Study on Employee-sharing in China

Li Haijian[1], and Li Lingxiao[*2]

[1] *Institute of Quantitative & Technological Economics (IQTE), Chinese Academy of Social Sciences (CASS), Beijing, China*
[2] *School of Economics and Finance, Xi'an Jiaotong University, Xi'an, China*

Abstract: *Labor shortages caused by an aging population and falling fertility present an obstacle to China's modernization drive. Since the limited labor resources take time to increase, employee-sharing as a collaborative and innovative mode of employment represents a novel strategy for addressing the sharp declines in the working-age population and labor supply. Based on the theories of the sharing economy, gig economy, and skills economy, this paper develops a systematic framework for employee-sharing and explains its significance for the country, employers, and individuals in light of flexible employment and employee-sharing practices. At the national level, we advocate transforming the identity of employees from "corporate assets" to "social assets", their labor relationship from "dependence on employers" to "independent social members", and their teams from "corporate governance" to "labor union governance". At the corporate level, we recommend that businesses streamline fixed-term workforce and transform themselves into platform-connected social entities. At the individual level, we establish a basic framework for employee-sharing to expand employee income sources and improve the social protection system, and elaborate on its significance for the country, employers, and individuals. The employee-sharing mechanism can be adopted step by step by resolving issues such as employee labor contract termination and management of shared employees. This gradualist strategy seeks to create a mode of employee-sharing that is feasible and in line with current trends for the benefit of the country, employers, and employees, and to contribute a Chinese solution and perspective to the global question of labor recruitment.*

Keywords: *Flexible employment, sharing economy, gig economy, skills economy, shared employees*

JEL Classification Code: J21, M53, O15
DOI: 10.19602/j.chinaeconomist.2023.05.02

1. Introduction

China's demographic dividends have vanished amid an aging society and falling fertility rate. The Report to the 20th CPC National Congress called for navigating the challenges of an aging society. After peaking in 2010, China's working-age population has turned from positive to negative growth (Cai, 2014). According to data from the National Bureau of Statistics (NBS), China's working-age population stood at 882.22 million, accounting for 62.50% of the total population, down over 40 million from 2010.

The Chinese government has adopted a two-child policy in 2016, followed by a three-child policy in 2021, in response to the decline in the working-age population. Given the lag of policy effects and the growth cycle of labor force, it will take time to ease China's working-age population shortage. The

[*] CONTACT: Li Lingxiao, email: 4120119046@stu.xjtu.edu.cn.

Acknowledgement: This study is sponsored by the research project conducted by the Chinese Academy of Social Sciences (CASS) on behalf of the All-China Federation of Trade Unions (ACFTU) under the subject of "Study on the Innovation, Entrepreneurship and Development of Chinese Industrial Workers in the New Era" .

(C)1994-2023 China Academic Journal Electronic Publishing House. All rights reserved. http://www.cnki.net

Lewis turning point has rendered China's rising labor costs an impediment to sustainable corporate growth (Cai, 2013). Labor-intensive businesses are faced with exorbitant employee compensation and social security costs. The asset-heavy business mode is overly concerned with the ownership of employees, which may waste labor resources and impede corporate development. To combat the labor shortage and rising cost of labor, businesses must transition from offline to online and from asset-heavy to asset-light business models (Mo and Li, 2022). These transformations represent important tendencies in contemporary and future corporate development (Li and Zhu, 2017). New technology clusters led by the internet, the Internet of Things (IoT), big data, cloud computing, Artificial Intelligence (AI), and block chain allow individuals to freely choose their professions and purchase or sell goods instantaneously and across borders at a minimal cost. Self-media, self-organization, self-finance, and self-entrepreneurship are open to everyone. This allows a single individual to provide services to multiple businesses and organizations, as opposed to just one. In the digital era, the sharing economy, gig economy, and skills economy establish the necessary conditions for employees to be shared among multiple employers under fragmented and flexible work arrangements. As a result of their diverse skills and interests, new-generation employees are less likely to remain with a single employer and more likely to have a portfolio of skills and job positions. In light of China's declining working-age population and the Lewis turning point, discussions of the employee-sharing mode are of great theoretical and practical importance to its national development and livelihoods.

This paper may offer the following marginal contributions: (i) As a flexible mode of employment, employee-sharing has realized the practical application of the sharing economy, gig economy and skills economy theories, and represents a bold innovation to China's existing labor recruitment mode. (ii) A basic framework of employee-sharing is systematically established with great significance to the country, employers and individuals. At the national level, this framework has transformed the identity of employees from "corporate assets" into "social assets", their labor relationship from "dependence on employers" into "independent social members", and the teams of shared employees from "corporate management" into "trade union management". At the corporate level, it allows businesses to streamline their workforce and morph into platform-connected social entities. At the individual level, it increases employee income sources and improves their social protection system. (iii) This paper calls for a step-by-step implementation of the employee-sharing model on the basis of resolving the difficulties regarding employee labor contract termination and management of shared employees. Science-based implementation of the employee-sharing model will ensure its proper functioning in the long run.

The remainder of this paper is structured as follows. Part 2 offers a survey of research literature. Part 3 is theoretical discussions. Part 4 presents the approach and great significance of the employee-sharing model. Part 5 identifies the implementation approach and supporting measures for the employee-sharing model.

2. Literature Review

2.1 Flexible Employment

Flexible employment proliferated in the 1970s in countries with a high talent mobility such as Japan, the United States and the Western Europe to reduce corporate labor cost and create career opportunities for employees (Bolhaar et al., 2018). In 1985, Audrey Friedman introduced the concept of "informal labor relationship" (Dong, 2008). In 1989, the Bureau of Labor Statistics of the US further conceptualized the "non-standard employment relationship", which means flexible and casual short-term job arrangements in which employers and employees determine the terms of their labor relationship without the execution of a long-term labor contract (Guest, 2010). As a new form of labor employment, flexible employment swiftly took hold in many countries. In 2014, flexible employment accounted

(C)1994-2023 China Academic Journal Electronic Publishing House. All rights reserved. http://www.cnki.net

for 81% in the US labor market, up 13% from 2010. Whenever the economy lost steam, the flexible employment index tended to surge. According to an article released by the Staffing Industry Analysts, as a result of its tepid economic growth in 2018 under the impact of trade frictions with China, the US saw its flexible employment index exceed 30 for the whole year. According to a survey report by the International Confederation of Private Employment Services, flexible employment represented 43% of Japan's total workforce in 2018, followed by 35% for the US and over 30% for European countries like Italy and the UK.

As far as China is concerned, the *Opinions on Matters Related to the Part-Time Employment System* enacted by the Ministry of Human Resources and Social Security (Lao She Bu Fa [2003] No. 12) in 2003 suggested that part-time workers could participate in multiple jobs at the same time as hourly paid workers. Flexible employment enables workers to choose jobs on their own initiative and satisfies employers' demand for flexible workers, as opposed to the limitations of full-time employment, thereby serving as a significant means of job creation. The *Labor Contract Law* enacted in 2008 stipulated that businesses could reduce recruitment risk through labor dispatching, resulting in a surge in labor dispatches. The intent of the law was to assist unemployed workers in getting re-employed and to increase recruitment flexibility for businesses. According to the All-China Federation of Trade Unions (ACFTU), the number of dispatched employees in China increased from 27 million in 2009 to 60 million by the end of 2010, making up 20% of the labor force. The acceptance of flexible employment in various forms, such as part-time employment, labor dispatching, business outsourcing, short-term labor contracts, temporary employment, and seasonal employment, has increased as a result of a shift in employee attitudes, the diversification of corporate recruitment modes, as well as the improvement of policies and regulations (Tu, 2018). Adopted at the Fifth Plenum of the 18th CPC Central Committee, the *Proposal of the CPC Central Committee on the Formulation of the 13th Five-Year Plan for National Economic and Social Development* recognized flexible employment and introduced for the first time the concept of new employment forms.

From a productivity standpoint, new employment forms are required for the flexible collaboration of physical and virtual production systems. New employment forms have emerged to assist consumption upgrades, including the self-employed and platform-based employment modes (Zhang, 2019). In 2020, the *State Council General Office's Opinions on Supporting Multi-Channel Flexible Employment* (Guo Ban Fa [2020] No.27) acknowledged the purview of business, nature of work, employment form, and other issues related to the flexibly employed. The development of flexible employment has been gaining ground with the help of national policy. According to the NBS, China's working-age population reached 880 million in 2020, including the 200 million flexibly employed, or 22.73% of the total. According to Yang et al. (2022), 61.14% of Chinese businesses adopted flexible employment in 2021, up 5.46 percentage points from 55.68% in 2020. There is a preference among businesses to recruit even more flexible workers.

2.2 Development of Employee-sharing

According to Feng et al. (2018), employee-sharing is a mode of recruitment in which an employee is shared among multiple employers. As long as the interests of all parties are respected through coordination, idle employees may be seconded to other employers at similar or different positions. While meeting the latter's labor demand cost-effectively, this will increase employee income sources. The digital era has turbocharged employee-sharing. As noted by Dai et al. (2017), the allocation of labor resources can be continuously optimized under the employee-sharing scheme to rebalance supply and demand and facilitate cooperation between various parties. In the opinion of Xiao (2020), employee-sharing is characterized by the separation of the rights to ownership and use of workforce, as well as the real-time and precise matching between labor supply and demand over digital platforms. Shared use

(C)1994-2023 China Academic Journal Electronic Publishing House. All rights reserved. http://www.cnki.net

of labor resources is a disruptive change to the traditional employment model. Clearly, non-exclusivity, borderlessness, and digitalization are the distinctive features of employee-sharing. First, non-exclusivity liberates employees from dependence on a single employer under the traditional employment model, allowing them to work for multiple employers. Second, borderlessness encourages the movement of labor force across regions, industries, and businesses in order to match labor demand with supply (Liu and Zhang, 2006). Finally, digitalization has mitigated the lag effect caused by information asymmetry, allowing employers and employees to connect with each other at minimal search and matching costs.

Based on these unique traits, employee-sharing can be divided into two types, including B2B and B2C. The B2B model, namely, employee-sharing between businesses, means the dispatch of employees by a third-party based on the execution of an agreement between two employers to assist the client in completing certain tasks. The B2C model refers to employee-sharing between businesses and employees, and falls into the following three categories: First, the labor contract between the shared employee and the initial employer is suspended and temporarily replaced by a labor contract between the shared employee and the receiving employer; second, the shared employee is hired by both the initial and other receiving employers; third, the employer retains the labor contract with the employee while executing a new labor contract with the other receiving employer. He et al. (2020) considers the C2C model as another innovation after B2B and B2C models. As a typical model in the sharing economy, C2C allows employees to supply or recruit labor over internet and AI-based digital platforms for de-organized cooperation and sharing without intermediaries or third parties (Fa et al., 2021). Whatever its form, employee-sharing enables the fragmented, scattered and idle labor resources to be transferred between businesses with labor surplus and shortage in a mutually beneficial manner to rebalance labor supply and demand (Li, 2021).

Swiss Family Groups, for instance, overcame their biggest crisis in the aftermath of the 9/11 terrorist attacks in the US by seconding employees to other companies in various sectors. In 2018, China's Brilliance Auto Group created an employee-sharing platform to second skilled idle employees to other companies for mutual benefits. In 2020, Japan's leading airlines All Nippon Airways (ANA) and Japan Airlines (JAL) faced shrinking business revenues and idle employees under the impact of COVID-19. Both airlines leased a total of 900 employees to businesses in other sectors for the benefits of labor suppliers, clients and shared employees. As consumers flocked to online food delivery and e-commerce platforms amid the pandemic, brick-and-mortar shops and restaurants struggled to survive the business hardship. Due to a surge in its online grocery business, Freshhippo seconded employees from Mystic South Yunnan Ethnic Cuisine, a restaurant chain, under a B2B employee-sharing scheme. In those arrangements, some employees served stints without terminating their existing labor contracts, and others worked for multiple employers at the same time. While spreading the cost of workers, employee-sharing has helped businesses cope with change in their labor demand and broadened job opportunities for workers, ensuring stability in their welfare and social security.

3. Theoretical Rationale

3.1 Sharing Economy and Employee-sharing

In 1978, US sociology professor Marcus Felson and Joe L. Spaeth coined the phrase "collaborative consumption" to describe a brand-new consumption mode (Felson and Spaeth, 1978), in which individuals use third-party platforms to conduct "point-to-point" transactions of goods and services, which is essentially part of the sharing economy (Zervas et al., 2017). Driven by the needs for integrated use of resources at low marginal costs, the sharing economy has become an economic system in which people delegate to the society the ownership of tangible or intangible idle resources such as goods, tools, services or time while retaining the right to use those resources (Qi and Li, 2018). By turning the theory

(C)1994-2023 China Academic Journal Electronic Publishing House. All rights reserved. http://www.cnki.net

of utility maximization into reality, the sharing economy has enriched the new theoretical systems on multilateral platforms, collaborative consumption, and cost of transaction, allowing everyone to share idle resources over the platforms (Chase, 2015). The organizational advantages, such as the effects of scale and agglomeration, are combined with personal advantages like flexibility and individuality. In particular, the availability of idle resources is the premise for the development of the sharing economy (Liu, 2017).

According to the information asymmetry theory, the transaction of idle resources is vulnerable to a "lemons market" problem, which has been eased to some extent with the eruption of new technology clusters. By making access to information open and transparent, digital technologies have lowered the risk of transaction and expedited the free flow and reasonable pricing of idle resources in the sharing economy. As the core element of the sharing economy, digital platforms collect, integrate, distribute and share scattered resources, including soft and hard resources, from across the society (Xie et al., 2019). The creation of pricing, search, matching and evaluation systems in the virtual space creates a cost advantage compared with brick-and-mortar spaces in terms of zero land rent and lower entry, slotting and inquiry costs. Broad participation is the foundation for the sharing economy, in which everyone switches between the roles of supplier and client and interacts with each other in an O2O mode.

The sharing economy is distinguished from the traditional economic mode in the following ways: The digital economy integrates idle resources via virtual platforms powered with digital technology to maximize resource efficiency by matching supply with demand. The exclusive ownership of resources is transformed into the shared use of resources, making property relations less certain and more pluralistic (Cramer and Krueger, 2015). The spillover effects of the sharing economy have increased equal access to public services. The sharing economy satisfies consumer demand for individualistic and customized services and vastly expands the scope of public participation in sharing resources. The boundary between producers and consumers becomes blurred, giving rise to "prosumers" (Toffler, 1996). These traits have made it possible for all factors and resources from items to knowledge, capital and time to be shared without barriers. The sharing of employees as a factor of production is a great invention of the sharing economy from "things" to "people" (Yu et al., 2018) and marks a new employment form.

(i) With the help of digital technology, online employee-sharing platforms match labor supply with demand in a virtual space by exchanging information and resources on the basis of dynamic adjustment. For idle workers laid off due to frictional or structural employment, such platforms provide them with job information and help them become re-employed, thereby increasing the utilization of labor resources.

(ii) The labor contract is no longer exclusive and contains terms for employee-sharing. In this manner, "corporate human assets" become regenerative and infinite instead of inflexible and limited, contributing to a zero-marginal-cost society (Rifkin, 2014). The identity of employees as "social assets" is conducive to a shift from exclusive to non-exclusive labor relations amid the exploration of an employment model featuring zero costs of staff transfer, idleness and opportunity and a low labor cost.

(iii) Based on smart and seamless matching mechanisms and availability on demand over digital platforms, employee-sharing has substantially reduced the time and waiting costs between firms and employees. More importantly, it has removed the exclusivity barriers of production factors such as knowledge and technology, allowing intellectual and skilled workers to migrate between firms across regions. The flow of workforce is conducive to equalizing labor resource allocation and leveraging the marginal external positive effects of shared employees.

(iv) Through the free transfer of employees across sectors and occupations, the borderless model of employee-sharing has vastly broadened the participation of social groups (Li and Chen, 2011). In contrast to the limitations of traditional employment, employee-sharing encourages career development based on personal interests and skills and gives individuals greater flexibility, representing the trends of individualization, decentralization, and autonomy. For businesses, employee-sharing makes it possible

(C)1994-2023 China Academic Journal Electronic Publishing House. All rights reserved. http://www.cnki.net

to recruit workers more flexibly according to their business needs and development plans. The shift to flexible employment will reduce spending on staff benefits and social security payments, which could be otherwise burdensome under traditional labor contracts.

(v) Shared employees switch between the roles of producers and consumers, giving them a new identity of "prosumers". Under flexible work arrangements, shared employees may exceed the limitations as a specific group and assume certain functions of producers in their role as consumers, users, or fans and take paid work in R&D, manufacturing, marketing, and operation based on their personal interests and skills.

3.2 Gig Economy and Shared Employees

The gig economy offers a way for workers to make the most of their spare time and skills to realize their personal value by taking hourly jobs and piecework (Chen et al., 2020), which satisfies fragmented and flexible demand for workers. In a broad sense, the gig economy refers to an economic realm in which numerous freelancers are matched with employers over online platforms for jobs. In a narrow sense, the gig economy is an economic model in which temporary and short-term jobs are offered over digital platforms for the benefit of workers and employers (Friedman, 2014). Unlike the fixed employment model, the gig economy significantly increases the value-added of the labor force while making the work experience autonomous and pleasant. With their flexible employment, work schedules, and idle skills and knowledge, gig workers contribute to the shift from monopolistic to pluralistic value creation by creating value at multiple jobs. Being flexible and productive, the gig economy has been welcomed by both employers and gig workers. According to the *Gig Economy* released by Edison Research in 2018, 34% of the US labor force was gig workers, and 25% of adults relied on the gig economy for income. More importantly, this trend continues to grow. According to a forecast by the AliResearch Institute, China will have 400 million gig workers by 2036, accounting for half of its total workforce.

The gig economy is a flexible and temporary form of employment with the following characteristics:

First, the employment relationship between platforms and individuals has replaced that between businesses and employees (Xiao and Li, 2019). In this respect, digital platforms are the cornerstone for the development of the gig economy (Mulcahy, 2017). Unlike traditional modes of employment, the gig economy connects businesses with gig workers on a real-time basis over digital platforms, creating a virtual bilateral or multi-lateral online labor market that gives rise to bilateral market effects and platform cluster effects. Moreover, digital platforms will increase network effects and flow effects beyond the limitations of time and space through remote collaboration for the completion of tasks.

Second, collaboration among gig workers has replaced employer-employee labor relations. In the era of the digital economy, a new form of work is taking hold, which is more liberal, flexible, and specialized. Most gig workers are not tied to a specific employer and collaborate with each other as independent individuals.

Third, hetero-organizations are giving way to self-organizations characterized by a self-driven management paradigm. Gig workers must re-learn and re-train on a lifelong basis under a self-driven paradigm, including self-orientation, self-motivation, self-constraint, and self-development (Li, 2014). In terms of both self-interest altruism, this self-driven paradigm helps gig workers broaden their skills while meeting demand for skills of different sorts and re-balancing the workforce at the skills level.

Fourth, the "employer centrism" is shifting to an "occupational centrism". Traditional employees are bound by labor contracts and depend on their employers as the primary or sole source of income. Compliance with workplace rules and corporate culture, collectively known as "employer centrism", is non-negotiable for employees. For gig employees who participate in various occupations for multiple income sources, the pursuit of occupational ethics and competences, also known as "occupational centrism", becomes essential. The gig economy creates a pool of plug-and-play freelancers whose

(C)1994-2023 China Academic Journal Electronic Publishing House. All rights reserved. http://www.cnki.net

flexible mode of employment coincides with the ideas of employee-sharing. Without a fixed schedule and place of work, shared employees have no formal or long-term employment contract with the employer. This employment mode is highly consistent with the gig economy.

For shared employees, the gig economy creates plentiful job opportunities. For highly skilled workers, access to gig jobs increases their labor remuneration and spreads the marginal cost of their core skills. For less skilled workers, they may choose to extend their working hours by seeking multiple jobs for livelihoods and career development. Individual employment over cloud-based platforms gives workers of all skills levels a greater degree of autonomy, increases the marginal utility of job satisfaction, and breaks free from the limitations of traditional employment modes. On the other hand, the gig economy has inspired the dynamism of entrepreneurship and innovation. By connecting idle workers to full-time and part-time job opportunities, online job search has greatly increased the utilization and productivity of shared employees who take multiple jobs to make the most of their skills. For gig workers, career development becomes their top pursuit. Traditional employment based on labor contract forces businesses to maintain a stable workforce and pay for their social benefits, confining them to an asset-heavy development model. Employee-sharing represents a brand-new approach for businesses to reduce their headcount and shift to an asset-light business model while enjoying the dynamism from shared employees. In this manner, gig work offers benefits for both employers and employees.

3.3 Skills Economy and Employee-sharing

In a skills economy, the development and dissemination of skills contribute to the improvement of workforce competency and the accumulation of human capital. By acquiring diverse skills, individuals maximize their usefulness by assuming a variety of employment positions, thereby increasing their incomes, and enhancing their productivity. In contrast to the traditional economy's emphasis on specialized skills, the skills economy places a premium on a combination of specialized and pluralistic skills. With increasing public awareness of the significance of skill diversity, businesses encourage employees to diversify their skill sets, thereby creating conditions for employee-sharing. The acquisition of diverse skills based on distinct job requirements and personal interests and hobbies is the premise for shared employees to engage in multiple occupations, earn multiple incomes, and generate range economies. According to Theodore W. Schultz's human capital theory, "ultimately, workers will become human capital, combining diverse knowledge and abilities" (Zhang and Li, 2010). Throughout the career of shared employees, both aptitude and acquired learning are vital for the possession of diverse skills. Fostering diverse skills not only helps explore the value of human capital but promotes the all-round development of people. These skills lie at the heart of the career development of shared employees and are essential for the skills economy. While employees with specialized skills serve multiple employers in the sharing economy and the gig economy, the skills economy features the employment of shared employees with diverse skills by multiple employers to generate a greater value multiplier effect (Zhang, 2021). In the skills economy, shared employees have transitioned from "one skill for one employer" to "one skill for multiple employers" and "multiple skills for multiple employers". With the help of digital technology, in particular, this trend becomes more evident for value recreation, cyclical iteration, portfolio optimization, cross-disciplinary integration, and the scope of flow.

Value recreation: As the only human factor of production, labor force creates economic value by employing skills and means of production. The heterogeneity of skills determines the level of increment in value. In other words, workers with multiple skills create much more value than do those with fewer skills (Wang, 2021). Over digital platforms, shared employees with diverse skills may serve multiple employers at the same time, maximizing the potential of diverse skills and creating even more value increment. The external environment of competition and internal incentives force employees with fewer skills to diversify their skills and build core competencies. Despite the high initial cost, the acquisition of diverse skills will yield an increasing marginal return at a diminishing marginal cost.

(C)1994-2023 China Academic Journal Electronic Publishing House. All rights reserved. http://www.cnki.net

Cyclical iteration: While products, equipment and capital are subject to a lifecycle, the value of skills possessed by shared employees will depreciate over time. In particular, the speed, network and precision effects of digital technologies have led to an exponential decrease in the value of skills as the cycle of knowledge renewal shortens. According to the UN Educational, Scientific and Cultural Organization (UNESCO) report, the cycle of human knowledge renewal has shortened from five years in the 1990s to two years at the dawn of the 21st century and keeps further decreasing. Similarly, the depreciation of skills is accelerating. By addressing the problems of market imperfection and information asymmetry, the development and sophistication of "new technology clusters" have facilitated the acquisition and application of skills among shared employees while accelerating the renewal and iteration of skills and shortening the depreciation cycle (Shen and An, 2012). With continuous depreciation in the value of skills, the possession of a single skill is far from enough, and diverse skills are more consistent with the requirement of our times. To compensate for the negative externalities stemming from the lifecycle of skills and ensure maintenance and appreciation in the value of skills, shared employees must learn and train themselves on a lifelong basis to adapt to the "hybrid employment" mode of employers and the "combined employment" mode of employees.

Portfolio optimization: As in a securities investment portfolio, shared employees may combine diverse skills in their possession based on different occupational requirements to scatter the risk of unemployment and avoid the limitations of "putting all eggs in the same basket". In the context of uncertainty as the new normal, shared employees in possession of a portfolio of skills switch to online job opportunities when access to offline work is obstructed to avoid losses to personal livelihoods and career development, minimizing the risk of unemployment.

Cross-disciplinary integration: With diverse skills, shared employees may not confine themselves to a certain sector or occupation. On the contrary, their skills allow them to wear different hats at different employers based on their personal interests. Cross-disciplinary integration of diverse skills upends the traditional employment mode in which employees are recruited to fill and adjust themselves to job positions. The "job applicants seek positions according to their skills" mentality is giving way to the "shared employees learn whatever skills based on the needs of job positions" concept. The end result is the development of human capital for everyone to bring out their potential. Under this paradigm, shared employees do their best to learn and increase productivity, which is beneficial to all stakeholders. Take the possession of big data processing and AI analysis skills, for instance, these skills provide a precise portrait of consumer behaviors and preferences based on the "digital trace". In the business sector, such skills may help site selection based on the level of economic development and population density. In the government sector, the replacement of "empirical thinking" with "data-driven thinking" will enable smart decision-making.

Range of flow: With the support of digital technology, shared employees with multidisciplinary core competencies use their skills to break free from the limitations of space and geography to move between different sectors and the domestic and international markets. In this manner, multidisciplinary skills have greatly expanded the range of flow for shared employees in the virtual space instead of the physical space.

4. Employee-sharing: Approach and Great Significance

Implementation of the employee-sharing mode is a systematic project that requires coordinated efforts at the levels of government, businesses, and individuals with a top-down design approach. What needs to be noted is that fragmented actions on a single dimension will lead to failure. Based on the theoretical support of the sharing economy, gig economy, and skills economy and proceeding from China's reality, this paper will create a basic framework for the employee-sharing mode at the levels of government, businesses and individuals.

(C)1994-2023 China Academic Journal Electronic Publishing House. All rights reserved. http://www.cnki.net

4.1 Approach for the Employee-sharing Mode: National Level

(i) The identity of employees is transformed from "corporate assets" into "social assets". For the first time, Walder (1996) made a meaningful discussion of China's "*Danwei*" system. Yet his focus was on the dependence on employers at the broad level rather than the "corporate assets" at the granular level. "Corporate assets" means employees depend on their employers for livelihoods and seek all resources from their employers. As a result, the fortunes of employees are closely tied to their employers (Liu, 2004). Dependence on employers has led to an employment pattern in which each employee is tied to one job position and one income. With China's accelerating market-oriented reforms, the "corporate assets" system has caused employees to be extremely dependent on their employers, and such dependency has inhibited innovation and created barriers to entry and exit, giving rise to a serious "islanding effect" that impedes the flow of human resources and undermines market-based resource allocation. The emergence of "social assets" has transformed the identity of employees, laying the groundwork for a shift from the exclusive to the shared employment of workforce. With digital technologies, employees are matched with employers over digital platforms with zero latency to choose flexible jobs of a broad range. The diversity of income sources has made employees less dependent on the employers, transforming "on-job employees" to "online employees". Hence, the platform-based gig economy has led to an employment pattern in which one employee takes multiple job positions for multiple incomes. The transition from "corporate assets" to "social assets" helps make the most of labor resources and increase the labor participation of workers. It helps businesses and their employees break free from the constraints of traditional labor contract and reshape a flexible and resilient employment relationship for mutual benefits. In this sense, the crux of creating an employee-sharing culture is to transform employees from "corporate assets" into "social assets" through de-affiliation.

In the digital era, the shift of employee identity from "corporate assets" to "social assets" presents a new path of realization for employee-sharing, as can be summarized as an approach in which businesses are the backbone and rely on market mechanisms and government support.

First, static HR management must evolve towards dynamic HR management through the improvement of the HR agency system. Under a dynamic HR agency system, companies recruit employees based on their business needs through a human resources exchange center, and employees have access to a wide range of job opportunities. According to China's national laws and regulations, a human resources exchange center provides HR services for employers and employees. While the labor relations of employees rest with a human resources exchange center, employers hire workers to meet their business needs without taking ownership of them. This dynamic HR agency system has given rise to a new labor relationship in which society takes responsibility for employees, and employees take responsibility for their employers.

Second, market mechanisms should improve and play a decisive role in the allocation of shared employees. Digital technologies and platforms should be leveraged to integrate idle shared employees and create a seamlessly linked digital market to combine physical and virtual spaces for shared employees. Barriers to the flow of shared employees, including their dependence on employers, identity, and household registration, should be removed to encourage the cross-regional, cross-market and cross-disciplinary flow of shared employees based on market supply and demand, price and competition mechanisms. Under the philosophy of the sharing economy, companies may transfer or relinquish the ownership of some employees to be more flexible and competitive, avoiding the maintenance of an otherwise expensive workforce. Access to a broad range of job opportunities via the digital market provides opportunities for employees to make the most of their skills and become less dependent on employers.

Third, an environment of lifelong learning should be fostered. In transforming from "corporate assets" to "social assets", employees face the risk of unemployment due to a structural mismatch

(C)1994-2023 China Academic Journal Electronic Publishing House. All rights reserved. http://www.cnki.net

between their skills and job positions. High unemployment rates threaten social stability. On the other hand, digital technologies have shortened the cycle for the renewal of skills in the digital era, the acquisition and upgrade of skills, if not fast enough to keep pace with the change in demand, may pose a huge challenge of functional mismatch. Hence, the government needs to create a diverse and multitiered lifelong learning and training platform for shared employees to diversify their skills, and encourage them to keep learning on a lifelong basis to renew and expand their professional skills. While compensating for the negative externalities of accelerating knowledge depreciation, it is also important for shared employees to develop more sophisticated and competitive "skills portfolios" that make them qualified for different job positions, become less affiliated to their employers, and meet the diverse and multitiered demand for skills.

(ii) Employee labor relations are transformed from "employment identity" into "independent social members identity". Traditional labor relations are based on the employment relationship between companies and employees. Under the constraint of "employment identity", one employee only works for one company, which is both costly and inefficient for the employers. For employees, this has limited their income sources and potentials. Obviously, traditional labor relations based on the "employment identity" has led to a waste of labor resources and loss of social welfare. With its pluralistic implications, the "independent social members identity" is an extension of statutory identity and inseparable from a country's existence and development. In this sense, the "independent social members identity" endorsed by the State and protected under the law may serve as a bond of the new-type labor relations for shared employees.

First, the "independent social members identity" takes the place of the "employment identity". For shared employees, the diversity and flexibility of their jobs require a shift towards more flexible labor relations. Under the "employment identity", the one-on-one labor relations are inflexible and cannot change with the workplace, schedule, or job positions of shared employees. In contrast, the "independent social members identity" is better positioned to address the problems of labor relations for shared employees with their extensive, liberal, and law-based nature. In driving the transition from the "employment identity" to "independent social members identity", a prerequisite is to replace the "employment identity" in which employees are highly dependent on their employers with the "independent social members identity" based on freedom and equality.

Second, the "general certificate" is introduced as an intermediate variable. Generally speaking, such social activities as the livelihoods and development of individuals are all dependent on certificates such as ID cards and property certificates, which can be represented by "general certificates". Empowered with blockchain technology, general certificates are unique certificates for individuals based on their independent social members' identity, and each citizen who abides by the law may possess a "general certificate". After labor relations based on the "employment identity" cease to exist as employees become a social asset, the "general certificate" may serve as a digital resume for shared employees to look for jobs and helps reshape labor relations. In this manner, the "general certificate" serves as an intermediate variable that is instrumental to the transition of labor relations from the "employment identity" to the "independent social members identity".

Third, a credibility rating system should be designed for employees. In the past, employees executed labor contracts with employers largely because such contracts would protect their lawful rights and interests at the workplace. After the employment identity is replaced with the independent social members identity, a new instrument needs to be devised to replace labor contract and protect labor rights for shared employees. Hence, we have designed a shared employee credibility rating system to serve this purpose. Similar to the individual credibility reporting system, the shared employee credibility rating system is based on the "independent social members identity" and protected under national laws. According to employer feedback, employee performance and other metrics, the digital platform provides

(C)1994-2023 China Academic Journal Electronic Publishing House. All rights reserved. http://www.cnki.net

an objective assessment of the work performance of shared employees, which is reflected in their personal credibility rating and linked to employee protection. That is to say, employees with a higher credit rating are afforded more protection. Lastly, the credit rating of shared employees is linked to their personal "general certificate", and the two jointly serve as personal credentials to ensure a smooth transition of employee labor relations from "employment identity" to "independent social members identity".

(iii) The "employer governance" of shared employees is transformed into "work union governance". Since shared employees are less dependent on their employers, it is imperative to establish a complete employee governance system to keep pace with new forms of employment arrangements. Without an employee governance system, employee-sharing could be a flash in the pan. In creating a long-term mechanism for employee-sharing, the selection of an appropriate public institution responsible for the management of shared employees is an unavoidable question. In the past, trade unions have represented and protected employee interests by mediating labor disputes, coordinating labor relations, and protecting labor rights. With the support of new technology clusters, digital trade unions have assumed new functions, including real-time connected services, AI-based governance, and big data platforms. While protecting the lawful interests of employees, digital trade unions are also well-positioned for the governance of shared employees.

First, distributed governance: In the distributed collaboration of shared employees, each shared employee as a node of work keeps a record of his work (such as work description, time, venue, compensation, skills and other information), and each person's record is encrypted and independent. In addition, each shared employee is a block connected to other blocks via the division of labor. Digital trade unions may control shared employees' digital work records based on big data, blockchain, and other digital technologies, issue early warnings, and take other measures against non-compliant work records. Based on the data records of labor compensation, work performance, employer feedback, and job attitudes, digital trade unions provide an accurate digital portrait of each shared employee for the reference of employers. Notably, the transparency of data elements and the distributed blockchain data storage make data records more authentic and harder to tamper. Data evaluation by digital trade unions may replace manual evaluation by employers to develop an implicit evaluation mechanism for shared employees, i.e. the employment data of the previous round forms the basis for employers to screen job applicants. This feedback loop will continuously supplement and improve the employment database. In this process, shared employees are galvanized to work more carefully and responsibly, pursue self-driven development, and improve work efficiency and service quality. Meanwhile, enterprises will hire workers in a more targeted and professional manner with the help of big data, reducing recruitment risks and labor disputes. Unlike the revealed evaluation mechanism such as performance review and rating, the data-driven implicit evaluation mechanisms adopted by digital trade unions will force shared employees to pursue self-governance, which is more efficient and will reduce recruitment mismatch for employers.

Second, individualized governance: Shared employees are free to choose occupations based on their personal interests and skills. Their career development is characterized by "individualization" and "de-organization" When it comes to the governance of shared employees, digital trade unions will recommend jobs to shared employees based on the digital traces and individual traits in their record books after carefully reviewing their career expectations, professional skills, and expected remuneration. Targeted recommendations will match shared employees with the most appropriate jobs, increasing their employer recognition and job satisfaction. In this manner, digital trade unions will deepen their functions and increase individualization.

Third, platform-based governance: Big-data platforms allow digital trade unions to monitor the distributed work records of shared employees to learn about the scope and nature of their work and perform targeted employee management accordingly. When shared employees have doubts about their

(C)1994-2023 China Academic Journal Electronic Publishing House. All rights reserved. http://www.cnki.net

work, they may report back to the digital trade unions and timely adjust their work approach, hence forming a benign cycle of self-identification, self-feedback, and self-adjustment.

4.2 Employment Approach for Shares Employees: Corporate Level

(i) The Overall approach is Streamlining fixed employment. First, corporate head count should be reduced. Specifically, companies may outsource some employees of core departments and all employees of non-critical departments. This pool of shared employees will provide businesses with an abundance of readily available human resources to empower business development. For public institutions such as universities and research institutes, some research fellows and professors may also be shared to spread the cost and increase the utilization of knowledge-based human resources to maximize knowledge output. For state-owned enterprises (SOEs), especially those in the technology-intensive sector, the social pooling of employees in the fields of R&D and innovation will allow the knowledge, skills, and entrepreneurship of researchers to be shared among various institutions in a cost-efficient manner. This will allow them to maximize the value of idle resources, remove technology barriers, and increase innovation efficiency in a fiercely competitive market. Second, optimizing the structure of critical and non-critical business employees, who play different roles in business activities. Critical business employees are the backbone of a company and possess strategic resources and business secrets that are vital to the company's competitive strength. Non-critical business employees are a subordinate force at the tail, who can be outsourced from third parties as shared employees. This hybrid employment mode of critical in-house employees and outsourced non-critical employees will achieve the best efficiency and cost-effectiveness.

(ii) Companies should be linked to the broader society in all aspects of business operations. Labor-intensive manufacturing contributes the least to value addition in the entire value chain, as explained in the "smile curve" theory. Companies should focus on R&D and service and outsource manufacturing activity to specialized third parties, which free them from the burden and risk of managing labor relations. Outsourced products and services only require supervision and inspection. Industrial automation helps reduce headcount, raise efficiency, increase value-added, and promote smart and safe manufacturing. Workers replaced by machines may join shared employees for re-employment and flexible employment in various sectors. With respect to R&D, businesses may turn their employees into makers and offer them a career platform. Makers are those who turn creative ideas into products, and this process coincides with the approach of shared employees. The maker culture, therefore, underpins the concept of shared employees. By turning employees into makers, businesses are more like social service institutions that provide cloud-based platforms for employee makers that let their imaginations soar and materialize into innovative products. Each employee maker is a micro-unit of innovation, entrepreneurship, and creativity, and contributes to an internet-based innovation ecosystem comprising numerous micro units that cooperate and share resources with each other. Participation in product R&D provides employees with decent incomes in a flexible mode of employment. With respect to the sales process, customers may also be turned into makers who collaborate with corporate platforms. Businesses may help customer makers enhance their market development capabilities by providing product training, sales, consulting and bonuses. Through corporate platforms, customer makers develop new customers and markets of their own and may even pass those customers and markets onto their successors. This business mode not only spares companies hefty marketing expenses, but explores new customers through the "word-of-mouth" among customer makers, transforming sales from the B2C mode in which companies advertise to attract customers to the C2C mode in which customers attract other customers themselves. By replacing advertisement, customer makers have become an integral part of product sales, removing the boundary between producers and consumers and paving the way for shared employees to promote sales as prosumers. Self-help service platforms are transforming customer service. With an

(C)1994-2023 China Academic Journal Electronic Publishing House. All rights reserved. http://www.cnki.net

increasing penetration of digital technology, the producer-oriented service mode is shifting towards a consumer-oriented service mode in which businesses offer self-help customer service with an immersive experience to slash service expenses and increase competitiveness.

(iii) The operational mechanism should be build platform connectivity. Workers, employers and digital platforms jointly constitute the employment mode of shared employees. By matching supply with demand, digital platforms will address challenges for both workers and employers, providing workers with job opportunities and employers with sufficient workers cost efficiently. Specifically, companies with idle workforce and workers waiting for jobs are the suppliers of labor, who are connected to employers over cloud-based digital platforms. Independent third-party digital platforms execute labor contracts with employees to turn them into social assets available to all employers. The costs of labor suppliers, shared employees and digital platforms are to be borne by employers. After charging a commission, digital platforms will verify and disburse compensation to labor suppliers and shared employees. For instance, Alibaba's Blue Ocean platform publishes information about merchants with a shortage or surplus of employees to match supply with demand, helping idle workers to find work and easing the labor shortage of some other merchants.

4.3 Employment Approach for Shared Workers: Personal Level

(i) Broadening income sources for employees: In a market economy, personal incomes are determined according to market supply and demand. After the identity of employees shifts from "corporate assets" to "social assets", shared employees without dependence on employers have access to a broad range of job opportunities, and their incomes include hourly wage, piece wage, agreed income, profit sharing income, and property income. The level of their incomes is determined by diverse income sources and the level of market-based operations. In addition, the income growth of shared employees needs to be linked to both GDP growth rate and inflation rate. Some shared employees may, for instance, engage in social media-based e-commerce. Encouraged by the government initiative of "mass entrepreneurship and mass innovation", social media-based e-commerce has unlocked great potentials for public entrepreneurship, promoting offline sales through online marketing. It offers the advantage of low-cost business operation and a high degree of trust among acquaintances as potential consumers. Social media-based e-commerce merchants operate their businesses intermittently in their spare time, creating possibilities for shared employees to take various jobs under the B2C and C2C modes. Social media-based e-commerce has also lowered the threshold for shared employees with various levels of skills to seek jobs in e-commerce.

Shared employees may combine their fragmented working hours to increase working hours and break free from the limitation of labor supply. As a result, companies may expand the eight-hour workday into a 24-hour workday system with an uninterrupted supply of shared employees to achieve the Pareto optimum in respect of working hours and efficiency. Shared employees can make use of diverse skills. For instance, they may serve as medical practitioners in a hospital and at the same time professors at a university. In this way, their professional skills can be shared by the whole society and provided repetitively to various organizations to achieve the effects of diminishing marginal cost and increasing marginal return for employers. Instead of being confined to traditional physical spaces, such employees may share their professional skills to a virtual space via internet-based media. Home-based online work creates conditions for shared employees to choose diverse jobs in a freer and more flexible manner without the barriers of time and space or the hassle of commuting. Through training or self-learning, individuals acquire professional skills such as photoshop, graphic design, Taobao customer service, or other home-based online work for all sorts of employers. One employee with critical skills and know-how may work from home for multiple employers at the same time over the internet. Such "plug and play" employees are shared by different employers to create more value and increase personal incomes.

(C)1994-2023 China Academic Journal Electronic Publishing House. All rights reserved. http://www.cnki.net

(ii) Improving the social protection system: After addressing the issue of current income in the full lifecycle, the level of social protection remains a critical question for the development of employee-sharing in the long run. The level of social protection for shared employees reflects the quality of the employee-sharing system. Each shared employee should have equal access to social protection and get over hardships in the event of disability, disease, unemployment, accident, and old age. While shared employees enjoy the dividends of social protection, they should also take responsibilities for social progress. It is necessary, therefore, to establish a multitiered social protection system with a broad coverage for shared employees, which includes the following elements:

First, inclusive social protection: China's current social protection system encompassing "five insurances and one fund"[1] is based on an employment relationship, and one is entitled to social protection only if there is an affiliation with an employer. The employee-sharing system highlights the urgency to reform the social protection system. Specifically, the social protection system should be based on the "independent social members identity" rather than "employment identity" in order to benefit each and every citizen, and greater fiscal support should be extended to raise the level of social protection and create an inclusive society that brings dividends to all.

Second, commercial social protection: The government may introduce a national social protection fund that requires all citizens to participate to ensure their minimum living standards. Commercial social protection is a government-endorsed commercial insurance and offers protection for pension and disease, and the level of protection is linked to personal contribution.

Third, social protection in the form of time bank: As a supplement to the pension system and family care, the time bank system means that citizens participate in community support for elderly persons in exchange of the same number of hours that others will take care of them when they grow old in the future. This sustainable elderly care system of mutual assistance has opened new possibilities for elderly care. For shared employees, time bank is a good way to retire with dignity.

4.4 Great Significance of Employee-sharing

(i) At the national level, employee-sharing has unleashed great potentials of human resources. In economics, all factors that create material and cultural wealth are referred to as resources, including labor, capital, land, knowledge, technology, management, and data. Among them, human resources are the only factor that can take the initiative of their own. Under the employee-sharing system, access to human resources is shared rather than exclusive. Instead of owned by a certain employer, employees are able to work for multiple employers at the same time. Without change to the aggregate volume of human resources, this mechanism has significantly increased the frequency and efficiency of access to workforce. Employees as a shared social asset have put an end to the limitations of human resources, and are consistent with the government call for new modes of employment in the new era.

In addition, employee-sharing marks an occupational progress. With the support of new technology clusters, employees may improve their specialized skills through self-learning and self-training in their spare time. With an increasing level of skills, employees become less affiliated to a single employer and more capable of exploring alternative income sources. The diversification of skills and income sources has freed employees from the constraints of corporate culture and rules. Instead, occupational culture and rules begin to hold sway among shared employees, who have come to realize that professional ethics and competencies are vital for their career development.

(ii) At the corporate level, companies seek to use employees without taking their ownerships. Meanwhile, employees cease to be affiliated to employers. Except for paying hourly wages to shared

[1] "Five insurances and one fund" refers to pension insurance, medical insurance, unemployment insurance, maternity insurance, and industrial injury insurance, as well as the housing provident fund.

(C)1994-2023 China Academic Journal Electronic Publishing House. All rights reserved. http://www.cnki.net

employees, employers are not obliged to pay for their social security. More efficiency and less cost have boosted corporate profitability and vibrancy. Employee-sharing offers an asset-light business model. The otherwise limited supply of workforce can be made unlimited through the flexible employment of employees, whose knowledge and skills become available to various employers. For businesses, an excessive share of heavy assets means less nimbleness. The rise of flexible employment, not least employee-sharing, is forcing businesses to transform resource allocation, as manifested in business virtualization and elastic boundaries (Li and Li, 2020). In this sense, employee-sharing will reduce the ratio of heavy assets and facilitate the transition from asset-heavy to asset-light business mode.

(iii) At the personal level, employee-sharing is a new mode of employment for the liberal development of people, which is a shared aspiration of the human society. Based on labor demand, shared employees have access to a diverse range of occupations and jobs to realize their self-worth and improve self-perception and livelihoods. With the help of new technology clusters, it has become trendy for employees to work anywhere anytime. Seamless shift between workplace and home has transformed the work-family relationship from antagonistic to synergistic. Remote office creates a relaxing work environment for employees to become more productive and creative and maintain a work-life balance. The development of digital technologies has led to an emergence of new business modes with a job-generating effect. Industrial automation has been replacing manual labor. An increasing demand for professional workers instead of menial workers means an increase in the threshold for personal career choice. To pursue a higher level of living standards, individuals may engage in multiple job positions under the innovative mode of employee-sharing. This requires them to develop pluralistic skills through continuous self-learning and self-training to meet the needs of times. In this sense, employee-sharing has led to a disruptive change in the number and quality of human resources for the liberation and development of people.

5. Implementation and Policy Support of Employee-sharing

5.1 Implementation of Employee-sharing

It takes a step-by-step approach for employee-sharing to take hold for different institutions, avoiding the negative externalities such as misguided and chaotic development in the absence of proper regulatory oversight.

(i) Implementation for different institutions: For corporate entities, it is suggested to follow a "30% full-time employees and 70% shared employees" portfolio based on the needs of critical job positions and business lines. Specifically, a company will retain full-time employees with labor contracts equivalent to 30% of its workforce and outsource the remaining 70% of workforce as "shared employees". For public institutions such as universities, research institutes and hospitals, it is suggested to follow a "50% full-time employees plus 50% shared employees" system to allow professors, researchers and physicians to practice at different institutions and make the most of their knowledge and skills. For government agencies, it is suggested to adopt a combination of "70% full-time employees and 30% shared employees" for stable government administration while increasing workforce efficiency. The spillover effects of employee outsourcing will expedite equal access to labor resources, removing inequalities across cities and the countryside, regions, and social groups. Greater workforce productivity and enthusiasm will help deliver better government services to the public.

(ii) Step-by-step implementation: Pilot programs can be selected, designed and tested in a regulatory sandbox before real-world implementation. With respect to the selection of pilot programs, a list of pilot programs can be formulated according to the progress of employee-sharing and the level of difficulty for various sectors and employers. With respect to the design of pilot programs, it is suggested to establish a supervisory group for the implementation of an operational scheme at the national, employer, and

(C)1994-2023 China Academic Journal Electronic Publishing House. All rights reserved. http://www.cnki.net

individual levels. As for evaluation, the supervisory group will conduct a comprehensive evaluation of the progress and quality of each employee-sharing pilot program upon the completion of the pilot cycle to draw experiences, identify and analyze problems, and provide basis for rollout on a broader scale. The next step is to broaden and interconnect the pilot programs to create "demonstration clusters" of the employee-sharing model. On the basis of the success of existing pilot programs, the government will initiate a new round of pilot programs and develop a network of individual pilot programs to increase economies of scale and concentration. The experiences of pilot programs can be shared online to draw upon lessons and identify opportunities for improvements. Meanwhile, review groups can be organized for a site survey of the demonstration clusters. After the completion of pilot work, the supervisory group will draft and submit a summary report on the further implementation of employee-sharing scheme. The final step is to summarize the experiences of employee-sharing programs for nationwide roll-out. On the basis of equality and voluntariness, the demonstration clusters will vertically incorporate regions, sectors and entities with development potentials and intent to hire shared employees. The demonstration clusters create transmission, derivative and multiplier effects on neighboring regions, sectors and entities to expand the scope of employee-sharing.

5.2 Supporting Measures for the Employment Mode of Shared Employees

(i) Managing the challenges of terminating employee labor contracts: The execution of labor contracts not only helps preserve the lawful rights and interests of employees, but increases their sense of ownership. The drawback is that each employee may only serve one employer almost exclusively under a labor contract. This personal affiliation to employers presents a barrier to the development of employee-sharing. In creating an employee-sharing mechanism, we should first and foremost address the challenges of labor contract as the basis for the livelihoods of employees. Abrupt termination of labor contracts will not only disrupt business operation, but cause the unemployment rate to spike and induce social instability. Avoiding these undesirable effects requires a gradualist approach. For new employees, businesses will no longer sign a labor contract with them, but instead execute an employment agreement. Employees already with labor contracts will stay in the workforce until they reach retirement age. Recruitment of shared employees and gradualist exit of permanent employees will require a buffer period for both companies and employees to adapt to the new labor relations and for the public to accept the transition from "corporate assets" to "social assets".

By whatever means, labor contracts cannot be terminated at one go. Instead, there is a transition period for in-house employees to adapt themselves to the new role of shared employees. How to complete this transition has become a challenging question for the implementation of employee-sharing schemes. In the long run, the government should develop a "three-in-one" training system to broaden the skills of shared employees and diversify their core competencies. First, creating self-training mechanisms. Given their uneven levels of skills, it is essential to encourage shared employees to receive targeted training programs, including online training programs. New technology clusters should be leveraged to create more convenient and efficient training systems. In addition, there should be more training on digital awareness and digital technology in various domains and processes. Shared employees should keep learning in their spare time on a lifelong basis to develop occupational competencies and keep abreast with the times. Second, creating a credit mechanism for the completion of training programs. AI-based algorithms will verify the digital traces of employee learning activity and upload the credits to the "credit bank" platform for the whole-process digital management of shared employees' self-learning progress. Each shared employee will have a digital record of self-training credits over the "credit bank" platform. The combination of credit bank and block chain will allow shared employees to check their training credit record and develop an account system for lifelong learning. Third, developing an income-linked training mechanism. The training credits of shared employees are linked to their

(C)1994-2023 China Academic Journal Electronic Publishing House. All rights reserved. http://www.cnki.net

incomes as an incentive for self-learning[2]. Training credits can be verified by trade unions and issued by local communities with financial support from the government. Under this mechanism, shared employees not only work hard to create value for multiple employers, but strive to increase their self-worth. Their immediate interests should be balanced with long-term development through lifelong learning. These three mechanisms reinforce each other and form a closed loop.

(ii) Addressing challenges for the management of shared employees: The absence of legislation, rights protection and regulatory oversight is detrimental to the long-term development of employee-sharing. At the national level, these challenges can be addressed on three dimensions.

First, legislation: The rise of the digital economy and the era of VUCA (volatility, uncertainty, complexity and ambiguity) are accelerating the shift from the standard "employer + employee" mode to the non-standard "platform + individuals" mode. For shared employees as a non-standard employment mode, their non-affiliation, distributed work process, and flexible working hours and workplace extend far beyond the existing regulatory scope. According to the new labor employment mode, the government is advised to draft relevant laws, regulations and policies on labor protection, social security, labor disputes, and liabilities for workplace accidents involving shared employees. Legislation is the foundation for the implementation and long-term operation of employee-sharing as a new employment mode.

Second, the protection of labor rights: Diversification of employment modes such as labor dispatch, multi-labor relations, and platform partnership has increased complexity of legal issues regarding shared employees, such as their job environment, salary disbursement, and working hours. In July 2021, the Ministry of Human Resources and Social Security and seven other ministerial agencies jointly released the *Guiding Opinions on Protecting the Labor Rights of Workers under New Employment Modes*, which sets forth requirements on the protection of job environment, labor compensation, rest breaks, and other issues. It calls for a minimum wage system to ensure the basic living standards of non-standard employees, workforce quota standard, and workplace health. The *14th Five-Year Plan for the Digital Economy's Development* has further established systems for flexible employment with respect to social insurance and the protection of labor rights for shared employees, including the suggestion to carry out the pilot programs for the housing provident fund for shared employees.

Third, regulatory innovations: An "all-weather" digital supervisory system should be created to monitor work performance with cloud and big-data technologies. Instead of human supervision, cloud-based platforms may realize see-through supervision over shared employees and their work performance. In a virtual supervisory environment, shared employees are self-motivated, self-restrained, and self-organized to complete tasks. Targeted virtual supervision is made possible with the support of algorithms for data collection, analysis, storage, and processing. Another innovation is "regulatory sandbox". Regulatory sandbox, first appeared in the financial sector, is a simulated environment in which financial technologies and innovations are tested. Referencing the "regulatory sandbox" system, employee-sharing can be piloted to test the effects to keep regulatory oversight abreast with innovation and balance employment risk with innovation.

6. Concluding Remarks

As a multi-tiered and flexible mode of employment, employee-sharing offers an immediate and effective solution to the challenges of an aging society and the crossing of the Lewis turning point.

[2] Specifically, the monthly cumulative training credits can be divided into three levels linked to monthly aggregate labor compensation at the ratios of 5%, 10% and 20% (maximum), respectively. In other words, shared employees may see their incomes increase when their training credits reach a certain level. The higher the ratio, the more intensive training programs will be. At a fixed level of monthly aggregate labor compensation, higher cumulative training credits are linked to higher incomes; at a fixed level of monthly aggregate training credits, a higher monthly aggregate labor compensation is linked to a higher income. Hence, the total monthly income of shared employees is jointly determined by their monthly aggregate and cumulative labor compensation. Training credits will incentivize shared employees to keep learning and improving themselves.

(C)1994-2023 China Academic Journal Electronic Publishing House. All rights reserved. http://www.cnki.net

It essentially entails a shift from the matching between employees and job positions to the matching between time and job assignments. The sharing economy, gig economy and skills economy have made it possible for a diverse range of skills to be shared over digital platforms between various sectors or within the same sector. While employees work for different employers at the same time to make the most of their talents, businesses benefit from the employment of a hybrid workforce consisting of permanent and shared employees. Employee-sharing pools labor resources to create greater efficiencies and value-added. It allows both intellectual and physical workers to make their skills available to all employers, increasing the supply and quality of human capital. With the emergence of new business modes, employee-sharing has greatly increased productivity and maximized the value of human capital. Short-term employment and fragmented payments have spared employers welfare and social security obligations, greatly alleviating their labor cost pressures.

There has been a paucity of research on the basic theories of employee-sharing as a new business mode. Problems, if not properly addressed, will impede the practice of employee-sharing. Based on the theories of the sharing economy, gig economy and skills economy, this paper offers a solution to China's problems of a shrinking working-age population and creates an overall framework for platform-based employee-sharing at the national, corporate and individual levels. Our discussions and suggestions provide a systematic theoretical basis and practical reference for improving the practice of employee-sharing. Once progress is made in tackling the dilemmas from the termination of labor contracts to the provision of social protection, employee-sharing will give rise to many flexible employees, compelling traditional businesses to embrace shared workers rather than maintaining an in-house workforce and shift from an asset-heavy to an asset-light business strategy. CE

References:

[1] Bolhaar, J., M.D. Graaf-Zijl, and B. Scheer. 2018. "Three Perspectives on the Dutch Growth of Flexible Employment." *De Economist*, 1(1):1-30.

[2] Cai, Fang. 2013. "Liquidity, Implicit Information of Asset Prices and Monetary Policy Choice: Evidence from Housing Market and Stock Market in China." *Economic Research Journal*, 48(11):4-16+55.

[3] Cai, Fang. 2014. "Breakthrough of Reform Under the Negative Growth of the Working Population." *Economic Herald*, 2:82-84.

[4] Chase, R. 2015. *Sharing Economy: Reconstruct a New Business Model in the Future*. Zhejiang: Zhejiang People's Publishing House.

[5] Chen, Xiangdong, Feng Zhang and Paul M. A. Baker. 2020. "Reforming and Advancing Labor in the Gig Economy and Sharing Economies." *Chinese Soft Science Magazine*, 1:21-29.

[6] Dai, Keqing, Wanming Chen and Xiaotao Li. 2017. "Research Context and Development Trend of Sharing Economy." *Economic Perspectives*, 11:126-140.

[7] David, Guest. 2010. "Flexible Employment Contracts, the Psychological Contract and Employee Outcomes: An Analysis and Review of the Evidence." *International Journal of Management Reviews*, 2010, 5(1):1-19.

[8] Diane, Mulcahy. 2017. "Will the Gig Economy Make the Office Obsolete." *Harvard Business Review*, 3: 2-4.

[9] Dong, Baohua. 2008. "On Non-Standard Labor Relations." *Academic Research*, 7:50-57.

[10] Fayyaz, Ahmad, Hui Xu, and Muhammad Umar Draz. 2021. "The Case of China's Fiscal Decentralization and Eco-efficiency: Is It Worthwhile or Just a Bootless Errand." *Sustainable Production and Consumption*, 26:89-100.

[11] Felson, Marcus, and Joe L. Spaeth. 1978. "Community Structure and Collaborative Consumption: A Routine Activity Approach." *American Behavioral Scientist*, 21(4):614-624.

[12] Feng, Xiliang, Jianguo Zhang, Jing Zhan, and Lixia Xie. 2018. *Flexible Employment: Talents are For Me, and Talents are For Me.* Beijing: Renmin University of China Press.

[13] Gerald, Friedman. 2014. "Workers Without Employers: Shadow Corporations and the Rise of the Gig Economy." *Review of Keynesian Economics*, 2(2):171-188.

[14] He, Jiang, Shumin Yan, and Jiao Guan. 2020. "What Exactly Is the Shared Employee? Origin, Connotation, Framework and Trend." *Commercial Research*, 6:1-13.

(C)1994-2023 China Academic Journal Electronic Publishing House. All rights reserved. http://www.cnki.net

[15] Judd, Cramer, and Alan B. Krueger. 2015. “Disruptive Change in the Taxi Business: The Case of Uber.” *American Economic Review*, 106(5): 177-182.

[16] Li, Bolin. 2021. “The Nature and Validity of Secondment of Enterprises: From the Perspective of Shared Employees.” *Human Resources Development of China*, 38(9):76-89.

[17] Li, Haijian, and Fangfang Zhu. 2017. “Redefining Employee-The Evolution from Employee 1.0 to Employee 4.0.” *China Industrial Economics*, 10:156-173.

[18] Li, Haijian, and Xiaoyong Chen. 2011. “Study on the Boundaryless Development of Firm-Based on Case Analysis.” *China Industrial Economics*, 6:89-98.

[19] Li, Haijian, and Yan Li. 2020. “The Understanding of New Economic Forms: A Microeconomic Perspective.” *China Industrial Economics*, 12:159-177.

[20] Li, Haijian, Yuexin Tian, and Wenjie Li. 2014. “Mobile Internet Thinking and Traditional Business Reengineering.” *China Industrial Economics*, 10:135-146.

[21] Liu, Genrong. 2017. “Sharing Economy: The Subversion of the Traditional Economic Model.” *Economist*, 5:97-104.

[22] Liu, Ning, and Zhengtang Zhang. 2006. “Evaluation Criteria of Career Success in Borderless Career Era.” *Business Management Journal*, 9:66-70.

[23] Liu, Ping. 2004. “The Phenomenon of ‘Human Capital Failure’ and the Society of the Old Industrial Base in Northeast China.” *Social Sciences in China*, 3:147-148.

[24] Mo, Yiqing, and Lixing Li. 2022. “Gig Economy and Entrepreneurship: Evidence from the Entry of Food Delivery Platforms.” *Management World*, 38(2):31-45+3.

[25] Qi, Lvdong, and Ying Li. 2018. “New Economy and Regulatory Reform.” *China Industrial Economics*, 3:5-23.

[26] Rifkin, J. 2014. *Zero Marginal Cost Society: A New Economic Era of Internet of Things and Win-win Cooperation*. Beijing: China Citic Press.

[27] Shen, Yu, and Tongliang An. 2012. “Reintegration: A Type of Modularization Trap-Based on Evolutionary Perspective.” *China Industrial Economics*, 2:89-97.

[28] Toffler, A. 1996. *The Third Wave.* Beijing: Xinhua Publishing House.

[29] Tu, Yongqian. 2018. “Restructuring the Labor Law System in Response to Flexible Employment.” *China Legal Science*, 5:216-234.

[30] Walder, A. 1996. *New Traditionalism in Communist Party Society: Working Environment and Power Structure in Chinese Industry*. Beijing: Oxford University Press.

[31] Wang, Jun. 2021. “Economic Agglomeration, Skill Matching and Wage Premium in Large Cities.” *Management World*, 4:83-98.

[32] Xiao, Hongjun, and Ping Li. 2019. “Ecological Governance of Platform Enterprises’ CSR.” *Management World*, 4:120-144+196.

[33] Xiao, Pengyan. 2020. “Sharing by Law: A Study On The Legal Risk of Sharing Employees and Its Prevention and Control.” *Human Resources Development of China*, 37(7):96-106.

[34] Xie, Fusheng, Yue Wu, and Shengsheng Wang. 2019. “A Political Economy Analysis of the Globalization of Platform Economics.” *Social Sciences in China*, 12:62-81+200.

[35] Yang, Weiguo, Qingjun Wu, Jianguo Zhang, and Yu Sun. 2022. *China Flexible Employment Development Report 2022*. Beijing: Social Science Literature Press.

[36] Yu, Hang, Lin Tian, Guoyin Jiang, and Yun Chen. 2018. “Sharing Economy: Theory and Research Agenda.” *Nankai Business Review*, 21(6):37-52.

[37] Zervas, Georgios, Davide Proserpio, and John W. Byers, 2017. “The Rise of the Sharing Economy: Estimating the Impact of Airbnb on the Hotel Industry.” *Journal of Marketing Research,* 4(5):687-705.

[38] Zhang, Chenggang. 2019. “Problems and Strategies: A Research on Public Policy of Supporting the Development of New Forms of Employment in China.” *Human Resources Development of China*, 36(2):74-82.

[39] Zhang, Juntao, Jingtong Zhai, and Bin Jia. 2021. “City Size and Human Capital Skill Premium: Agglomeration Effect and Selection Effect.” *Statistical Research*, 38(2):73-86.

[40] Zhang, Yin, and Yanping Li. 2010. “An Empirical Study on Farmers’ Human Capital, Farmers’ Learning and Their Performance.” *Management World*, 2:1-9.

(C)1994-2023 China Academic Journal Electronic Publishing House. All rights reserved. http://www.cnki.net