# Some Perspectives on the Shifting Dynamics of Economic Systems and the Changing Role of Faculties of Economics

Nabil El Maghrebi

## 1. Introduction

Over the past century, the Japanese economy has experienced different business cycles, high rates of post-war economic growth, asset bubbles and bursts, financial crises, and economic recessions. Japan's integration with the world economy is marked reflected by export-oriented policies, high savings rates, and real investment conducive to wealth accumulation. The realization of significant benefits from international trade during period of high growth is evidence of strong adeptness to technological changes and innovation. However, the recent the lost decades of economic stagnation following the burst of the asset bubble may be indicative of serious structural problems repeated policy failures.

Part of the reason for the anaemic economic growth and stagnation of real wages may have to do also with the complex dynamics of the global economy, high debt levels, declining corporate performances, and lack of global human resources, *inter alia*. Despite clear warning signs of financial fragility and systemic weakness, economic crises tend to be perceived with much surprise to market participants and economic policymakers. As argued by Nils and Albers (2018) with respect to the U.S. Great depression, there is little evidence of steady growth in the global economy even in the late 1920s. With the onset of the new coronavirus crisis, the *Great Lockdown* may be regarded as the worst economic downturn since the Great Depression, as suggested by Gita Gopinath (2021). The *Pandemic Depression*, as noted by Reinhart and Reinhart (2020), is associated with massive global economic losses exceeding the U.S. financial crisis.[1] Thus, the severity of economic problems associated with major events such as the burst of the Japanese asset bubble, or the onset of the U.S. financial crisis, or the outbreak of diseases depend, indeed, on the extent of trade relationships, depth and width of supply chains, restricting on capital flows, and inner workings of domestic demand functions and production systems, among others.

Certainly, the disease outbreak has global ramifications that add to the prevailing levels of economic uncertainty. As the debate on the genesis of the new coronavirus pandemic continues, it is important to note that such black-swan events essentially unpredictable, and that the scars

[1] An account of the major developments leading to the financial crisis in 2007-08 can be found in the report of The Financial Crisis Inquiry Commission (2011).

from the ensuing healthcare crisis and economic lockdowns are likely to be deep with entrenched inflation expectations and persistent real wage losses. In contrast, the U.S. financial crisis was to some extent predictable, and thus avoidable if the underlying causes were fetter understood and preventive measures were taken. It was likened to a hurricane, or perfect storm that could not have been anticipated, as suggested by Ben Bernanke, former Chairman of the Federal Reserve Board. The onset of the crisis was to some extent predictable, not so much with respect to its timing, but inevitability. Vital signs about the formation of bubbles and commencement of bursts in real estate and financial markets were indeed unmistakable. In this regard, the Financial Crisis Inquiry Commission (2011, p. 22) argues that "risk—rather than being diversified across the financial system, as has been thought—was concentrated at the largest financial firms." Thus, between the Great Depression in the late 1920s to the Pandemic Depression in the early 2020s, the fault lines of economic systems and failures of economic policies have been exposed with the perpetuation of asset bubbles and financial crises.

Part of the blame for the serious failures to predict financial crises is usually laid at the door of economists, and by extension, faculties of economics where economic theory is uncritically taught to future policymakers and firm managers. Part of that blame is misplaced however. Sober warnings were clearly given by some economists, including Robert Shiller (2006), who recommended policy responses to irrational exuberance preceding the information technology and housing bubbles. Islamic economics has a long tradition of advocating an economic system based on risk sharing that precludes interest rate and prevents the formation of financial crises. More recently, Shiller (2015) explained also the significance of investor psychology and herding behaviour in bond markets. Similar concerns about price patterns are being expressed with respect to housing, stock and cryptocurrency markets. Given the speculative nature of volatile markets, psychological factors play indeed an important role in the formation of market expectations. But asset bubbles are primarily driven by debt accumulation and higher leverage facilitated by expansionary monetary policies. These trends have been facilitated by low interest rates and quantitative easing programs.

Negative interest rates are only part of wider symptoms of economic problems. The disease outbreak has given rise also to the unprecedented negative pricing in energy derivatives markets. The futures prices of West Texas Intermediate crude oil and exercise prices for related options contracts dipped below zero as a result of selling pressures caused by perceptions of heightened uncertainty about the global economy, lower demand, and limited storage capacity. The spillovers of investor panic and price volatility from commodity markets to financial markets are indicative of the extreme reaction of spot and derivatives trading to increased uncertainty and arrival of new information. Given the extremely volatile oil markets, a precipitous fall in prices should not come

as a surprise. It is, arguably, the sign of market prices rather than the magnitude of price falls that should be the subject of close examination in order to understand the complexity of market structures and trading mechanisms leading to negative pricing.

There is no doubt that economic systems are increasing in complexity. The growing interactions and dependencies are more difficult to model and predict. In order to better understand the sources of uncertainty, the inherent forces driving the new economic dynamics, the formation of financial crises, and the principal causes of economic downturns, it is important to note that the existing body of knowledge about the business cycle, credit risk, mortgage loans, consumer behaviour, financial markets, and banking crises may no longer suffice. The demographic, social, technological, and economic megatrends present new policy challenges and new business opportunities, which demand new strategies. New business models are increasingly adopted in replacement of traditional models in order to penetrate new markets. As firms aim to seize new opportunities resulting from significant megatrend and waves of disruptive megatrends and innovation, it is important for faculties of economics to recognize also the significant shifts in the educational landscape and the need to nurture human resources with the required knowledge and skills.

Thus, the principal objective of this study is to explore some aspects of the complex economic dynamics that may be useful in understanding the new challenges faced by the Japanese economy and the role of faculties of economics in advancing the required knowledge and nurturing the required human resources. The next section briefly discusses the nature of megatrends governing the dynamics of the economic system. Section 3 examines some features of the evolving job markets and the nature of skills influenced in part by advances in artificial intelligence. Section 4 explores the shifting educational landscape. Section 5 considers the changing role of faculties of economics and the crucial importance in pursuing excellence in education and research. Section 6 concludes the paper.

## 2. Megatrends and new economic dynamics

Major shocks such as the onset of the new coronavirus crisis may have temporary or persistent effects on the economy. Prior to the onset of the healthcare crisis however, economies were already being reshaped by structural changes emanating from interrelated forces. The economic dynamics are indeed driven by several megatrends, which reflect the complex interactions between macroeconomic and geopolitical forces. Greenberg, Hirt, and Smit (2017) identify five megatrends shaping the world including demographic and social changes, rapid urbanization, climate change and resource scarcity, shift in global economic power, and technological breakthroughs. In this respect, Kautzsch, Kronenwett, and Thibault (2017) also argue that "megatrends are a combination

of technological leaps and upheavals in global society and the environment that will reshape economies, businesses, and lifestyles." Since these changes tend to feedback and reinforce each other, and because the economic dynamics are bound to affect the future of jobs, they present also difficult challenges to faculties of economics in pursuing their mission of nurturing future generations of industry leaders and policymakers. Thus, it is important to understand the essence of these megatrends and their implication for educational and research activities.

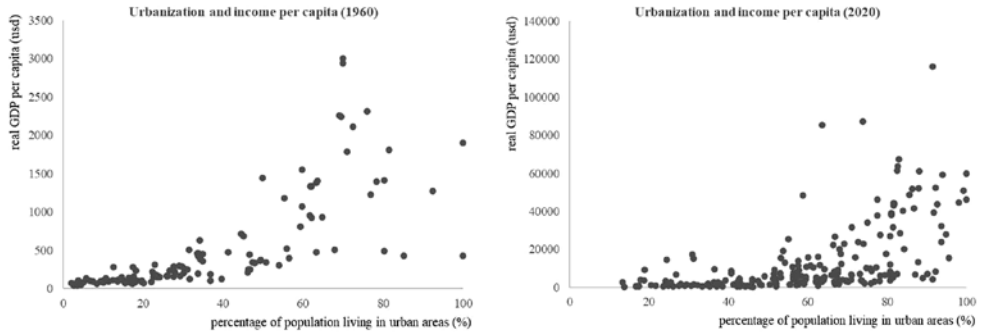
With respect to demographic changes, it is important to note that the population theory proposed by Thomas Malthus in *An Essay on the Principle of Population* more than two centuries ago, suggests that whereas population is bound to increase at an explosive pace, food supply can only rise at marginal rates. The use of less fertile soil for harvesting purposes would lead to diminishing returns. Thus, food imports should be restricted in order to raise prices and increase food supply. Since these arguments are inconsistent with David Ricardo's advocacy for international trade based on the theory of comparative advantage, the logic of Malthusian economics seems to be flawed. Todd G. Buchholz (2021, p. 70) notes that economists identify four stages in the demographic transition. "In preindustrial societies, high death rates balance high birthrates, ensuring steady population. In the second stage, early industrial development, better health lowers death rates, so birthrates appear excessive, and population spurts upward. Since Malthus collected his date in this era, he did not and probably could not have seen what could come next. In the third stage, urbanization and education persuade many to have fewer children. Thus, the death rate continues falling, but so does the birthrate, which flattens the population curve. Finally, in a mature society, with successful birth control and often both spouses working, couples seem to desire between one and three children, and the population stabilizes."

Thus, Malthusian predictions of booming population are based on the premises of lower death rates accompanied with stable or increasing birth rates. Passage from the second to the third stage of the demographic transition depends on the outcome of attempts at lowering birth rates through morally legitimate or illegitimate means. Assuming the validity of this four-stage demographic transition, the natural question arises, however, as to what threshold level the population is bound to stabilize. Stabilization levels depend on the growth rate relative to the replacement fertility rate, at which a woman gives birth to a number of babies sufficient to sustain the population levels. Given the fact that birth rates in "mature societies" approach unity rather than three children, and typically fall below the replacement fertility rate, the reality of rapidly shrinking and ageing populations may be inescapable.

The debate about structural demographic changes cannot be separated, however, from trends toward rapid urbanization. The increasing density of people living in cities and towns is by no means a phenomenon of modern times. It is an old process deeply rooted in the natural propensity

of people to seek higher income and better quality of life, often by substituting rural for sedentary lifestyles. Thus, rapid urbanization reflects the rate of settlement of people from rural to urban areas, which may have implications for the use of arable land, food security and economic growths. As argued by Bloom, Canning and Fink (2008), urbanization does not necessarily affect the rate of economic growth, but it is associated with environmental degradation, and impediments to productivity, though urban areas offer also economies of scale and developed market structures.

***Figure 1. The relation between urbanization and income per capita***




*Source: World Bank database, and author calculations*

In order to better understand the economic implications of rapid urbanization, Figure 1 provides a graphical representation of the relationship between the percentage of population living in urban areas and income as measured by real gross domestic product per capita. The sample observations are obtained from the World Bank database for the period from 1960 to 2020 across different countries and regions in the world. There is evidence of near-zero urbanization rates in 1960 but the relationship remains positive, despite scattered observations of higher urbanization rates that are hardly associated with increased real income. However, there is a clear increase in urbanization rates in 2020, which are more likely to fall within the range of 20 to 100 percent.[2] Thus, the economic rationale for migration to urban areas is an unrelenting pursuance of higher income. It is also noted that there is a tendency for the correlation between urbanization rates and income per capita to decrease over time, moving from 0.76 in 1960 to 0.68 in 1970, 0.63 in 1980, 0.55 in 1990, and 0.52 in 2000 and 2010, before increasing to 0.57 in 2020. The shifting correlation structure suggests that urbanization rates fluctuate over time, and the significance of their impact on the growth rates of income is not certain. In many countries, rapid urbanization

[2] The higher number of observations in more recent years is explained by data unavailability at the beginning of the sample period.

seems to be associated also with ageing populations and shrinking workforces.

The compounded effects of urbanization, demographic, and social changes are also difficult to assess, but there is a potential for middle-income trap. Ha and Lee (2018) address the issue of some Asian societies becoming too old before getting rich and explore the relationship between fertility and the support ratio of workers to consumers. They argue that Asia has exploited the benefits of the demographic transition, discussed above, and that the shrinking share of working population is reflective of the decline in fertility. Thus, a stagnation in real income per capital may be symptomatic of a demographic-driven middle-income trap, which is associated with low fertility rates that ultimately suppress support ratios toward lower levels.[3]

The observed trends toward ageing populations and shrinking workforces, particularly in advanced economies, are also accompanied with technological advances and digital transformation. Some technological advances are rather disruptive to traditional business models, production systems, and market structures. It is often argued that disruptive technologies come in waves. Such as the earlier advances in electricity, oil, and automobile industries, a century ago. Technologies related to energy and transportation systems paved the way for mass production, and development of modern cities. A new wave of disruption is driven by technological innovation related to semiconductors, and automation. Thus, the nature of technological advances and their impact on economic activities should be well understood given their potential impact on global production systems, global outsourcing, global manufacturing, and global communication, *inter alia*.

As argued by Kautzsch, Kronenwett and Thibault (2017), past cycles of major technological changes have disrupted the industrial order, and future cycles may be even more disruptive to the entire economic and financial systems. New technologies may shorten product cycles, and lead to big start-up firms dominating large segments of existing markets.[4] The potential winner-takes-all conditions in many industries may undermine fair competition and promote monopolistic behaviour with adverse effects on market prices. New technological advances are driven also by the forces of digitization, big data analysis, artificial intelligence, machine learning, and the internet of things (IoT), *inter alia*. New industries are likely to emerge from new scientific discoveries that extend the boundaries of knowledge, such as genome sequencing, autonomous transportation,

[3] There is mixed evidence about middle-income traps from the existing literature including the conceptual studies by Im and Rosenblatt (2013), and Ha and Lee (2016, 2018), inter alia. Ha and Lee (2016, 2018) identify three conditions for the existence of a demography-driven middle-income trap, including the relevance of demographic factors for the realization of economic growth and convergence, a negative relationship between development and fertility, and sufficiently low levels of fertility leading to low support ratios.

[4] The impact of innovative technologies is reflected by the emergence of some start-up companies such as Alphabet, Amazon, and Microsoft, among others, with market capitalizations significantly larger than traditional banking and energy companies.

IoT software and platforms, among others.

The potential tradeoffs between risks and returns lie at the heart of the debate about the opportunities and threats presented by technological advances. It may be argued that technological singularity is of major concern as disruptive technologies become uncontrollable. Shanahan (2015) examines the notion that human intelligence may be overtaken by artificially intelligent machines or cognitively enhanced biological intelligence. Technological singularity and the disruptive effects of technological advances add to the impact of economic and financial globalization. The interconnectedness between economies is driven by the removal of barriers against the free movement of goods, services, and capital. The increased specialization in global trade and supply chains implies not only higher incomes but also stronger exposure to shocks and volatility spillovers. The development of global supply chains depends on the extent to which intermediate goods and services can be directly imported from international suppliers rather imported rather than sourced exclusively from domestic suppliers. The proliferation of cross-border supply networks implies that shocks to one part of the supply chain can be rapidly transmitted to other systematic parts. It is important to note that strict measures of economic lockdown, which represent part of the government stringency response to the new coronavirus crisis, have further exposed the limits of global supply chains. The restrictions on mobility have naturally resulted in global shortages and bottlenecks, leading to major supply disruptions particularly in the electronic and automotive industries.

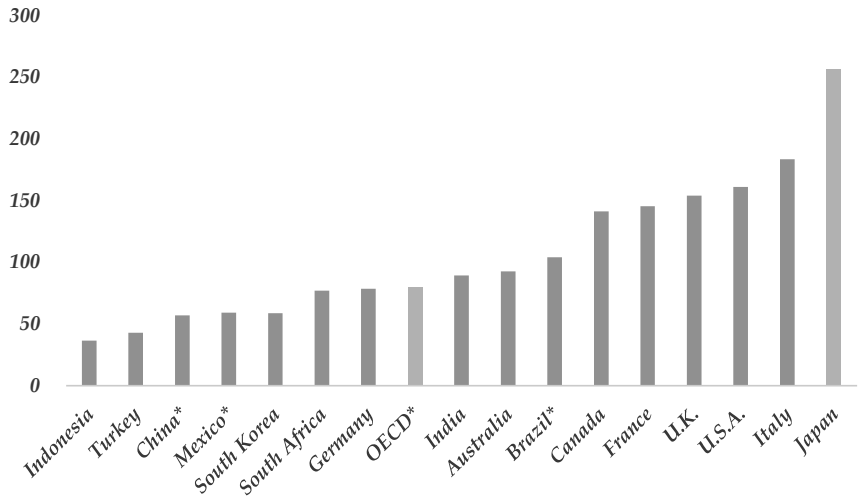
It is noted also that the unprecedented fall of WTI crude oil futures prices into negative territory at the onset of the coronavirus crisis is indicative of the serious impact of simultaneous shocks to supply and demand functions.[5] Negative futures prices were accompanied also by negative exercise prices for WTI options contracts. The typical explanation for negative futures prices is that oil producers and speculators with short positions in futures markets were compelled to unwind risk, positions in order to avoid delivery given the limits of storage capacity and the increased uncertainty about the impact of the coronavirus on the future global demand for energy. Through a rebound from negative futures prices and option trading with negative exercise prices was rather swift, an exit from monetary policies based on negative and near-zero interest rates seemed to be remote and more evasive. The long-term impact of shocks associated with the disease outbreak are likely to be more persistent. Indeed, the International Monetary Fund (2021) notes

[5] Part of the reason for negative CLK 20 WTI futures prices in has to do with attempts to avoid physical delivery and settle futures positions in cash after allowing for some discount. In contrast to speculators and arbitrageurs who participate in commodity futures markets to benefit from price fluctuations, and provide liquidity for buyers and sellers, before unwinding their positions at expiry, *bona fide* risk-hedgers are interested in making or taking delivery at specific times and locations.

in its World Economic Outlook that "[t]he global economic recovery is continuing, even as the pandemic resurges. The fault line opened up by Covid-19 are looking more persistent—near-term divergences are expected to leave lasting imprints on medium-term performance... Policy choices have become more difficult, confronting multidimensional challenges—subdued employment growth, rising inflation, food insecurity, the setback to human capital accumulation, and climate change—with *limited room to maneuver*." (IMF, 2021, p. xv, italics added). Also, Reinhart and Reinhart (2021) argue that the covid-19 pandemic poses a once-in-a-generation threat to the world population and that the global economy will never be the same.

In fact, a narrow room for policy manoeuvre was characteristic of the pre-pandemic economic conditions. It was indeed recognized earlier by the Bank for International Settlements (2015), which painted a similar picture of the global economic conditions. "Globally, interest rates have been extraordinarily low for an exceptionally long time, in nominal and inflation-adjusted terms, against any benchmark. Such low rates are the most remarkable symptom of a broader malaise in the global economy: the economic expansion is unbalanced, debt burdens and financial risks are still too high, productivity growth too low, and the *room for manoeuvre in economic policy too limited*. The unthinkable risks becoming routine and being perceived as the new normal." (BIS, 2015, p. 3, italics added). It is further argued that this malaise can be partly explained by the failure to address financial booms and busts that are conducive to "deep and enduring economics scars."

***Figure 2. Sustainability of government debt***




*Notes: Annual statistics on the general government debt to GDP ratio are obtained from the OECD database. All figures relate to the most recent observations for the year 2020, except for China, Mexico, and OECD average (2019), and Brazil (2017).*

Thus, the current economic system is not being reshaped solely by exogeneous shocks including the pandemic but also by other structural factors, including the forces of economic and financial globalization, among others. It can be argued that the limited room for manoeuvre characterizing the pre-pandemic conditions has narrowed even further. The significant economic scars and fault-lines caused by financial crises and the disease outbreak are reflective of serious policy and regularity failures to deal with the prevailing problems. Among the major sources of economic crises is the fragility of the financial system. Indeed, Raghuram (2006) argues that developments in the financial sector are conducive to an increased capacity of economies to bear risks but provides also strong warnings, prior to the onset of the U.S. financial crisis, that "under some conditions, economies may be more exposed to financial-sector-induced turmoil than in the past." The emergence of a whole range of intermediaries can "accentuate real fluctuations", and their collective behaviour may increase risks. Also, Rogoff and Reinhart (2009, 2011) provide a comprehensive account of eight centuries of financial folly, and argue that financial crises are intrinsically debt crises, and that banking crises increase the likelihood of sovereign debt defaults. These conditions increase also the likelihood of international capital controls and financial repression where governments exert pressures on financial institutions to purchase government bonds.

Another aspect of financial globalization is the tendency for governments to accumulate significant amounts of private and public debt. It is possible to assess the sustainability of government finance based on the ratio of government gross debt to GDP. It is clear from Figure 2, which presents the public debt-to-GDP ratio for a sample obtained from the OECD database, that most advanced economies are associated with higher government debt ratios. Indeed, Japan is associated with the highest level of government debt relative to GDP. It is followed by the relative levels of public debt in Italy, U.S.A., U.K., France, and Canada, which are significantly higher than the OECD average of 80 percent. Thus, it seems that concerns about the sustainability of government finance apply with greater force to advanced economies than emerging economies such as Indonesia and Turkey, which are associated with significantly lower ratios.

Higher levels of public and private debt are the natural result of repetitive attempts to provide conventional remedies to recurrent banking and financial crises. More debt, public or private, does not seem to provide viable solutions. It rather exacerbates the procyclicality of the financial system, which reflects the tendency for the credit and business cycles to evolve in tandem. Thus, it is important to address the risks attached with debt-based finance and financial system procyclicality. It is noted in this aspect that global finance is increasingly shaped by the sustained growth of Islamic financial markets and Islamic banking institutions,which were thriving even in the aftermath of the U.S. financial crisis. This growth is driven by the issuance of *sukuk* instruments

such as leasing, manufacturing projects, and joint ventures to finance partnership structures based on Shariah-compliant underlying assets. The defining principle of Islamic finance lies in the concept of risk sharing rather than risk transfer, which is intrinsically related to interest-based debt. As argued by Iqbal and Mirakhor (2011) and Maghrebi, Iqbal and Mirakhor (2016), *inter alia*, it is equity rather than debt that precludes defaults, and prevents thereby the predominance of speculative activities, the formation of asset bubbles that undermine and the onset of banking and financial banking crises. Given the near-zero interest-rate monetary policies and erosion of traditional banking models, risk sharing arrangements are bound to be the driving force behind the financing of new start-ups and entrepreneurial initiatives stemming from technological advances.

Thus, financial globalization is reshaping the dynamics of financial markets in unprecedented ways. The new dynamics are not likely to be driven so much by increased liquidity or stronger ability to borrow more or lower costs, as by the ability to attract investment and promote entrepreneurship though more sustainable risk sharing finance. The burst of asset bubbles is not without long-term consequences as demonstrated by the decades-long stagnation of the Japanese economy. Thus, the likelihood of poor economic performance and shift in economic power will depend on the ability to reduce the risks inherent to debt-based financial system and absorb shocks according to the individual levels of risk tolerance within the society. A shift in economic power may not be the result only of weaker demographics, or lagging rather than leading technological innovation, but also the natural outcome of fragile financial systems, where risks are merely transferred and shifted away rather than shared on sustainable ways.

## 3. The future of jobs

As explained in the previous section, the new economic dynamics are shaped by several megatrends including demographic and social changes, rapid urbanization, disruptive technologies, and financial globalization. These interrelated forces are bound to transform economic systems and result in potential shifts in economic power. The new economic dynamics are also transforming the job markets by redefining the required set of skills. The prospects of economic growth will depend on the ability of educational institutions to satisfy the demand for skilled human resources. In this respect, evidence of persistent skill gaps may be reflective of the inability of educational institutions to address the impact of digitization, computerization, and automation on traditional jobs. The concern is that such skill gaps may be, in turn, conducive to lower productivity and competitiveness levels, as well as declining economic performances.

***Table 1. Probability of U.S. job losses within two decades due to computerization, 2013***

| *Job description* | *Probability* |
|---|---|
| Recreational therapists | 0.0028 |
| Physicians and surgeons | 0.0042 |
| Writers and authors | 0.0380 |
| Human resources managers | 0.0055 |
| Athletic trainers | 0.0071 |
| Clergy | 0.0081 |
| Education administrators, Postsecondary | 0.010 |
| Logisticians | 0.012 |
| Sales managers | 0.013 |
| Marketing managers | 0.014 |
| Chief executives | 0.015 |
| Industrial production managers | 0.030 |
| Database administrators | 0.030 |
| Lawyers | 0.035 |
| Mathematicians | 0.047 |
| Editors | 0.055 |
| Financial managers | 0.069 |
| Compliance officers | 0.080 |
| Management analysts | 0.13 |
| Statisticians | 0.22 |
| Financial analysts | 0.23 |
| Judges, magistrate judges and magistrates | 0.40 |
| Economists | 0.43 |
| Historians | 0.44 |
| Computer programmers | 0.48 |
| Market research analysts and marketing specialists | 0.61 |
| Real estate sales agents | 0.86 |
| Retail salespersons | 0.92 |
| Accounts and auditors | 0.94 |
| Budget analysts | 0.94 |
| Credit analysts | 0.98 |

*Source: Frey and Osborne (2017)*

In order to assess the impact of computerization on the future of jobs, Frey and Osborne (2013) estimate the probability of computerization for different occupations in the U.S. economy using a Gaussian process classifier. The evidence suggests that nearly half (47%) of the current occupations are at risk of computerization within the next two decades. With reference to

Table 1, there is a low likelihood of related job losses for writers and authors, human resources managers, logisticians, sales and marketing managers, chief executives, industrial production managers, database administrators, and financial managers. It is important to note also that these probability levels remain low for education administrators, which may not be so much vulnerable to the risks of computerization as to those associated with shrinking populations and lower birthrates.

*Table 2. The future of jobs survey 2020*

| | Decreasing Demand | | Increasing Demand |
|---|---|---|---|
| **1** | Data Entry Clerks | 1 | Data Analysts & Scientists |
| 2 | Administrative & Executive Secretaries | 2 | AI & Machine Learning Specialists |
| 3 | *Accounting, Bookkeeping & Payroll Clerks* | 3 | Big Data Specialists |
| **4** | *Accountants & Auditors* | **4** | *Digital Marketing & Strategy Specialists* |
| 5 | Assembly & Factory Workers | 5 | Process Automation Specialists |
| **6** | *Business Services & Administrative Managers* | **6** | *Business Development Professionals* |
| 7 | *Client Information & Customer Services Workers* | 7 | *Digital Transformation Specialists* |
| 8 | *General & Operations Managers* | 8 | Information Security Analysts |
| 9 | Mechanics & Machinery Repairs | 9 | Software & Applications Developers |
| 10 | *Material-Recording & Stock-Keeping Clerks* | 10 | Internet of Things Specialists |
| **11** | *Financial Analysts* | **11** | *Project Managers* |
| **12** | Postal Service Clerks | **12** | *Business Services & Administrative Managers* |
| 13 | *Sales Rep. Wholesale & Manuf., Tech. & Sci. Products* | 13 | Database & Network Professionals |
| 14 | *Relationship Managers* | 14 | Robotics Engineers |
| **15** | Bank Tellers & Related Clerks | **15** | *Strategic Advisors* |
| **16** | *Door-to-Door Sales, News & Street Vendors* | **16** | *Management & Organization Analysts* |
| 17 | Electronics & Telecoms Installers & Repairs | 17 | *Fintech Engineers* |
| 18 | *Human Resources Specialists* | 18 | Mechanics & Machinery Repairers |
| **19** | *Training & Development Specialists* | **19** | *Organizational Development Specialists* |
| **20** | Construction Laborers | **20** | *Risk Management Specialists* |

*Source: Future of Jobs Survey 2020, World Economic Forum. It is noted that the classification of jobs into increasing or decreasing demand is based on the results of the 2018 and 2020 surveys.*

However, the above evidence about potential job losses due to computerization should be also understood in light of additional evidence on the future of jobs. Table 2 provides further evidence about the demand dynamics in job markets based on the 2018 and 2020 surveys by the World Economic Forum (2020). The survey results suggest that there is a decrease in the

demand for accountants and auditors, general and operations managers, financial analysts, sales representatives, door-to-door salespersons, and human resources specialists. In contrast, there is an increase in the demand for jobs related to digital marketing & strategy specialists, business development professionals, digital transformation specialists, project managers, business services & administrative managers, strategy advisors, management & organization analysts, fintech engineers, organizational development specialists, and risk management specialists, among others.

Thus, it is important to note that the acceleration of job automation and artificial intelligence are conducive to decreasing demand for routine jobs. Part of the reason for the increased likelihood of job losses in accounting and bookkeeping, data entry, business services, administrative management, sales, budgeting and credit analysis is the propensity for routine cognitive tasks to be computerized. In contrast, the new technologies are conducive to growing demand for highly skilled specialists in innovative areas including data analysis, digital marketing, strategy advisory, digital transformation management, business development, project management, and risk management, *inter alia*. To the extent that artificial intelligence can significantly transform job markets, the risks associated with skill gaps are difficult to overrate and too important to ignore. The new demand dynamics in the job markets have, indeed, serious implications for the redefinition of the missions of institutions of higher education, and in particular faculties of economics, which will be briefly explored in the following sections.

## 4. The shifting educational landscape

There is no doubt that the future of education is intrinsically related to the future of jobs. While conventional wisdom suggests that new economic dynamics and technological advances are conducive, not only, to the elimination of traditional jobs, but to the creation of new ones as well, the issue is whether the demand and supply functions for new skills can be appropriately matched. Given the increased uncertainty about the future of traditional jobs, the natural question arises as to how institutions of higher learning should adapt to the shifting educational landscape and contribute to the development of human resources equipped with the required skills to face increased economic uncertainty. It is important, at this point, to discuss the overall available evidence about, the performance of Japanese universities relative to other institutions of higher learning in the world, in order to better understand their ability to meet future challenges.

Table 3A reports the classification of Asian universities in the Times Higher Education rankings of world universities over the period from 2011 to 2021. The focus is placed on Asian universities ranked among the top 200 universities in the world either in the 2010-11 or 2021-22 rankings. It appears that a relatively larger number of universities from China is included among

the top universities in the world.[6] Five Japanese universities were classified relatively among the best performing Asian universities in the initial global ranking of 2010-11, but their relative performances deteriorated significantly judging from the most recent world ranking of 2021-22. Only the University of Tokyo and Kyoto University remain in the top 200 universities in the world, while dropping by 9 and 4 ranks, respectively. Despite its significance, the descent of Tohoku University to lower ranking brackets is even less pronounced than that of Tokyo Institute of Technology and Osaka University.

***Table 3A. Times Higher Education world rankings of Asian universities (2010-2021)***

| *Times Higher Education THE World University Ranking (Asia)* | *Country Region* | *2010–11* | *2015–16* | *2020–21* | *2021–22* | *2010–2021* |
|---|---|---|---|---|---|---|
| University of Hong Kong | Hong Kong | 21 | 44 | 39 | 30 | ▽9 |
| University of Tokyo | Japan | 26 | 43 | 36 | 35 | ▽9 |
| Pohang University of Science & Technology | South Korea | 28 | 116 | 151 | 185 | ▽157 |
| National University of Singapore | Singapore | 34 | 26 | 25 | 21 | △13 |
| Peking University | China | 37 | 42 | 23 | 16 | △21 |
| Hong Kong University of Science & Technology | Hong Kong | 41 | 59 | 56 | 66 | ▽25 |
| University of Science and Technology of China | China | 49 | [*a*] | 87 | 88 | ▽39 |
| Kyoto University | Japan | 57 | 88 | 54 | 61 | ▽4 |
| Tsinghua University | China | 58 | 47 | 20 | 16 | △42 |
| Korea Advanced Institute of Science & Technology | South Korea | 79 | 148 | 96 | 99 | ▽20 |
| National Tsinghua University | Taiwan | 107 | [*b*] | [*d*] | [*d*] | ▽[>*244*] |
| Seoul National University | South Korea | 109 | 85 | 60 | 54 | △55 |
| Hong Kong Baptist University | Hong Kong | 111 | [*d*] | [*d*] | [*e*] | ▽[>*299*] |
| Tokyo Institute of Technology | Japan | 112 | [*a*] | [*c*] | [*c*] | ▽[>*189*] |
| National Taiwan University | Taiwan | 115 | 167 | 97 | 113 | ▽2 |
| Nanjing University | China | 120 | [*b*] | 111 | 105 | ▽15 |
| Osaka University | Japan | 130 | [*b*] | [*d*] | [*c*] | ▽[>*171*] |
| Tohoku University | Japan | 132 | [*a*] | [*a*] | [*a*] | ▽[>*69*] |
| Hong Kong Polytechnic University | Hong Kong | 149 | [*a*] | 129 | 91 | △58 |
| National Sun Yat-Sen University | Taiwan | 163 | [*f*] | [*g*] | [*g*] | ▽[>*638*] |

[6] The combined list of Asian universities classified among the top 200 universities in either of the 2010-11 or 2021-22 world rankings is inclusive of 11 universities from China, 6 from Hong Kong, 6 from South Korea, 5 from Japan, 4 from Taiwan, 2 from Singapore, and a single university from Saudi Arabia.

| | | | | | | |
|---|---|---|---|---|---|---|
| Sun Yat-Sen University | China | 171 | [*d*] | [*b*] | [*b*] | ▽[*>80*] |
| Nanyang Technological University | Singapore | 174 | 55 | 47 | 46 | △128 |
| National Chiao Tung University | Taiwan | 181 | [*c*] | [*f*] | [*c*] | ▽[*>120*] |
| Yonsei University | South Korea | 190 | [*c*] | 187 | 151 | △39 |
| Zhejiang University | China | 197 | [*b*] | 94 | 75 | △122 |
| Chinese University of Hong Kong | Hong Kong | - | 138 | 56 | 49 | △89 |
| Sungkyunkwan University | South Korea | - | 153 | 101 | 122 | △31 |
| Fudan University | China | - | [*a*] | 70 | 60 | △[*>141*] |
| City University of Hong Kong | Hong Kong | - | [*a*] | 126 | 151 | △[*>50*] |
| King Abdulaziz University | Saudi Arabia | - | [*b*] | [*a*] | 190 | △[*>61*] |
| Shanghai Jiao Tong University | China | - | [*c*] | 100 | 84 | △[*>217*] |
| Wuhan University | China | - | [*e*] | [*c*] | 157 | △[*>244*] |
| Ulsan National Institute of Science & Technology | South Korea | - | - | 176 | 178 | ▽2 |
| Southern University of Science & Technology | China | - | - | [*b*] | 162 | △[*>89*] |
| Huazhong University of Science & Technology | China | - | [*f*] | [*c*] | 181 | △[*>320*] |

*Notes: The ranking intervals are represented by the bracketed letters [a] for the 201-250, [b] for 251-300, [c] for 301-350, [d] for 351-400, [e] for 401-500, [f] for 501-600, and [g] for 801-1000 brackets. Figures following the symbols △ and ▽ indicate the numbers of gained or lost ranks over the 2010-11 to 2021-22 world rankings.*

The poor performances of Japanese universities are associated, over the same decade, with significant gains in ranking for many Asian universities, particularly from China. For instance, Peking University and Tsinghua University are currently ranked 16th in the world, an ascent of 21 and 42 positions, respectively. Similarly, the National University of Singapore, Nanyang Technological University, Seoul National University, Yonsei University, and Zhejiang University have climbed the world university rankings. It is also noted that Asian universities failed to be classified among the top world universities a decade ago, but made significant gains in ranking are institutions of higher learning in China, South Korea or Hong Kong. In contrast, there are no Japanese universities with similar ranking gains. Thus, judging from the observed changes in THE world university rankings over time, there is a clear tendency for Japanese universities to underperform other Asian competitors.

*Table 3B. QS world rankings of Asian universities (2003-2021)*

| *QS World University Rankings (Asia)* | *Country Region* | *2003–04* | *2009–10* | *2014–15* | *2019–20* | *2021–22* | *2003-2021* |
|---|---|---|---|---|---|---|---|
| University of Tokyo | Japan | 12 | 24 | 31 | 22 | 23 | ▽11 |
| Peking University | China | 17 | 47 | 57 | 22 | 18 | ▽1 |
| National University of Singapore | Singapore | 18 | 31 | 22 | 11 | 11 | △7 |
| Kyoto University | Japan | 29 | 25 | 36 | 33 | 33 | ▽4 |
| University of Hong Kong | Hong Kong | 39 | 23 | 28 | 25 | 22 | △17 |
| Indian Institute of Technology, Delhi | India | 41 | 202 | 235 | 182 | 185 | ▽144 |
| Hong Kong University of Science & Technology | Hong Kong | 42 | 40 | 40 | 32 | 34 | △8 |
| Osaka University | Japan | 69 | 49 | 55 | 71 | 75 | ▽6 |
| Nanyang Technological University | Singapore | 50 | 74 | 39 | 11 | 12 | △38 |
| Tokyo Institute of Technology | Japan | 51 | 60 | 68 | 58 | 56 | ▽5 |
| Tsinghua University | China | 62 | 54 | 47 | 16 | 17 | △45 |
| Chinese University of Hong Kong | Hong Kong | 84 | 42 | 46 | 46 | 39 | △45 |
| University of Malaya | Malaysia | 89 | 207 | 151 | 70 | 65 | △24 |
| National Taiwan University | Taiwan | 102 | 94 | 76 | 69 | 68 | △34 |
| Seoul National University | South Korea | 119 | 50 | 31 | 37 | 36 | △83 |
| Yonsei University** | South Korea | 151 | 142 | 106 | 104 | 79 | △72 |
| Tohoku University | Japan | 153 | 102 | 71 | 82 | 82 | △71 |
| University of Science and Technology of China | China | 154 | 154 | 147 | 89 | 98 | △56 |
| Korea Advanced Institute of Science & Technology | South Korea | 160 | 79 | 51 | 41 | 41 | △119 |
| Pohang University of Science and Technology | South Korea | 163 | 112 | 86 | 87 | 81 | △82 |
| Nagoya University | Japan | 167 | 91 | 103 | 115 | 118 | △49 |
| Shanghai Jiao Tong University (*) | China | 169 | 151 | 104 | 60 | 50 | △119 |
| Korea University (*) | South Korea | 184 | 191 | 116 | 83 | 74 | △110 |
| Nanjing University | China | 192 | 177 | 162 | 120 | 131 | △61 |
| Fudan University, China | China | 196 | 105 | 71 | 40 | 31 | △165 |
| City University of Hong Kong | Hong Kong | 198 | 129 | 108 | 52 | 53 | △145 |
| Zhejiang University (***) | China | - | 218 | 144 | 54 | 45 | △173 |
| Hong Kong Polytechnic University (**) | Hong Kong | - | 166 | 162 | 91 | 66 | △129 |
| Sungkyunkwan University (***) | South Korea | - | 343 | 140 | 95 | 97 | △246 |
| King Abdulaziz University | Saudi Arabia | - | *[a]* | 334 | 186 | 109 | △[>292] |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| Kyushu University | Japan | - | 153 | 126 | 132 | 137 | △16 |
| University of Putra Malaysia | Malaysia | - | 319 | 376 | 159 | 143 | △176 |
| National University of Malaysia | Malaysia | - | 263 | 259 | 160 | 144 | △119 |
| Hokkaido University | Japan | - | 175 | 135 | 132 | 145 | △30 |
| University of Science, Malaysia | Malaysia | - | 309 | 309 | 165 | 147 | △162 |
| Hanyang University | South Korea | - | 354 | 219 | 150 | 156 | △198 |
| King Fahd University of Petroleum & Minerals | Saudi Arabia | - | 255 | 225 | 200 | 163 | △92 |
| Al-Farabi Kazakh National University | Kazakhstan | - | - | 305 | 207 | 175 | △130 |
| Indian Institute of Technology, Bombay | India | - | 187 | 222 | 152 | 177 | △10 |
| National Tsinghua University | Taiwan | - | 196 | 167 | 173 | 180 | △16 |
| Khalifa University | U.A.E. | - | - | *[b]* | 268 | 183 | △[>258] |
| Indian Institute of Science | India | - | - | - | 184 | 186 | ▽2 |
| University of Technology, Malaysia | Malaysia | - | 365 | 294 | 217 | 191 | △174 |

*Notes: The ranking intervals [401–450] and [441–450], are represented by superscripts [a], and [b], respectively. Asterisks in parentheses (*) indicate the initial 2005 QS ranking statistics available for Shanghai Jiao Tong University (2005), and Korea University, (**) 2009 rankings for Hong Kong Polytechnic University and Yonsei University, and (***) 2010 rankings for Zhejiang University and Sungkyunkwan University.Figures following the symbols △ and ▽ indicate the numbers of gained or lost ranks over the 2010-11 to 2021-22 world rankings.*

Further evidence about the relative performances of Asian universities is provided by changes in of QS world university rankings over the longer time period from 2003 to 2021. As with Table 3A, it is possible to assess changes in the relative performances of Asian universities classified among the top 200 either in the 2003-04 or 2021-22 global rankings.[7] Table 3B reports the changes in classification over time, and it appears that in contrast to evidence from Table 3A, the QS list of top universities is inclusive of a larger number of universities, and it is more diversified in terms of geographic distribution. It is noted that the University of Tokyo, which was ranked as the top Asian university in the initial 2003-04 rankings, declined significantly over time. Similarly, Kyoto University, Osaka University, and Tokyo Institute of Technology fell by an average of 5 positions. The relative performance of other Japanese universities seems to be better appreciated, with an average gain of more than 40 positions.However, only Tohoku University joins the above

[7] The distribution of universities across includes 8 from Japan, 7 from China, 7 from South Korea, 5 from Hong Kong, 5 from Malaysia, 3 from India, 2 from Singapore, 2 from Taiwan, 2 Saudi Arabia, one university from Kazakhstan, and another from the U.A.E.

from Japanese universities among the top 200 world universities.

It is also noted that in the most recent QS world university rankings for 2021-22, two Singaporean universities take the pole positions among Asian universities. Apart from Peking University, which essentially maintained its leading position over the years, all remaining Chinese universities recorded gains in ranking exceeding 100 positions on average.[8] There is evidence that six universities from South Korea with initially lower ranking are currently classified among the top 100.[9] All universities from Hong Kong have improved their leading positions over time. Similarly, there is a significant improvement in the performance of other Asian countries, including institutions of higher learning in Malaysia.

Thus, judging from the Times Higher Education and QS world university rankings reported in Tables 3A and 3B, there are potential dividends from investment in education and research. Changes in world university rankings are reflective of a rapidly shifting educational landscape in Asia. It is clear that the highest losses of competitiveness are associated with Japanese universities. In contract, higher performances seem to be associated with more Japanese universities as by more dynamic institutions of higher learning in China, Hong Kong, Singapore, and South Korea in particular. Thus, there is compelling evidence that Japanese universities have failed to achieve tangible improvements and continue to underperform their peers. The significant loss of global competitiveness is taking place against the background of a steady decline in governmental grants and subsidies to Japanese national universities following the implementation of university reforms in 2004. There is no evidence that the focus on selected research universities to lead the competition for global university ranking has improved ever sustained their world ranking status.

Thus, insofar as Japanese universities are concerned, it is important to draw some lessons from the global rankings based on the aggregate assessment of university performances. It is noted that these assessment exercises take into consideration the quality of research and its impact on society. Part of the reason for the leading position of The University of Oxford in the latest world university ranking by Times Higher Education lies in its significant contribution to the rapid development of new covid vaccines. For many universities around the world, the disease outbreak has exposed, indeed, the limits of research capabilities, and absence of flexibility to allow for the reallocation of research funding on emergency basis. Reference can be made also to the criteria underlying the QS world university rankings, which are based on six metrics including academic reputation (40%), employer reputation (10%), faculty-student ratio (20%), citations

[8] It is noted that Tsinghua University is the leading Chinese university following a surge of 45 positions over the period from 2003 to 2021.

[9] There is a significant gain of 246 positions by Sungkyunkwan University within the shorter period from 2010 to 2021.

per faculty (20%), international faculty ratio (5%), and international student ratio (5%). Thus, university rankings depend on the quality of education, research, and efforts toward campus internationalization. Academic reputation carries the highest weight, and it is based on academic surveys regarding the scholars' opinions about excellence in research and education in specific areas of expertise. Employer reputation surveys provide information about the ability of institutions of higher learning to equip graduates with the essential skills required in the evolving job markets.

It is noted also that since the ratio of teachers to students provides a proxy for teaching quality, a disproportionate decrease in teaching staff relative to the declining student population is conducive to lower scores and lower rankings. The number of faculty members is important also in the assessment of research output using the citations per faculty metric. Relatively higher numbers of faculty members imply lower teaching burdens and stronger incentives for productive research activities. Finally, the metrics of international diversification are indicative of the ability of universities to attract the best minds in the world. The various metrics are interrelated as campus internationalization provides students with better exposure to multicultural environments, improving thereby university reputations. Thus, it is not difficult to understand the underlying reasons for persistent gains or precipitous falls in world university rankings in light of optimal allocation of resources, or lack thereof, toward excellence in research and education.

A key indicator of commitment toward investment in research to expand the boundaries of knowledge and scientific discovery is the ratio of expenditures in research and development as a share of gross domestic product. With reference to Panel A of Table 4, there is evidence that, apart from France, annual changes in R&D expenditure per GDP are, on average, positive over the sample period from 1996 to 2018 for a sample of developing and emerging economies. China is associated with the highest average increase in R&D expenditures, with consistently positive rates over the sample period. It is followed by Turkey, Hong Kong, South Korea and Singapore, which have distinctively higher rates of R&D expenditures despite significantly lower GDP levels. Certainly, the strategic allocation of funds toward research does entail risks that should be shared by the entire society, but the alternative of underinvestment in research is to forego potential returns in terms of scientific discoveries, knowledge accumulation, and excellence in education. Thus, stronger commitment to research and development is conducive to significant investment dividends in terms of sustainable economic growth and potentially higher world university rankings.

*Table 4. Annual changes in various measures of Research & Development*

| *Country & Region* | *Mean* | *Minimum* | *Maximum* | *Stand. Dev.* |
|---|---|---|---|---|
| | *Panel A- Research & Development expenditures per GDP* | | | |
| China | 0.0649 | 0.0038 | 0.1915 | 0.0542 |
| Turkey | 0.0426 | −0.2633 | 0.0601 | 0.1120 |
| Hong Kong | 0.0371 | −0.0542 | 0.1699 | 0.0598 |
| South Korea | 0.0357 | −0.0593 | 0.0801 | 0.0414 |
| Singapore | 0.0223 | −0.1800 | 0.2271 | 0.0877 |
| Germany | 0.0171 | −0.0164 | 0.0623 | 0.0217 |
| Japan | 0.0091 | −0.0385 | 0.0500 | 0.0252 |
| United States of America | 0.0069 | −0.0336 | 0.0518 | 0.0207 |
| United Kingdom | 0.0040 | −0.0427 | 0.0530 | 0.0223 |
| France | −0.0002 | −0.0341 | 0.0732 | 0.0228 |
| | *Panel B- Number of researchers per million people* | | | |
| Hong Kong | 0.0721 | −0.0621 | 0.2643 | 0.0859 |
| Turkey | 0.0673 | −0.0321 | 0.2547 | 0.0624 |
| South Korea | 0.0628 | −0.1068 | 0.2494 | 0.0645 |
| China | 0.0575 | −0.2804 | 0.2996 | 0.1133 |
| Singapore | 0.0508 | −0.0224 | 0.2959 | 0.0689 |
| United Kingdom | 0.0289 | −0.0290 | 0.0892 | 0.0361 |
| Germany | 0.0284 | −0.0105 | 0.0979 | 0.0247 |
| France | 0.0263 | −0.0063 | 0.0669 | 0.0165 |
| United States of America | 0.0167 | −0.0502 | 0.0665 | 0.0275 |
| Japan | 0.0044 | −0.0473 | 0.0457 | 0.0247 |

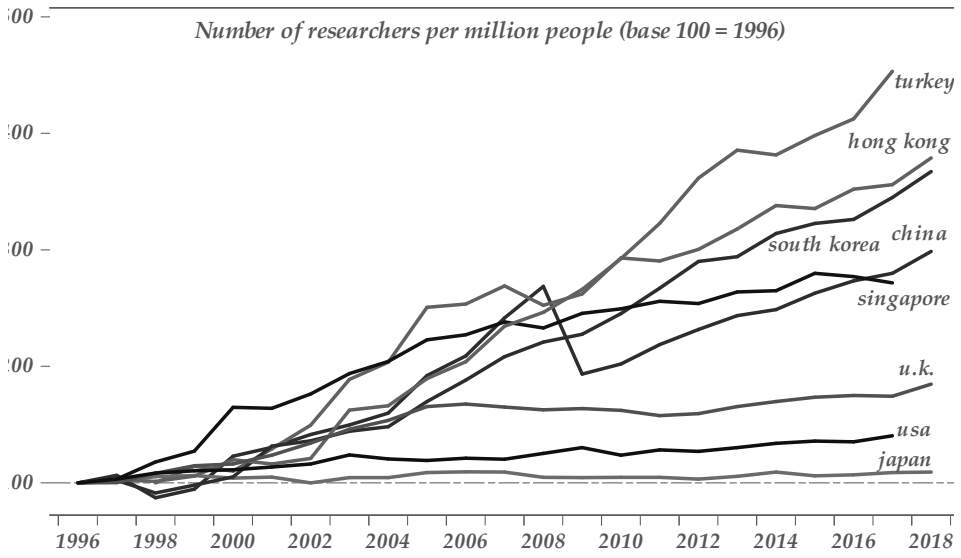
*Source: The World Bank Database, Sample period 1996–2018.*

It is possible also to consider the number of researchers per million people as another measure of commitment toward excellence in research. The evidence from Panel B of Table 4, which reports the average of annual changes in the number of researchers over the same sample period, indicates that Japan is associated with the lowest annual growth rate in the number of researchers. Similarly, low averages are also associated with the United Kingdom, France, Germany, and the U.S.A.. Thus again, it is the same group of countries including Hong Kong, Turkey, South Korea, China, and Singapore that are associated with higher rates of growth in the number of researchers. Judging from the levels of variability measured by standard deviations, Japan has maintained the low rates of growth in the number of researchers. Given the decline in population, the relatively anemic growth in the number of researchers per million people is indicative of a net decrease in the total number of researchers.

A graphical representation of the evolution of the number of researchers per million across

the sample countries is provided by Figure 3. It is noted that Turkey has more than quadrupled its number of researchers per million against a population growth of nearly 40% over the same period. The relative numbers of researchers in Hong Kong and South Korea have similarly increased more than three-folds in association with growth rates in population not exceeding 16% and 14%, respectively. China and Singapore present an increase exceeding two folds of their respective numbers of researchers per million as their total populations grew by around 14% and 54%, respectively. The rates of growth in the number of researchers per million for the U.K. and U.S.A. are significantly lower than those of Hong Kong, South Korea and China, despite similar or even higher growth rates in population. In contract, it is Japan that is characterized by a clear stagnation in the relative number of researchers, against a marginal growth rate in population of around 0.6% over the same period. The observed increase in the relative number of researchers remains insignificant, and inconsistent with international trends for meaningful investment in human resources dedicated to research.

*Figure 3. Evolution of the number of researchers per million*




Thus, whereas the improvement in the world ranking of several Asian universities has been remarkable, the overall performance of Japanese universities has been rather dismal. Persistently low levels of research & development expenditures and stagnant, if not decreasing, numbers of researchers cannot be expected to yield better performances and rankings. It may be difficult to isolate the effects of shrinking populations and decreasing ratio of investment in research, but the critical arguments and concerns about serious implications of the latter for the quality of education, development of human resources, real investment, and economic growth cannot be

easily dismissed. Given the persistent decline in government funding, the dearth of researchers at Japanese universities and the ensuing decline in performances.[10]

Thus, the natural question arises as to how the chronic problems associated with the deterioration of research environments in Japanese universities should be addressed. There is a major shift in government funding strategies with the permission granted to the University of Tokyo to issue the first university bonds in Japan. This debt-financing approach mimics similar fund-raising measures by Oxford University and University of Cambridge, among others. The government launched also a new endowment fund under the Japan Science and Technology Agency to finance innovative research that is traditionally eschewed by conservative research institutions. The endowment fund is founded on the assumption that the expected returns generated from diversified portfolio investment into equity, bonds, and alternative assets, would be sufficient to meet the growing needs for research funding. Thus, external funding sources are expected to in bridge the shortfalls in government funding, and sustain the financial independence of Japanese universities. But the question remains as to whether university administrators and trustees possess the required expertise and competence in managing debt which increases the likelihood of financial distress, and whether the endowment fund can attract top investment professionals.

The major concerns about the commercialization of higher education are not new. The former President of Harvard University, Derek Bok (2004, p. 118–119) notes that "the costs of increased commercialization seem considerably larger than the benefits… Looking back at the history of commercialization, one quickly perceives a persistent tendency to exaggerate the benefits and overlook or underestimate the dangers… The principal advantage to the institution -money- will usually seem immediate, tangible, and extremely useful to help meet pressing needs. In contrast, the dangers—to the consciousness of faculty, or to the moral education of students, or to the trust of the public—are all intangible and remote. They may never materialize, at least not for a long time, so that it is all too easy to overlook them." Indeed, sharp cuts and sustained decreases in government funding may be intended to arouse the entrepreneurial spirits in some university managers. But the relentless pursuit of higher revenues to service outstanding debt without a rational assessment of the balance of risks and returns may very well undermine the raison d'être of institutions of higher learning. Thus, there are legitimate concerns, as expressed by Bok (2004), that the lure of the marketplace may alter the behaviour of university administrators and faculty

[10] It is important to note that, for instance, Japanese government grants for operating expenses for the fiscal year 2021 represent only 87 percent of the corresponding budget allocation in 2004, a year that marks the initiation of major reforms of Japanese national universities.

members, and in turn, the nature of educational institutions.

## 5. The changing role of faculties of economics

The continuous efforts to balance the growing needs for flexible educational programs with shrinking budgets are met with increasing risks and diminishing returns. Given the precarious budgetary conditions, it is increasingly difficult to manage the risks inherent to debt financing and entrepreneurial activities, and ensure, academic freedom, and intellectual honesty. It is crucial for faculties of economics, in particular, not to lose focus from the essential mission of promoting excellence in research and nurturing human resources capable of addressing the challenges posed by the shifting dynamics of economic systems. If the future of jobs is driven by complex dynamics of interrelated megatrends, and the future of education is governed by the future of jobs, then the future of faculties of economics cannot be understood in isolation from the powerful forces that shape the economic system and alter the behaviour of institutions of higher learning.

Thus, it is essential for faculties of economics is to continue pursuing excellence in education and research in the interrelated fields of economics, management, information sciences, and decision sciences in order to accumulate knowledge, promote better understanding and preserve public trust. As argued in the previous sections, institutional efforts to achieve these noble objectives require a firm understanding of the complex dynamics of the economic system and job markets, and greater awareness about the vulnerable conditions of universities in the shifting educational landscape. For these purposes, this section discusses the difficult challenges and rational responses to the needs of bridging the skills gap with flexible and multidisciplinary educational programs, promoting areas of research with significant impact on society, and strengthening the linkage between education and research.

It is important to note, at this juncture, that the persistent decline in the global university rankings for leading Japanese universities is accompanied with similar losses in global competitiveness by large Japanese firms.[11] The observed correlation between the poorer global rankings of Japanese corporations and Japanese universities is not a mere coincidence. It is tempting to explain indeed the persistent deterioration in performances with the irresistible trend toward ageing population, reduced workforce, shrinking domestic market, and economic stagnation. But part of the reason may have to do also with collective failures to address the new challenges posed by the new economy with novel business models, innovative investment

[11] The number of Japanese companies ranked among the top hundred in the Fortune Global 500 decreased from 12 firms in 2005 to only 7 in 2021. In contrast, the number of Chinese companies has grown from 3 to 18 over the same period.

strategies, and effective economic policies. Leadership failures to manage economic uncertainty may be reflective of deeper difficulties in understanding the dynamics of new risk-return tradeoffs. They may be indicative also of a lack of insightful economic research to discerns cause from effect. Ultimately, these failures contribute a compelling evidence of underinvestment in the diffusion of economic knowledge with effective research and educational programs.

The principal challenge for faculties of economics is to contribute toward a better understanding of the determinants of economic growth and sources of the underlying financial and economic crises. It is difficult to provide new insights about pressing issues such as financial instability, unconventional monetary policies, economic protectionism, and income inequalities, without revisiting the foundations of economic theory, which provides the basis for economic and social policies. It is clear that serious challenges to mainstream economic wisdom have intensified in the aftermath of the U.S. financial crisis. But earlier contributions to new economic thought have also drawn attention to the serious economic and social problems stemming from financial instability, income inequality, and increasing poverty. Thomas Piketty (2004, p. 571) addresses part of these problems in the book on Capital in the Twenty-First Century, where he argues that "the principal destabilizing force has to do with the fact that the private rate of return on capital, $r$, can be significantly higher for long periods of time than the rate of growth of income and output, $g$." The central contradiction of capitalism is reflected by the inequality $r>g$, which implies that output and wages remain lower than wealth accumulation.

As wealth accumulation is driven by returns on financial assets while wages are intrinsically linked to economic output, it is easy to note that the inequality is reflective of the growing disconnect between the real economy and the financial economy. It is important to note also that since uncertainty is inherent to virtually all economic activities, the pre-determination of the rates of return on financial assets is not consistent with the nature of return in the real economy. Thus, risk sharing rather than risk transfer should be an integral part of financial and economic activities. The impact of uncertainty and the complexity of the economic and financial system should not be overlooked. There are also other serious flaws in the main assumptions underlying mainstream economic thought, including self-interest, rational expectations, and efficient markets, among others. These theoretical flaws have an important bearing on economic policies because these policies depend on economic behaviour and attitudes toward risk and uncertainty. Thus, there is a need to revisit economic theories and reexamine economic policies, and it is crucial that students in faculties of economics are exposed to various schools of economic thought in order to gain a deeper understanding of the implications of uncertainty and risk for economic policymaking and management strategies.

Critical thinking is essential for the development of new economic thought and for a better

understanding of the forces shaping the real economy and business-cycle fluctuations. Faculties of economics with an incoherent amalgam of economic and management courses may face serious difficulties in defining the appropriate future curricula and educational programs. With reference again to Table 1, which reports the probability of future job losses due to job automation through the computerization of routine tasks, it is important to note that significant shifts in the job markets are pushing down the demand for routine jobs such as accounting, and credit analysis. Indeed, as argued by Autor, Levy, and Murnane (2003), who make the important distinction between cognitive and manual tasks and between routine and non-routine jobs, computerization is associated with reduced labour input of routine manual and routine cognitive tasks, but it also opens avenues for increased labour input of non-routine cognitive tasks. Thus, educational programs at faculties of economics should take into consideration the impact of technological advances and the ongoing division of labour between machines and humans. The focus should be, then, placed on the development of non-routine cognitive skills and critical thinking rather than repetitive tasks and traditional skills associated with diminishing returns.

It is imperative for faculties of economics to offer courses that facilitate a better understanding of the new economy driven by the forces of digitalization and financial globalization. However, teaching the required skills in data analytics in terms of data collection and pattern identification may worse sufficient. It is important to focus on critical thinking skills that allow future generations of global human resources to identify social and economic trends and make better business decisions and sound economic policies. The development of critical thinking abilities hinges, however, on the ability of faculty members to conduct effective research about the nature of economic and social dynamics and the risks and opportunities associated with business fluctuations. Indeed, it is difficult to ensure sustainable human development in the absence of a conducive teaching and learning environment. And it is equally difficult to strengthen the educational capabilities without pursuing excellence in research. It is natural that the levels of knowledge and understanding of the economic dynamics as well as attitudes toward research will determine the extent to which the student levels of cognitive abilities and critical thinking skills can be improved. The environment for independent research may be deteriorating, but the need for excellence in research is ever more pressing given the increasing complexity of economic systems and economic uncertainty.

Thus, the design of a rigorous and effective curriculum in faculties of economics should not be driven solely by traditional economic thought and management theories. Nor should it be governed by the development of routine cognitive skills. Nor should it be founded only on the development of programming skills to process data, recognize patterns, and identify trends. It should be determined by the need to develop the critical thinking skills that are critically required for effective policy-making and sound business decisions. A better exposure to old and new schools

of economic thought is also necessary to gain a balanced knowledge and better understanding of the forces shaping the real economy, redefine business models and environments, and rebalance risk-return tradeoffs. There is no doubt that the pursuance of excellence in research and education by faculties of economies is an increasingly difficult undertaking given the complexity of economic systems and economic uncertainty. Provided with the appropriate means to achieve their noble educational mission, faculties of economics should learn and teach students to thrive from new risks and opportunities rather than succumb under the weight of new responsibilities.

## 6. Conclusion

The sense of loss and underachievement in the Japanese academia is palpable. Decades of budget rationalization have exacerbated, rather than solved, the chronic problems faced by institutions of higher learning. The precipitous loss of global competitiveness reflected by poorer performances in education and research, and by lower world university rankings can be explained by persistently low ratios of research and development expenditures relative to gross domestic product, and low numbers of researchers relative to the population size. The decline in government grants and subsidies is accompanied with unprecedented efforts to drive Japanese universities toward greater reliance on external funding, including the issuance of university bonds. The launch of an endowment fund aimed at funding innovative research is another imitative rather than innovative approach to research funding that may raise additional concerns about the sustainability of debt financing and reliance on expected returns from inherently instable financial systems.

The shift away from basic inquiry toward commercially funded research presents serious issues for the future of higher education and the prospects of economic growth. Indeed, strengthening the nexus between the shifting educational landscape and changing job markets is crucial to ensure sustainable economic development. It is difficult to nurture future generations of highly skilled human resources without appropriate investment in flexible and effective educational programs. It is difficult also to achieve excellence in education without a conducive research environment that ensures knowledge accumulation and academic integrity. As regulatory pressure mounts on institutions of higher learning to behave as revenue-maximizers and profit-seeking entities, expectations that the academic community continues to behave according to the traditional moral code of academic integrity and academic freedom are bound to recede. These are grave concerns because conflicts of interest and erratic behaviour have the potential to erode public trust and confidence.

Faculties of economics are not immune to the risks inherent to the observed institutional trends and waves of reform. However, they are bound to treat a difficult path in order to remain relevant and seize future growth opportunities. Given the nature of the evolving discipline, faculty

members may be best placed to offer new insights about the shifting dynamics of the economy, the complex forces shaping job markets, and the impact of technological, demographic, social, and environmental factors on economic life. The onset of the healthcare crisis has not only exposed the limits of economic policies but has also drawn attention to the intrinsic relation between saving human lives and protecting economic livelihoods. Thus, the risks inherent to economic activities cannot be ignored, and new economic thought should give precedence to the design of curricula focused on the implications of risk and uncertainty for the economic policies and business decisions. Such insights can only be gained and shared with other disciplines, through research activities guided by the principles of intellectual integrity, independence, and honesty. Only, then, can a decent faculty of economics preserve the public trust to nurture generations of human resources capable of shaping a viable economic system for the whole humanity.

## References

Autor, David H., Levy, Frank, and Murnane, Richard J., 2003, "The skill content of recent technological change: An empirical exploration." *The Quarterly Journal of Economics*, vol. 118, pp. 1279–1333.

Bank for International Settlements, "BIS 85th Annual Report", June 2018.

Benedikt, Frey C., and Michael A. Osborne, 2017, "The future of employment: How susceptible are jobs to computerization?" *Technological Forecasting and Social Change*, vol. 114, pp. 254–280.

Bloom, David E., David Canning and Günther Fink, 2008, "Urbanization and the wealth of nations," *Science*, vol. 319, pp. 772–775.

Bok, Derek, 2004, "Universities in the marketplace: The commercialization of higher education," Princeton University Press.

Buchholz, Todd G., 2021, "New ideas from dead economists: The introduction to modern economic thought," Plume, New York.

Gita, Gopinath, 2020, "The Great Lockdown: Worst economic downturn since the Great Depression," *IMFBlog Insights & Analysis on Economics & Finance*, April 14, 2020.

Greenberg, Ezra, Martin Hirt, and Sven Smit, 2017, "The global forces inspiring a new narrative of progress," *McKinsey Quarterly*, April 2017.

Ha, Joonkyung, and Sang-Hyop Lee, 2016, "Demographic Dividend and Asia's Economic Convergence Towards the US." *The Journal of the Economics of Ageing*, vol. 8, pp. 28–41.

Ha, Joonkyung, and Sang-Hyop Lee, 2018, "Population aging and the possibility of a middle-income trap in Asia," *Emerging Markets Finance and Trade*, vol. 54, no. 6, pp. 1225–1238.

International Monetary Fund, 2021, "World economic outlook—Recovery during a pandemic—

Health concerns, supply disruptions, and price pressures," October 2021.

Im, Fernando Gabriel, and David Roseenblatt, 2013. "Middle-income traps: A conceptual and empirical survey." *World Bank Policy Research Working Paper* No. 6594.

Kautzsch, Thomas, Daniel Kronenwett, and Guillaume Thibault, 2017, "Megatrends and the future of industry," *Oliver Wyman*, November 2017.

Maghrebi, Nabil, Zamir Iqbal, and Abbas Mirakhor, 2016, "Intermediate Islamic Finance," John Wiley & Sons.

Nils Thilo, and Hendrik Albers, 2018, "The prelude and global impact of the Great Depression: Evidence from a new macroeconomic dataset," *Explorations in Economic History*, vol. 70, pp. 150–163.

Piketty, Thomas, 2014, "Capital in the Twenty-First Century," translated by Arthur Goldhammer, Belknap Harvard.

Raghuram, G. Rajan, 2006, "Has finance made the world riskier," *European Financial Journal*, vol. 12, pp. 499–533.

Reinhart, Carmen, and Kenneth Rogoff, 2009, "This time is different: Eight centuries of financial folly," *Princeton University Press*, Princeton and Oxford.

Reinhart, Carmen, and Kenneth Rogoff, 2011, "From financial crash to debt crisis," *American Economic Review*, vol. 101, pp. 1676–1706.

Reinhart, Carmen, and Vincent Reinhart, 2020, "The pandemic depression: The global economy will never be the same," *Foreign Affairs*, September/October 2020.

Shiller, Robert J., 2006, Irrational exuberance, 1st edition, *Princeton University Press*.

_____, 2015, Irrational exuberance, 3rd edition, *Princeton University Press*.

Shanahan, Murray, 2015, "The technological singularity," *The MIT Press Essential Knowledge Series*

World Economic Forum, 2020, "The Future of Jobs Report 2020", October 2020.