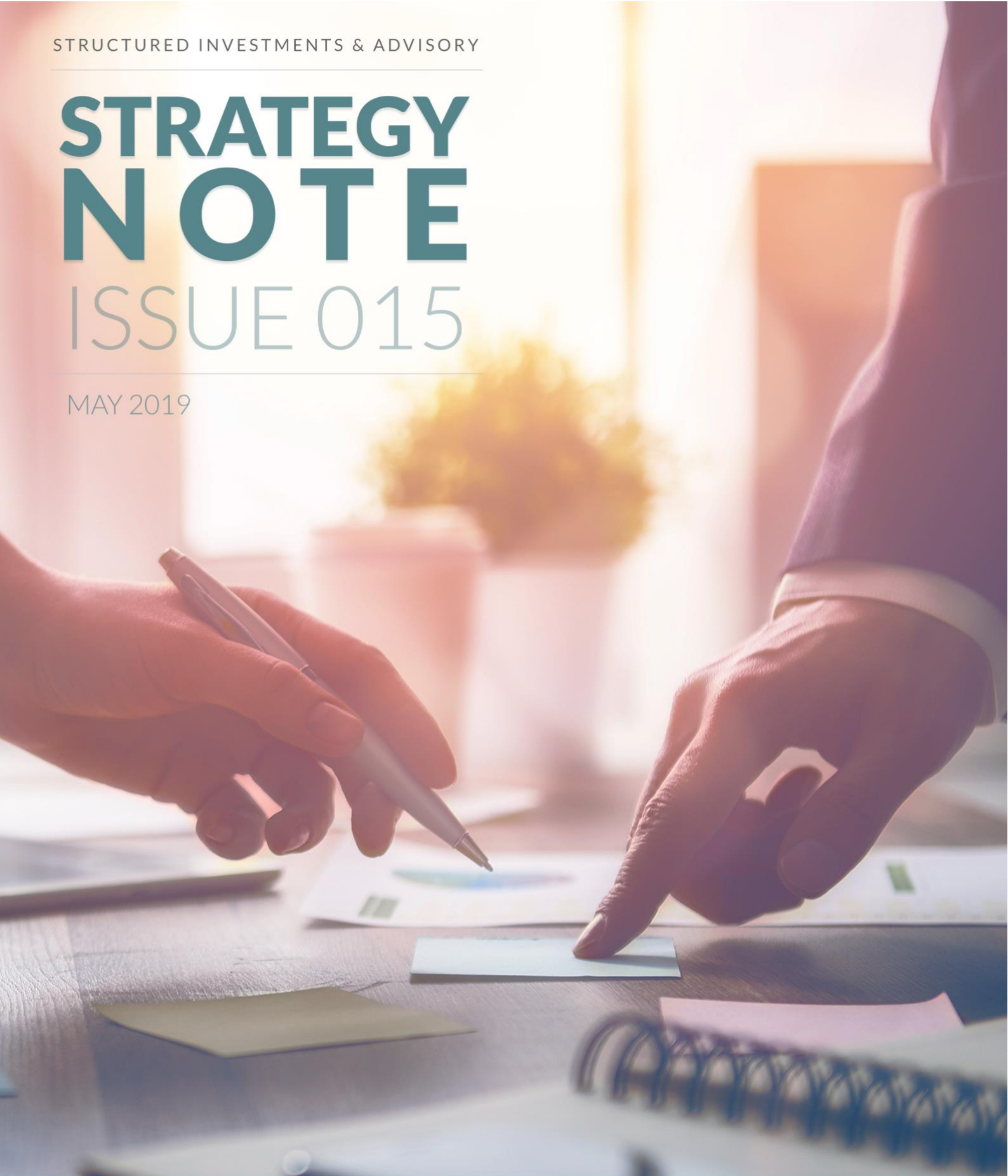


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THE FUTURE OF WORK

WORKFORCE TRANSITIONS, THE GIG ECONOMY, & AUTOMATION

HIGHLIGHTS

- The digital revolution is transforming, or at least accelerating the transformation of, almost every aspect of our lives. Major economic sectors are being disrupted and this disruption is changing the way we work
 - The future of work is being shaped by technological advances and automation. Cognitive technologies and robotics are playing an increasingly larger role in the production of goods and services and consequently threatening to displace human capital.
 - Along with automation, the gig economy is disrupting the way we have been traditionally viewing the employer-employee relationship for decades. Independent workers and freelancers are becoming a significant portion of the workforce; they constitute more than one third of the total in developed Europe and North America by some estimates and ignoring this tranche is increasingly distorting our view of the labor market.
 - Independent work could potentially have significant economic and social benefits to the wider economy by making labor more “efficient”; it would raise labor participation rate, provide work opportunities for the unemployed and the underemployed and boost productivity.
 - While workforce displacement has become a fact of life in today’s workplace, its full effects on the job market are quite difficult to assess. They will depend primarily on the pace of automation adoption across various economies, their future economic growth, and their demographic profile.
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THE FUTURE OF WORK

We are living in a time of transitions and disruptions. The digital revolution is transforming, or at least accelerating the transformation of, almost every aspect of our lives. Manufacturing, transportation, energy, commercial banking and the financial industry, to name a few, are being disrupted and redesigned. It is only normal, therefore, that the future of work will be something very much different from that of today.

There are three major trends that are currently shaping the way work will look like in the future: demographic changes, automation, and the rise of the “gig” economy.

A detailed discussion of [demographic shifts](#) was presented in an earlier note but it will be briefly looked at here from the perspective of its effects on the future of work.

The second trend, automation, has become a very hot topic in both academic and organizational research. Discussions often revolve around how robotics, cognitive technologies and other forms of artificial intelligence will change the way we work and the resulting displacement of human capital.

The rise of the gig economy is another major trend that is seriously disrupting the traditional views of full-time work, lifetime career, and the employer-employee relationship that’s been around for decades and is viewed as the norm.

THE GIG ECONOMY

A little history

The word “gig” has arguably originated in the music industry where it referred to a temporary job. Today the gig economy encompasses a collection of independent consultants and workers, contractors, freelancers who create a portfolio of jobs instead of having one full-time job as employees.

Independent work, however, is hardly a new thing. Over history much of the workforce was made up of independent freelancers. It wasn’t until the industrial revolution that workers started to get organized and the relationship between employee and employer was formalized with the aim of organizing manufacturing activities.

Since then a traditional view of a job has emerged and it is one that portrays a 9 to 5 full-time engagement with one or very few employers over a person’s professional life. Even though this view lasted for the better part of the twentieth century, independent work didn’t completely disappear. It existed for decades before being widely publicized in the aftermath of the financial crisis and the necessary pre-conditions for it to thrive had been shaping up for years. The emergence of the notion of a lean and flexible corporate organization structure in the 1970s and the employment of temporary workers, from emergency secretaries to turnaround consultants, paved the way for a new employee-employer relationship. The

notion of lifetime employment and employment security started to wane and gave way to notions of corporate efficiency at a time when employees were becoming easily replaceable.

This view was reinforced in the aftermath of the global financial crisis as employers looked for ways to control costs and unemployment soared. Experienced professionals who were out of jobs, as well as skilled laborers started engaging in independent assignments to make ends meet and task-based labor practically re-emerged.

Changes in macro trends and structural transformation of the underlying economy were also conducive to that transformation. In most of the developed world, economic activity was no longer dominated by, and dependent on, industrial and manufacturing activities where workers have to be at their workplace during a specific time to be productive. The services sector had started to gain traction and soon became an ever-larger contributor to economic activity. The workforce became increasingly dominated by knowledge workers as opposed to manual laborers. In such a service-based economy the physical location of knowledge-workers or where the work is being performed suddenly became irrelevant. Practices like the outsourcing of non-core and support activities started to gain traction and concepts of flexible hours, remote offices, and working from home became increasingly popular among both employers and employees.

How does the gig economy look like?

Independent work has flourished over the past ten years and today independent workers represent a significant portion of the labor force. According to a Gallup research published in 2018, 29% of US workers have an alternative work arrangement as their primary job, including 24% of full-time workers and 49% of part-time workers. When workers who have any connection with the gig economy are included, this percentage goes up to 36%. This is the equivalent of approximately 57 million workers in the United States that participate in the gig economy in one way or another, including part-timers and multiple job holders. Harvard Business Review (HBR) estimates this number to be around 150 million in North America and Western Europe. Gallop used a broad definition of the gig economy which includes multiple types of alternative work arrangements such like independent contractors, online platform workers, contract form workers, on-call and temporary workers.

This independent workforce encompasses workers from all walks of life. It spans across different age groups and includes all levels of skills and experiences, from highly experienced and specialized professionals, to manual laborers and services providers.

There are three major dimensions along which gig workers can be classified:

1. Type of skill/experience: Knowledge-based versus service-based
2. Intention: Choosing to be independent versus being so by necessity
3. Types of engagement: Full-time versus part-time.

Using multiple combinations of the above vectors, gig workers could generally fall into four main groups. Those who exclusively choose independent work as a way of living and generate

their primary income from it. They do so by choice and most likely are independent contractors and online platform workers. They tend to be knowledge-based experienced professionals. The second group includes those who have full time jobs but choose to do independent work to supplement their income. A third group includes those who do independent work as a primary occupation but would prefer to have full-time traditional jobs. The fourth group includes those that have full-time jobs but do not make enough income to survive and therefore do independent work out of necessity to be able to make ends meet.

It is a very broad economic sector which includes knowledge-based gigs such as highly skilled and experienced professionals including independent management consultants and data scientists, and service-based ones which include tradespeople and less specialized laborers like those working through ride-hailing apps such as UBER and Lyft drivers, delivery personnel, and other service-oriented platforms.

Therefore, focusing on the traditional view of employment risks ignoring millions of independent workers who are joining multiple income stream together to make a living. Regardless of the reason why those workers became independent, be it out of necessity or by choice, either way, ignoring this labor tranche is increasingly distorting our view of the labor market and official labor statistics.

Digital platforms

Although internet technologies have certainly been instrumental in intensifying the development of the gig economy, freelance and independent work existed long before the digital revolution. Smartphone Apps did not create the gig economy, they merely acted as accelerators for its development.

“The history of labor shows that technology does not usually drive social change. On the contrary, social change is typically driven by decisions we make about how to organize our world. Only later does technology swoop in, accelerating and consolidating those changes” Louis Hyman, historian of work and business and associate professor at the School of Industrial and Labor Relations at Cornell University.

In fact, a large portion of current day freelancers are still offline. According to recent research by McKinsey Global Institute (MGI), only 15% of independent earners use digital platforms in sourcing and managing their gigs. Digital platforms such as Uber, Lyft, TaskRabbit, Upwork, and hundreds of other freelance digital marketplaces have been created to take advantage of an already existing phenomenon and could ultimately become instrumental in exponentially growing this sector.

The value chain of independent work is complex and could be riddled with risk. A service user needs to ensure that whoever is providing the required service is qualified, that the service or product requested will be as per the agreed specifications and is delivered on time. From

a service provider's perspective, concerns would mostly revolve around finding the next gig, understanding the requirements of the user, and getting paid for the work done.

By facilitating the various nodes across the value chain, digital platforms could truly become an accelerator for independent work. Such platforms promote an ecosystem that provides a one-stop-shop for both service users and providers. They provide scale by establishing vast webs of interconnected users that can find each other in a transparent and a truly global virtual market for goods and services (especially those that do not need in-person delivery). They also accelerate and improve matching through efficient search algorithms that could match to the smallest detail of the task, good, or service being requested. Apps can also provide instant communication to ensure seamless and efficient exchange between parties.

Digital platforms today do not only function as match-making machines, however. They are built with integrated rating systems, peer-review capabilities, endorsements and huge data sets that the platform itself could collect and use to provide credibility to both services users and providers. This, in addition to other similar features and ancillary services such as instituting a payment infrastructure and protocol that has to be followed, would contribute in mitigating the risks that users on both sides could face.

Digital platforms are virtually limitless in terms of user capacity as the cost of adding new users is negligible. New players can be onboarded almost instantly with zero-cost to both platform and user and no barriers to entry.

Consequences for workers, employers and the economy

The gig economy could disrupt work as we know it in many ways. It has consequences for workers, corporate organizations, and the overall economy.

For workers, especially those who are independent by choice, the obvious consequence is being more satisfied, more productive, and free from corporate politics, bureaucracy, and the constraints of office life. But this independence isn't without cost. In the absence of a secure traditional paycheck and the feeling of belonging to a team, independent workers have to worry about continuity and availability of work. They will have to operate like a microenterprise where they are practically responsible for all aspects of running a business from doing their own business development and deal sourcing, to worrying about short and long-term financial stability. Another important source of concern is their limited access to income security protection such as unemployment and disability insurance, and retirement security. With the absence of corporate training programs, independent workers would have to be also responsible for developing their skills to remain competitive in the marketplace.

Independent work also presents challenges that are not directly related to financial wellbeing but that are equally important. Independent workers have to manage their own time, learn to follow a routine to enhance focus and performance and have a sense of purpose to stay motivated. Another very crucial success factor is having a proper social network, or a holding environment, which could include industry peers, family members and friends. The loneliness

epidemic is hitting the workplace and even working at an office no longer guarantees meaningful connections. Independent workers could be even at a greater risk.

For companies, the rise of the gig economy could be game changing. The increased prevalence of independent workers spanning a wide spectrum of skill and expertise levels, along with technological advances, makes it easy for companies to connect to these workers and conclude transactions with them seamlessly. It is no longer inconceivable to see the old model of a business organization with its complex hierarchy and bureaucratic procedures give way to a leaner core that is much more agile and that relies on an external network of service providers. Such a model could free a significant amount of resources and would allow for the emergence of a completely new working model that is fit for the digital age.

A company would need to rethink the whole structure of many of its core and support functions and would even need to unbundle many of the traditional jobs into separate tasks that could be assigned to an independent network of workers. Organizations can retain core functions and divert their resources to what they do best and use external expert service providers only when they need them. This flexibility is especially valuable for start-ups that have not reached a stage where they can afford a full inhouse suite of support services for example.

The emergence of professional digital platforms such as AlphaSights, Gerson Lehman Group (GLG), and Third Bridge UK and others, will reinforce such a direction. These platforms connect businesses to highly specialized industry experts that could be tapped by business teams to get access to expertise on demand. They facilitate private conversations with industry veterans who can offer insights into companies and markets. GLG, for example, already has over 650,000 registered professionals who are providing services to more than 1,400 companies globally. Consultations usually happen over the phone or in person and could be over short-term or long-term advisory contracts.

Growth in independent work could have significant benefits for the overall economy. It has the potential to raise the labor participation rates and providing work opportunities for the unemployed and boost productivity. It could draw more people, that are either unemployed or underemployed, back into the workforce and provide flexible employment opportunities that could be suitable for students as well as for the elderly, retirees, caregivers who stay at home, and the disabled.

According to Airbnb, seniors (ages 60+) are their fastest growing demographic of hosts in the US, growing at 45% year-over-year. Collectively these hosts have earned over USD 700 million in supplemental income by sharing their homes through Airbnb in 2017.

Increased competition, ease of access, and the global nature of independent and digital business models have contributed in lowering the transaction cost for end-consumers while boosting the overall quality of products and services.

AUTOMATION

The second major trend that is changing the nature of work is automation. One of the toughest challenges facing the world of work today could be advancements in Artificial Intelligence (AI) and robotics with what they bring in terms of labor displacement and mismatches between the skillsets of the existing workforce and what a new digitally driven workplace needs.

Automation, however, can also bring significant benefits to businesses, societies, and the overall economy. Automation actually increases demand for labor as it increases economic growth and productivity. Economic and productivity growth would enable firms to pay higher wages and dividends which would lead to increased demand on consumption in the economy, therefore stimulating job growth. Economic growth would result in shifts in consumption patterns by increasing demand for leisure and recreational activities especially in developing countries. Demand would also increase for housing, financial services and telecommunication, healthcare, and education as income grows and the middle class becomes more significant.

The extent of worker displacement that is caused by automation will largely depend on the pace of adoption of automation across economic sectors and countries. It will also be contingent on the growth in demand for labor created by economic growth and by how fast the workforce can be trained, or retrained, to assume the newly created jobs. Moreover, wage levels will play a significant role in determining the business feasibility of automation. Countries with a low-wage level will have a modest potential for automation due to the lack of economic feasibility, everything else equal.

Economists estimate that the labor transitions that lie ahead may exceed the scale of the historical shifts out of agriculture and more recently out of manufacturing. In the US, the share of agriculture and related industries in total employment dropped from over 55% in the mid 1800s to around 11% currently. Manufacturing, on the other hand, employed 8.7% of the total workforce in the US in 2015 down from 32.4% in 1910 according to data from the U.S. Bureau of Labor Statistics. Other countries have experienced faster shifts. It is estimated that as much as one third of China's workforce moved out of agriculture in a span of 25 years between 1990 and 2015. Such shifts in labor markets are not, therefore, without precedent. But given the speed of technological advancements combined with the current state of the global economy, this time could indeed prove to be different.

In a scenario of rapid automation adoption, McKinsey Global Institute estimates that around 14% of the global workforce, that's 375 million workers, will need to transition to new occupational categories and learn new skills in the next decade. This could well be a realizable scenario, but it is very far from being straightforward and uniform across economies. The magnitude and the speed of labor displacement by technology will be contingent on a mix of factors that would have varying, and sometimes opposite, effects across geographies.

Factors affecting Labor displacement

Wage level is a significant determinant for automation potential. High wage levels make the case for automation stronger from a business feasibility perspective. This does not, however, make low-wage level countries immune. Other drivers for automation include making the production process more efficient and improving product quality to remain competitive.

Demographic composition is also a major factor to consider in assessing the effects of automation in labor markets as it affects labor demand and supply. In countries with young populations, and therefore a rapidly growing workforce, although economic growth would be higher, faster automation adoption could pose challenges to employment and wage levels as the economy struggles to match the skillsets of larger number of workers to new work requirements. In such a scenario, wage levels will drop and unemployment will rise. In contrast, in aging societies with a shrinking workforce, rapid automation would help in offsetting retiring workers while maintaining, or improving, the levels of productivity and therefore economic output.

Since economic growth is essential to job creation, countries with higher future economic growth will be able to generate a higher level of labor demand and net new jobs. Slow economic growth, on the other hand, will result in few, if any, net new jobs. In the former case, the net new job additions will need find suitable workers to maintain the balance in the labor market, while in the latter, the impact of automation will be less pronounced as there will be less labor supply to start with.

The most obvious variation will be between developing and advanced economies. Rising incomes and consumption in developing economies will help boost economic growth over the long-term and create more jobs. For countries such as India, with a low-wage level and therefore a low theoretical potential for automation, having a relatively young population and a large number of people joining the workforce, automation will pose a formidable challenge if it happened fast.

Economic sector composition will also be an important factor. In Japan for example, a large share of work is prone to automation, given the structure of the economy and high wage levels. But the fact that Japan will likely face a shrinkage in its workforce given its aging demographic profile, high levels of automation should not pose a significant threat to the labor market. The same goes for other advanced economies with a similar demographic profile, especially in developed Europe.

Outlook for jobs

The obvious jobs that at the highest risk of being replaced are those that are either physical and/or repetitive in a predictable environment such as operating machinery, collecting and processing data, back-office transaction processing, accounting, office support functions, cashiers. The extent to which jobs in the above categories will be displaced could vary significantly among advanced and developing economies. Moreover, tasks making up these jobs could be unbundled and redesigned and ultimately employment may not even decline if

enough economic growth is generated to create the necessary labor demand and employees move to perform new tasks. A good example could be that of bank tellers. With the advancement of mobile and internet banking, the tasks traditionally performed by bank tellers have changed radically. A typical retail branch today, especially advanced economies, would have a number of financial advisors looking after clients' needs instead of bank tellers and the functions that were traditionally handled by tellers, and which haven't been transferred to the mobile app, are now performed by a single person who would also perform other tasks including that of a receptionist.

Historically, new technologies have created much more jobs that they have displaced. Many of these new jobs are in occupational categories that did not exist and cannot be readily envisioned at the outset. The introduction of the PC in the early eighties, for instance, caused the displacement and the consolidation of many jobs and tasks but, at the same time, helped create millions of new jobs in every sector of the economy and not only in information technology.

Even with the very low visibility into how jobs would evolve in the future given the adoption of automation, some occupational categories would clearly be in higher demand. Such jobs would include those involving social interaction, managing people, and applying specific expertise. Developing economies are becoming richer and their middle class is growing which would have a direct impact on boosting aggregate demand. As developing countries urbanize, demand for infrastructure and construction will increase, so will demand for healthcare and financial services, and education. This in turn would bolster demand for professionals such as engineers, educators, doctors and other healthcare specialists. Aging populations worldwide are causing a shift in spending patterns and demand for healthcare and personal services would increase. The development and deployment of technology would require more computer and data scientists.

Chart 1. Share of Health Care of Total Nonfarm Employment

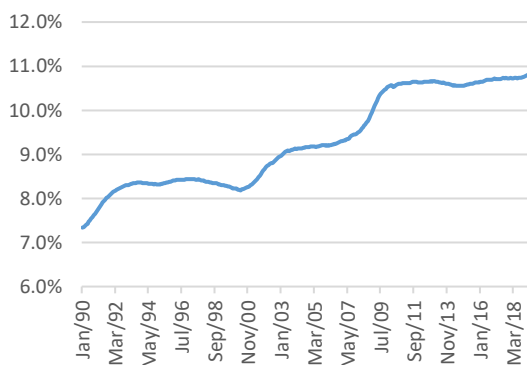
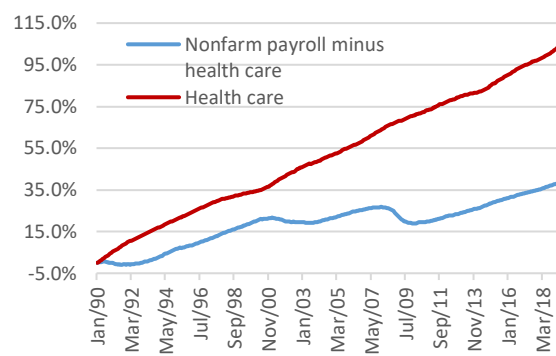


Chart 2. Health Care Percentage Employment Change versus the Total Nonfarm Payrolls



Source: U.S. Bureau of Labor Statistics; retrieved from FRED, Federal Reserve Bank of St. Louis;

The two charts above show an example of how healthcare employment has been growing in the United States over the past 3 decades. This is a good representation of occupational categories that would survive, so to speak, the advance of the machines, as stronger factors such as increased wealth, higher life expectancy and demographics prevail.

Challenges & Policy Consequences

A host of challenges will have to be tackled by governments, regulators, and business leaders around the globe in both advanced and developing countries. For developing countries with a young demographic profile, challenges will be to maintain a strong economic growth that would be able to support a high demand for labor to absorb the new comers to the workforce. Educational systems have to be adapted for the new realities dictated by automation, and training programs need to be redesigned to ensure that workers have the right skills to transition to new jobs.

One of the biggest challenges posed by automation, and maybe more so for advanced economies, would be to retrain mid-career workers to enable them to acquire new skills and shift occupational categories in the middle of their careers. Transitioning to the digital age calls for a very different set of skills that would require higher degrees and a more advanced education which makes it much more challenging than past transitions such as that from agriculture to manufacturing.

Occupations that currently require lower levels of education are more prone to being displaced by automation, especially in advanced economies. This is generally less of a concern for developing countries at the moment but occupations that require higher levels of educations and specialized degrees are growing the fastest. So, for both developing and advanced countries, increasing investments in education and workforce training should be a top priority.

Contacts:

**Structured Investments and Advisory
Asset Management**

Arraya Tower II, Floor 35
P.O. Box 4950, Safat 13050, Kuwait

T. (965) 2224 5111

F. (965) 2224 6904

E. NBKC.SIA@nbkcapital.com

NBK·CAPITAL

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