This will be used to hire 15,000 employees of the central government, including public safety personnel. Hiring 174,000 public servants in next five years, including 3,500 police officers this year and 6,800 workers in fields of public safety, including quarantine and border patrol.



A significant budget was set to support job creation in the private sector, including financial aid for SMEs employees. Specially, 3 trillion won (\$2.38 billion) was allocated to help SMEs that might be affected by the higher minimum wage.

The second-biggest increase is in education, where the government has raised spending by 11.7% to 64.1 trillion won (\$57.1 billion), including 1.2 trillion won (\$1.07 billion) to fund day care centers and preschools.

The budget outline proposes enhanced social security for low-income and senior and disabled citizens as a part of efforts to address widening wealth gap.

The government will appropriate spending to nurture talents and infrastructure in the innovations of big data, AI, IoT and AR that will dominate the new industrial age.

II. Theories of the Impact of the 4th Industrial Revolution on Labour Market



1. The Pessimism

Differently from the 1st to 3rd IR, all the jobs will be replaced by automation in the 4th IR, the digitization of entire industrial systems and the rise of AI will be a disaster,

This way of thinking takes into account substitution effect.

This view tends to highlight the negative aspect of relationship between men and machines. → New labour-saving technologies will increase unemployment over time.



Being displaced by automation, robotics and AI depends on the occupation. Low-skilled, low-wage workers involving repetitive works in transportation (truck, taxi and delivery drivers), production work, administrative support, sales, services, and construction and such workers, as miners, factory workers, bank tellers, travel agents, etc. are in danger.

A 2013 study found that 47% of US employment is at high risk of being automated over the next two decades, while a 2016 study of 21 OECD countries concluded only 9% of jobs are automatable. In general, lower-skilled works are more likely to disappear in an imminent future, increasing their vulnerability and exacerbating societal inequality.





Technologies such as AI, machine learning and software automation applications will not only affect low-wage, low-skilled workers, but will also increasingly enable computers to fulfill jobs that require substantial education and training, such as journalists, teachers, and lawyers. No job is totally safe and that automation is blind to the color of workers' collar.

However, jobs that require empathy, communication skills, and close personal interaction such as nurses, teachers, hairdressers, and automated customer service systems would be difficult to be displaced.

New technological progress will eventually approach the point where they will match or exceed the average worker's ability to perform most routine jobs. Most jobs can be broken down into a series of routine tasks, most of which can be done by machines.
→ Structural unemployment that will affect workers at all levels from the uneducated to the well-educated workers.

2. The Optimism



Automation will create more jobs than it destroys in the end. In the past technology has always ended up creating more jobs than it destroys. Automating a certain task, so that it can be done more quickly, cheaply and accurately, increases the demand for workers to do other tasks around it that have not been automated.

New Jobs will be created in mechanical engineering and construction. The introduction of CPS will require a significant amount of additional employees with specialized technical expertise. Workers with IT and programming skills will have more job opportunities.

The optimism is based upon compensation (or income) effect: As cheaper capital displaces labour, goods and services become cheaper, raising real incomes across the economy.



That boosts the demand for new goods and services and new industries to supply them. To complete the loop, displaced labour then switches to meet this new demand, lowering unemployment.

As demonstrated by the economic history of the past two centuries, the compensation effect of technological progress has always neutralized the substitution effect.

In the process of the 1st IR despite the Luddites attempts to stop technological progress and the affirmation of Marxism, over those decades the condition and well-being of the average worker improved dramatically.

We should fight all those contemporary economists who avoid looking at the huge progress made over the last two centuries and keep predicting a future where AI will completely replace human labour.





In all those countries that have experienced a long and lasting process of economic development, such as the UK, Italy or Singapore, and South Korea average workers' real wages have increased between 15 and 100 times over the last 200, 100 and 50 years.

Giovanni Caccavello has defined three fundamental stylized facts of economic development:

- In the long run, technological progress is the main factor determining economic growth.
- From the 1st IR (1770-1830) to present, technological advancement has created more jobs than it has destroyed.
- The transition to a more complex system of production marked the beginning of a new era, characterized by: Smithian concept of "division of labour", Schumpeterian concept of "creative destruction"; immense growth of labour productivity and real wages; rapid reduction of weekly working hours.



III. Paradigm Shift in Labour Market

With the increase of “platform economy”, the labour conditions become more and more flexible. Within some forms of employment, no employment contract, wage standards, working-hour regulations, immobile workplace, access to labour unions. The workers have to be responsible for their own social protection, work health and safety protection. Uber is a good example.

The employer will not provide regular work, but call the workers in on demand. Skilled workers will be hired for a certain project or to solve a specific problem. Workers will provide their service from any place at any time by using new technologies. Online platforms will match employers and workers.

No employment contract, wage standards, working-hour regulations, immobile workplace. The workers have to be responsible for their own social protection, work health and safety protection.



The nature of the contract between employer and employee is changing, the move to a sharing and collaborative economy increases the prevalence of jobs that fall outside the standard employment contract model. Some positive implications for workers, as it potentially offers more control over when and whether to work and opportunities to supplement their incomes — renting out a room through Airbnb, or driving part-time for a service such as Uber.

Negative implications: Workers can expect more volatility in their earnings and leaves them without the employment protections. The rise of zero-hour contracts is one manifestation of this change. Some governments, such as the government of New Zealand, have already banned their use. New employment models also hinder the collection of taxes from both employer and worker, reducing the availability to fund social protections.



These transformations are coinciding with four seismic challenges: demographic pressures, low interest rates, mass migration of labour, and increasing levels of wealth and income inequality.

New technologies enable restaurants, retail stores and other companies to predict hourly customer demand and delivery schedules with precision. The employers encouraged to create “just-in-time” schedules in which workers are called in or sent home on a short notice.

Such “work without frontiers” is very likely to generate stress and burnout. ICT-based mobile work incurs work intensification and increases stress levels. The new form of management, such as continuous monitoring workers' performance by smart devices, also increases the level of stress. It is likely to trigger occupational diseases such as burn-out or FOMO.



IV. New Dimension of Social Security in the Age of the 4th

IR

During the 1st IR, individuals bore virtually all risk for their own financial well-being. Over the course of the 2nd and 3rd IR, the introduction of social protections and risk-sharing among individuals, employers and governments became increasingly prevalent in the developed world.

The 4th IR is threatening to bring this evolution full circle: severely underfunded state social systems are at a breaking point, employers are backing away from traditional employment models and social protection contributions, and individuals once again are shouldering a larger share of the risks.



As longevity trends continue to increase and the threat of the automation of jobs becomes very real, the sharing of this risk needs careful rebalancing in order to minimize potential human suffering.

As the 4th IR accelerates, many individuals – including lower-skilled workers more easily displaced by automation, part-time and self-employed workers without access to employer-sponsored protections, and older workers and retirees without sufficient savings or pensions – face a potential crisis.

An urgent need to develop a comprehensive and interconnected set of options that adapt social protection to new-style employment patterns, reskill workers, and respond to the opportunities and threats posed by increasing longevity.





1. Implementing Policies to Increase “Flexicurity”

The changing needs of businesses and individuals in the 4th IR require giving employers access to a flexible labour force, while providing individuals with safety net and active help in securing employment.

One way to do this is to increase public spending on ALMPs that either reduce the cost of labour or help people find jobs. Ex. Denmark brings together more flexible rules for hiring and firing workers with generous guaranteed unemployment benefits, and spends 1.5% of its GDP on ALMPs to offer guidance, education, or access to a job to all unemployed workers who are looking for one.



2. An Efficient Mechanism of Unemployment Insurance

Establishing an efficient mechanism of unemployment insurance, safety net for workers should be secured. Through work-based training programs the displaced workers can participate in on-the-job training while receiving unemployment benefits.

In order to secure social security resources and to maintain the fairness of redistribution of income, it will be effective to unify the social insurance premiums by collecting them at the sources. The insufficient resources shall be covered by the taxes.

Clarifying the purpose of taxation for social security, together with efforts to reduce the public's rejection of taxes and distrust, will secure successful social security system in the age of 4th IR.



3. Untethering Health and Income Protection From Individual Employers or Jobs

Intermittent part-time and informal employment or self-employment, with frequent career changes, is becoming the norm in developed as well as developing economies, but most pension systems are still built on the model of continued employment throughout life. Health benefits are provided irrespective of employment in most European nations and Canada, but continue to be largely tied to employment in the United States.

Potential responses include creating portable health and pension plans to maintain coverage as workers move geographically and between employers, or between periods of formal employment – by an employer – and periods of unemployment or self-employment; and ensuring that risk and responsibility for social protection continue to be shared by the state, employer and employee. Employers' contributions to funding social protections could be recast to benefit society as a whole rather than their employees only.



4. Alternative Models of Income Distribution

In July, the minimum wage committee of South Korea voted to raise the hourly minimum wage from the current 6,470 won (\$5.73) to 7,530 won (\$6.69) next year. The year-on-year increase rate is 16.4%, the largest rise in 17 years after September, 2000.

Raising the minimum wage is expected to increase the purchasing power of the lowest earners, and could revitalize the economy by increasing consumption. narrow wage disparities, contributing to the easing of income inequality.





The rapid increase in the minimum wage, however, is likely to worsen their financial difficulties of small businesses. The government unveiled measures to help them pay the higher wages. The main point of the measures is subsidy of the minimum wage increase exceeding 7.4%, the average increase rate in the minimum wage for the past five years. Other steps include a reduction in commissions small businesses pay to credit card companies for card transactions and curbs on rent increases.

The government will spend 3 trillion won (\$2.66 billion) for the minimum wage subsidy and expects other steps to bring effects worth 1 trillion won (\$885.6 million) or more for small business operators.



5. Basic Income by the Government

When more and more workers' jobs are replaced by automation, it is meaningless to raise the minimum wage, when it provides incentives for employers to use more robots to replace workers.

Among the proposals for fundamentally new models of income distribution, which do not tie welfare benefits to being out of work, there is a negative income tax, in which people earning below a certain threshold receive supplemental pay from the government; wage supplements, in which the government makes up the difference between what a person earns and a recognized minimum income; and a universal basic income paid to all members of society regardless of their means. Such income distribution systems would make it much easier for people to take on part-time work or intermittent work as desired.



The voters in Switzerland recently rejected a proposal for a universal basic income, but the idea is attracting growing interest around the world. The government of Finland is considering a pilot programme that would guarantee citizens a partial basic income whether or not they work. Other recent experiments include a pilot programme funded by UNICEF in eight villages in India, in which every man, woman and child was provided a monthly payment without conditions for 18 months. Improvements in the pilot villages, compared with “control” villages, were seen in the areas of sanitation, access to drinking water, food sufficiency, number of hours worked, children’s nutrition, and enrolment levels in secondary schools, particularly for girls.

To prevent displaced workers become dependent, the government should make the payment conditionally. The displaced workers who receive the basic income should be, eg. obligated to engage in government projects that help the community.



6 Strengthen Job Training and Continuing Education

It is not necessary that every worker has to become a coder. However, workers without certain level of technical knowledge are more likely to be left behind. As technology innovation continues, workers need to upgrade their skills. They have to keep learning to meet the need of different skills required by new jobs. An efficient mechanism of job training and continuing education will help workers be hired or navigate job transitions more successfully.

The 4th IR will speed up computer-related automation, disrupt the labour market. In the course of lifelong education, all workers will be required to learn new skills in order to survive in the future labour market.

Some industries will decline, while new industries will emerge. Without doubt, there will be jobs that nobody in the past ever predicted.



Thank you.

