Cover Story

Chindia Plus 100th Anniversary Section

An Era of "Big Change," A New World is Coming

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Big Change: The World is Changing

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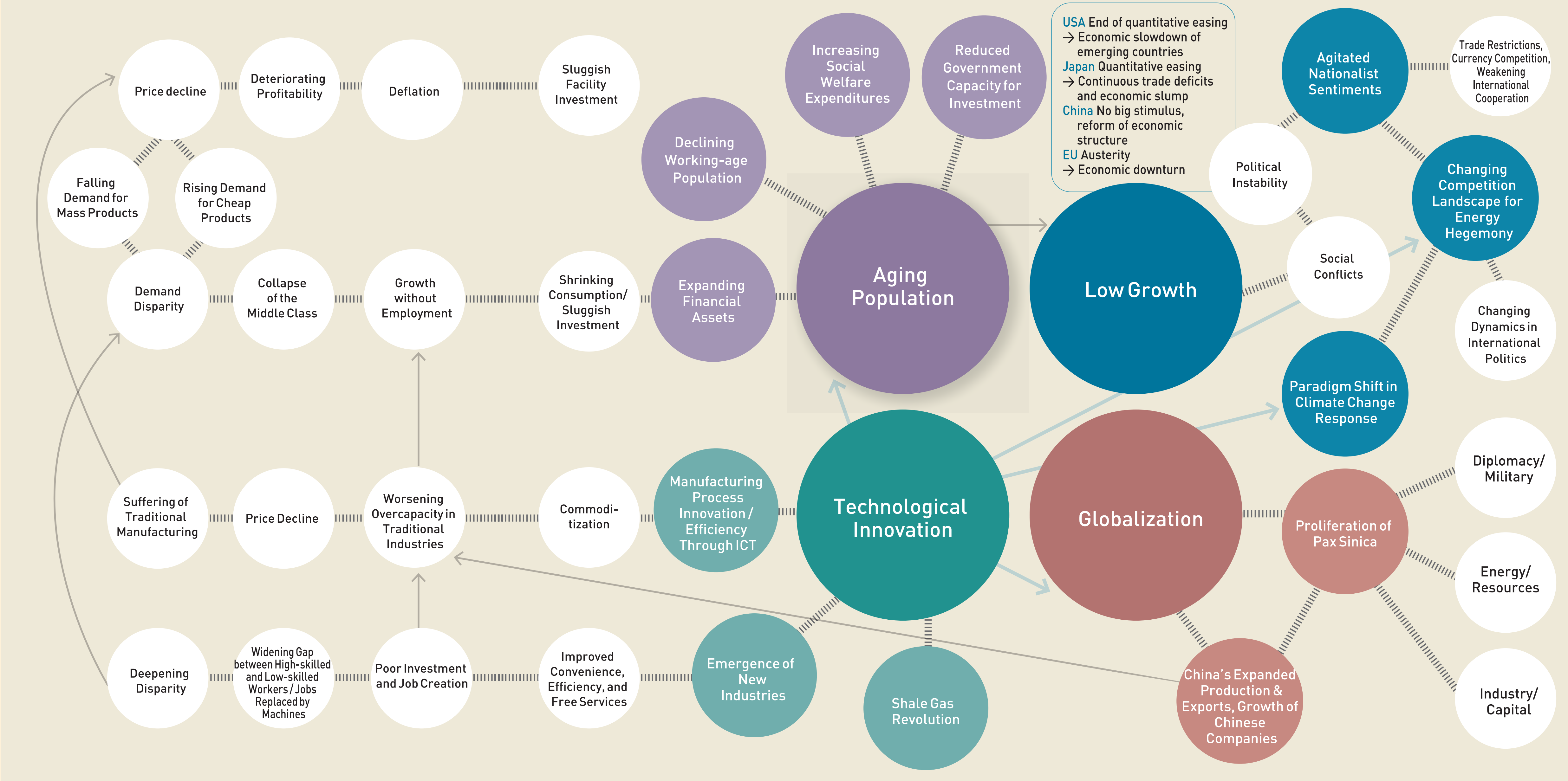
Dynamics of Changes and Deep Factors



Some say that the world is now undergoing a civilizational transformation. Over the past two decades, the world has witnessed technological advancement faster than at any time in the past. In particular, breakthroughs in information and communications technology (ICT) have given rise to the beginning and growth of new industries. Globalization of ICT-integrated finance has spurred the globalization of the economy. During this time, China has joined the world economy and begun to grow exponentially. The world is connected as one, and shares not only growth but also the burden that comes from crisis. With persisting adverse effects from the global financial crisis, the fundamental factors of prolonged low growth, plunging employment, and the widening income gap are becoming increasingly clear. The fundamental factors are technological development and the aging population.

Changes emerging from technological development

The development of electric vehicles, unmanned vehicles, and 3D printing has taken manufacturing to a whole new level of expansion. Drones, unmanned aerial vehicles, have brought further innovation to logistics, and the development of new energy, including solar energy, and shale gas technology are already shaking the world's energy landscape. At the core of current changes lies technological advancement.

Technological development has improved the efficiency of traditional industries, including petrochemicals, steel, and electric and electronic equipment manufacturing, but has deprived them of a differentiated competitive edge, causing overcapacity in traditional industries. Product prices have fallen and corporate profitability has worsened, resulting in a decline in investment and growth. China's rapid expansion of production and facilities clearly makes the situation worse.

Professor Francis Fukuyama of Stanford University characterized modern capitalism by people's ability to make big fortunes through accumulated wealth and education, as exemplified by the software engineers of Silicon Valley. However, he noted that income inequality between the very small number of people who can preoccupy wealth-creating technologies, and the majority of people, who have fewer job opportunities due to technological development, has emerged as an issue for which no solution has been found. This inequality can be extended to a broader issue between the few advanced countries that lead innovation, such as the USA, and other countries.

Aging population, a key driver of change

Aging populations are a fundamental factor of low growth in advanced countries, including Korea and Japan. An increasing number of seniors, whose assets are limited to financial assets, drives down consumption in an aging society. As the labor supply declines, companies find it difficult to expand production and investment, and economic growth potential plunges. In turn, fundamental changes occur, such as surging social welfare expenditures, increased financial burden on the government, and a depressed housing market. Since the global financial crisis, economic slowdown has persisted. An aging population is a worrisome factor because it could prolong economic depression.

Economic issues complicated by political and social issues

China's path for the last twenty years, especially as it emerged as one of the G2 nations in the ten years after its accession to the World Trade Organization (WTO), has been the key to massive changes and risks occurring around the world. China will take greater moves to become one of the axes of the world order by strengthening its international political and military power to the level of its economic power. This is the proliferation of Pax Sinica.

Economic issues are becoming more complex as they intertwine with social and political international issues. Social discontent and political unrest arising from low growth, income inequality, and redistribution of wealth have agitated national sentiments, and are manifested as trade restrictions and currency competition. Undoubtedly, however, there will be an increasing number of cases where existing methods of growth and problem solving no longer work.

In this Special Section of the 100th Edition of *Chindia Plus, Chindia Plus Quarterly* examines the origins of seven massive global changes: prolonged low global growth, climate change management, Pax Sinica, global spread of nationalism, competition for energy hegemony, the aging global population, and the paradox of technological development.

There will be an increasing number of cases where existing methods for growth and problem solving no longer work.

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Global Doldrums:
The World Economy Spirals Downward into a Prolonged Great Recession


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In September 2008, the collapse of Lehman Brothers burst the bubble of the global economy, just like a needle in a balloon. The world was terrified by the massive explosion. Economists wailed that it was the worst economic crisis in the 100 years since the Great Depression of 1929. They predicted that the great recession caused by this crisis would last for ten years. Seven years have passed, but there seems to be no light at the end of the tunnel. Experts now predict that the current economic recession will invariably last for twenty, even thirty years. This is the “secular stagnation” predicted by many experts, including former U.S. Treasury Secretary Lawrence Summers.

Serious deflation and long-term depression: the abyss of a great global recession

Right after Lehman Brothers went bankrupt in 2008, governments and central banks around the world boldly and systematically poured monetary and financial resources into their economies. Through G20 Summit Meetings, countries pledged to coordinate national economic policies. They looked back to the Great Depression of 1929, when tight monetary policies implemented to control the bubble worsened the situation. They also looked to the recent past, taking lessons from Japan's Great Recession, which began in the 1990s. Ben Bernanke, who is an authority on the Great Depression, was the Federal Reserve Chairman at the time.

Backed by powerful forces, the world economy seemed to recover modestly in the 2010s. First, stock markets rebounded, and then housing markets headed up. There was even a discussion of an exit strategy whereby excess cash could be drained out of the financial system. In retrospect, this was naïve. Although severe pain and confusion, as suffered during the Great Depression, were prevented, the world economy is ailing and spiraling into the abyss of a great recession. A "liquidity trap," a situation in which the injection of cash into the banking system does not lead to the smooth circulation of cash, has materialized. At first, people explained this phenomenon as a result of the deleveraging process, in which excessive debts fueled by a housing bubble are reduced toward normal levels. However, this was not exactly the case.

Households in the USA, Europe, and advanced countries suffered the pain of deleveraging for three years. Banks foreclosed on a great number of houses with outstanding mortgage debts. After 2011, the price of assets—houses and stocks used as collateral for lending—bounced back. Analyses showed that deleveraging had progressed as far as necessary. However, the economy remains in recession. Deleveraging is no longer a persuasive theory for explaining the "new normal" of low growth, low investment, low income, low prices, and low interest rates. This applies to the Korean economy. Far from deleveraging, household debts continue to increase (leveraging), but consumption and investment show no sign of bouncing back.

> There is no panacea for the current situation. What each country can do is to bide its time while improving public finance and budgeting, and maintaining expansionary monetary policies. Countries should make strenuous efforts to improve economic fundamentals through restructuring.

In other words, there is a different monster choking the world economy. More people are pointing the finger at deflation. However, this is not conventional deflation because it is accompanied by a serious drop in prices and a long recession. Those who remember the Lost Two Decades of Japan warn that the world is following in Japan's footsteps. Deflation increases the real value of debt, weighing heavily on economic players, as opposed to inflation, which reduces debt burden. Deflation drives the economy into a state of chronic low pressure and lethargy.

A vicious cycle of oversupply, low wages, and shrinking consumption and investment

Why is the world economy on the verge of being sucked into a whirl of deflation? The first reason is oversupply. Manufacturing process innovation and the economic development of emerging countries have increased supply capacity worldwide. Fierce competition drags down product prices. However, demand structure is contracting. Fewer employment opportunities may be a problem, but rarely-increasing wages is a bigger problem. Even in the U.S. economy, which has the most favorable situation, employment conditions, including employment rate, are improving, but nominal wages have remained unchanged. Income inequality has grown significantly as corporate executives, high income professionals, and the wealthy classes earn more money, while wages of non-regular workers remain stagnant. Without significant improvement in income redistribution, domestic consumption will not increase readily.

Another reason for shrinking consumption is the aging population. As large numbers of baby boomers around the world are retiring, consumer groups are shrinking. Despite sufficient assets, retired seniors have tightened their purse strings as low interest rates have reduced cash flow.

Falling prices are shown in the numbers around the world. U.S. inflation hovers just above 1% and below the Federal Reserve's 2% target rate. The five-year forward inflation rate, calculated based on current bond prices, is only 1.4%. Even if the projection period is extended to ten years, the forward inflation rate is still a mere 1.9%. As recently as August 2014 the rate was 2.3%. In Korea's case, inflation has become entrenched at just above 1%. In spite of a massive money injection under "Abenomics," Japan has failed to reach its target inflation rate of 2%. With inflation nearing zero, the Eurozone is on the brink of deflation.

Despite the need for international cooperation, countries are focused only on damage control

There is no panacea for the current situation. What each country can do is to bide its time while improving public finance and budgeting, and maintaining expansionary monetary policies. Countries are trying to improve their economic fundamentals through restructuring. It is an attempt to gain a competitive advantage over other countries.

It is difficult to expect international cooperation in reviving the global economy. Following the Lehman Brothers case, countries shouted empty slogans of cooperation, but in reality, the policies they hastily adopted were coincidently matched with one another. The little cooperation that is happening is countries actively seeking free trade agreements to expand trade. Advocating the cause of trade expansion, each country is engaged in a currency war with one another by injecting money

A man in Buenos Aires, Argentina passing by a currency board that shows the Argentina peso. [AP/Yonhap News Agency]

into the economy. This is a "beggar-thy-neighbor" policy, through which a country attempts to improve its export competitiveness by taking advantage of its falling currency value. However, world trade continues to dwindle. The World Trade Organization (WTO) has recently reduced its forecast for world trade growth in 2014 to 3.1% and cut its estimate for 2015 from 5.3% to 4.0%.

Expectations that the U.S. Federal Reserve will raise interest rates in the second half of 2015 have strengthened the U.S. dollar; however, the situation can change at any time. Some predict that it will be difficult for the Fed to raise interest rates as projected, taking into consideration the ongoing global economic recession and low U.S. prices. Many expect that if the Fed increases interest rates at all, it will be a modest increase.

Looking back at the aftermath of the Great Depression, countries implemented a variety of policies to revive the economy, but to no avail. They were not able to reverse the situation, to reduce oversupply and increase gross demand profoundly, until the Second World War in the early 1940s. Hyperinflation brought about by the Second World War killed the monster of deflation in a stroke, and erased the debts of countries, companies, and households. This terrifying solution is not an option.

It will take a very long time for this great recession to end. Wars among countries will unfold in different ways. Victory will be decided by who succeeds first in improving economic fundamentals and building innovative structures to outrival competitors. In this regard, the USA is surely leading the world. Will Korea succeed in realizing economic reform? Korea must take action in the next two or three years, or it will miss out on crucial opportunities.

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Climate Change is an Issue of Survival: Polluting Companies Will Be Edged Out

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On November 11, 2014, China and the United States agreed to make joint efforts to curb greenhouse gas emissions. Now, the architecture for a new climate change regime has taken shape: Europe has pledged a 40% cut from 1990 levels by 2030, while the USA has pledged a 28% cut compared to 2005 levels by 2025. China has promised to reach peak carbon emissions by 2030. How did the USA, where people cannot even commute without a car, and China, where new coal-based thermal plants are being built almost every week, reach this deal? Have environmental issues suddenly become more important than economic issues?

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Global warming: a complex issue intertwined with crop yields

Our world comprises a single economic sphere, confined by the physical boundaries of the Earth, whether we like it or not. This means that the world as a whole is affected by deteriorating climate. Droughts in the U.S. Corn Belt increase feed prices and negatively affect cattle farms in Korea. Likewise, poor wheat harvests in Australia drive up confectionery prices in Korea. Manufacturing is no different. If a hard drive plant in Thailand is inundated by a flood, notebook computer production in Korea is disrupted. Climate change could cause insurance companies to go bankrupt. In 2012 alone, more than 800 cases of climate change inflicted property damage worth as much as USD 130 billion.

Climate change is ultimately an issue of food. A one- to two-degree increase in the Earth's average surface temperate could disrupt the global food supply. According to the Federation of American Scientists, if the temperature rises four degrees Celsius, yields of major crops will be reduced by more than 50%. The U.S. National Research Council projected that warming of four degrees Celsius would cut India's wheat yields by nearly 70%. Global warming has been found to have relatively little impact on Asia's rice yields. However, if Asia is not provided with foreign produce at reasonable prices, it will have to pay more for food.

This is the most important reason that we cannot oppose the "two-degree" target for global warming. People cannot live without food, and the state cannot exist without people. Passing the two-

Countries and companies will survive if they respond actively to the recent trends surrounding climate change, or they will be edged out.

degree target will add aggravating natural factors to global warming, such as massive methane release, and the momentum of global warming will not be stopped.

With visible harmful effects of global warming, it has become clear that it is unwise to maintain an economy completely dependent on coal, oil, and natural gas. In June 2014, some U.S. economists, including three former U.S. Secretaries of the Treasury, Henry Paulson, Robert Rubin, and George Shultz, released a report with a rather provocative title, *Risky Business*. The report argues that if we fail to curtail carbon emissions, an overwhelming number of risks from climate change will collapse the economy. The report asserts that people are misled into thinking that curbing carbon emissions translates directly into economic burden, and that climate change is a matter of hegemonic strife between Europe and the USA.

Companies will be edged out if not properly respond to climate change

Unfortunately, few Korean companies are apparently prepared for these changes. An example is the power sector, which is a key element of industry infrastructure. Korea is now building about 30 coal-fired power plants with high investment risks. Once completed, this kind of facility is difficult to retract, and further increases dependence on foreign energy resources. In contrast to Korea, China has pledged to increase the share of non-fossil fuel energy (solar, wind, nuclear, etc.) to 20% of the country's energy generation by 2030. Upon release of this commitment, China has emerged as the largest producer of and the largest market for these energy sources.

The "creative economy" advocated by the incumbent Korean administration is promising, as the concept is in line with the call for new methods that generate non-polluting energy. According to the industry outlook released by PricewaterhouseCoopers (PwC), the automobile and aluminum sectors can seize the opportunity for growth only through innovation. The petroleum and gas industries, which will have to reduce the use of fossil fuels, are expected to dwindle. A bright future lies ahead for the thermal building insulation materials and electronics industries. The liquor industry, including beer, is expected to face severe volatility due to changes in grain production. Undoubtedly, countries and companies will survive if they respond actively to the recent trends surrounding climate change, or they will be edged out. This is a future hard to imagine, but a solemn reality.

Companies Preparing for "Climate Prosperity"

Only a few years ago, the "low-carbon industry" sounded elusive. Now we can easily hear anecdotes of startups that have succeeded in making innovative "low-carbon" products, or existing companies that have successfully transformed themselves into low-carbon companies.

Energy DONG Energy

Danish state-owned oil and gas group DONG Energy expanded its business mainly in thermal power, resource exploration, and gas pipeline leasing until the early 2000s, when it started to expand its wind power business. In 2013, its sales of wind power surpassed those of thermal power. DONG Energy is actively investing in foreign businesses. It holds a 30% stake in London Array in England, the world's largest offshore wind farm. The Danish company is also involved in establishing and leasing undersea cable systems that transmit power from offshore wind farms to inland areas.

Automobiles Tesla Motors

Tesla Motors holds a slim market share, with 20,000 units sold per year out of global auto sales of 90 million units. However, its flagship model, Model S, is number one by sales, beating BMW and Mercedes-Benz in North America's premium sedan market. It is also popular in China.

In an effort to reduce battery prices, Tesla is building the Gigafactory outside Reno, Nevada, which will produce more lithium ion batteries annually than were produced worldwide in 2013. Chairman Elon Musk plans to ramp up vehicle production to 500,000 units, and halve battery pack costs, upon completion of the plant in 2020, heralding an era of electric vehicles. Elon Musk is also the chairman of SolarCity, which installs and leases solar power systems. The business structure generates profit along the value chain of manufacturing vehicles and generating power, and contributes to preventing climate change.

Business Organizations The Confederation of British Industry

The Confederation of British Industry (CBI) is the largest business organization in the United Kingdom, with a membership of 250,000 firms, including more than 90 of the public companies listed in the FTSE 100. The CBI opposed government policies on climate change until the mid-2000s. After a year-long, self-directed investigation of climate change, however, the CBI concluded that all members of society should participate in combating climate change. Since then, it has actively cooperated with the British government to prevent climate change. In 2013, the CBI released *The Colour of Growth* report, which urges politicians to maintain interest in and support for low-carbon green industries.

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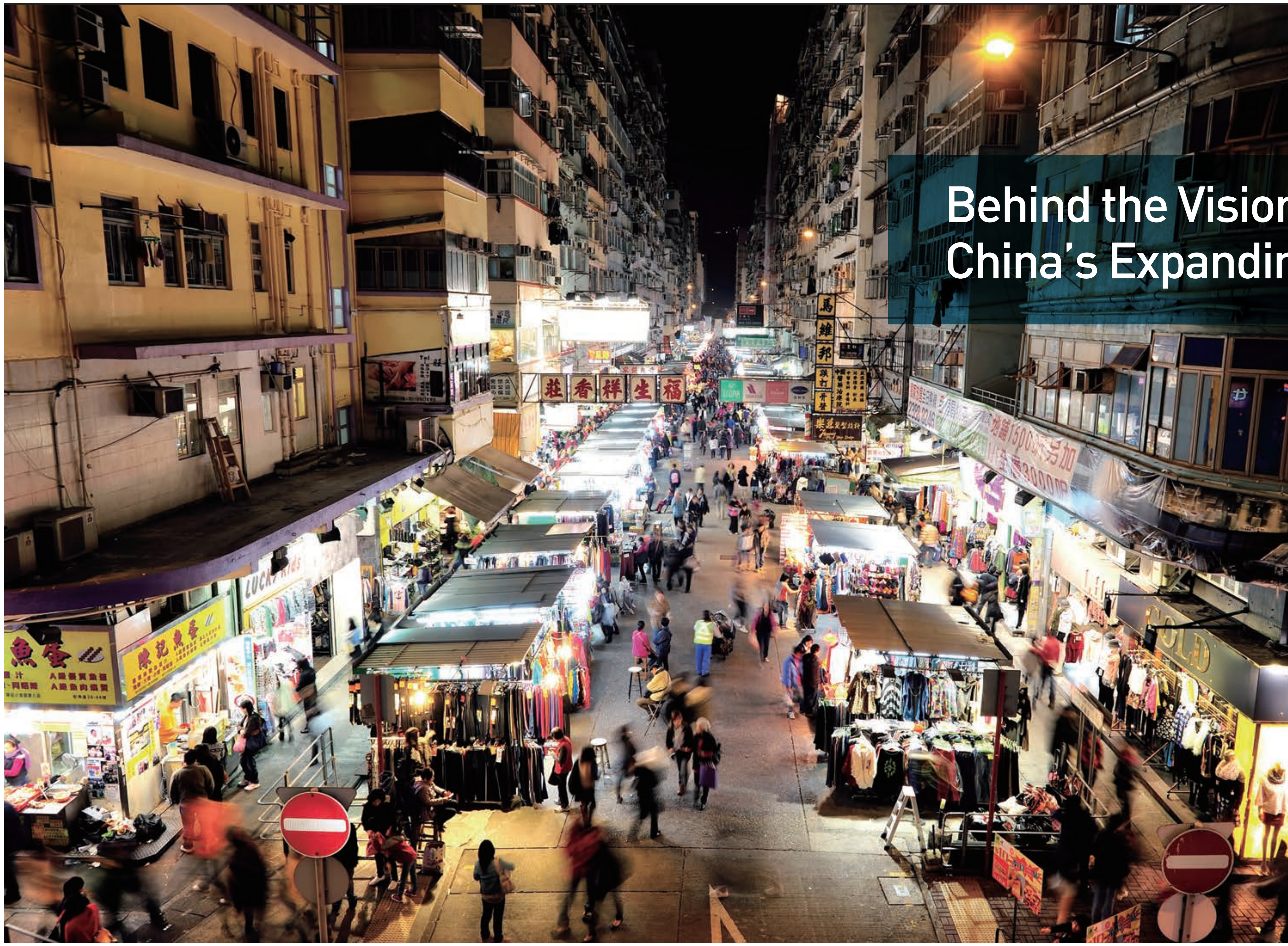
Behind the Vision of "Pax Sinica," China's Expanding Black Hole



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It is not easy to find a magic key to understanding the inner workings of a market. This is especially true for the Chinese market. Despite the short history of its market economy, China has emerged as one of the world's largest markets in the 21st Century, rivaling the United States. The so-called "black hole" phenomenon of China, which is known to ruthlessly absorb assets and liquidity, is an enigma. The global market faces a catastrophic force unknown in the past. In which sectors will China's "black hole" materialize in 2015?

Massive consumer market, the center of China's black hole

When China moves, the world shakes. If China focuses on crops, global crop prices fluctuate. If China looks at gold, the gold market pitches. Speculators ride the waves. This is not confined to natural resources. China also pulls in international liquidity and large multinational companies.

Chinese companies, descendants of the ancient Silk Road, make the most of the power of China's massive market. It is a daunting task for a country to improve on substandard technologies in many industries, including IT, electronics, machinery, automobiles, and aerospace. To this end, China has come up with a catch phrase, "Barter the market for technology (以市場煥技術)." This strategy adversely utilizes the enthusiasm of the Chinese market, which draws global attention.

In the future, China will replicate Western consumer culture, only on a more massive scale. The West has infected China with a fever that causes people to seek satisfaction and the meaning of life through consumption. Once, there was a saying: "If the world consumed like the Americans, the Earth's resources would be depleted within decades; if the world consumed like the Chinese and Indians, the Earth's resources would not be depleted in a hundred years." This was when Western powers monopolized global resources. However, young people on Shanghai's Nanjing Road say, "We love meat, we eat bread, and we sleep on beds. How are Chinese different from Western people?" The Chinese consumer market is the center of China's black hole, and the most important control tower of this massive market is the Communist Party of China.

Reform and Opening Up 2.0 starts with *Xin Chang Tai*

While undergoing the global financial crisis, the Xi Jinping administration has presented *Xin Chang Tai* (新常態), a Chinese version of the West's "new normal." First of all, China should get out of the dangerous tunnel of high dependence on processing exports. Furthermore, the country should reduce its bubble-prone, high economic growth to medium growth. Getting away from the pattern of rounding up investment and competing through high production, China should address its overheated housing market, excessive local government debts, and widespread corruption, using *Xin Chang Tai* as the new standard. It is now time for China to move beyond Deng Xiaoping's style of reform and opening up. China's ultra-high economic growth so far has been, in fact, higher than it projected.

Xi's Reform and Opening Up 2.0 is only beginning. The Chinese economy took a leap forward after China's accession to the World Trade Organization (WTO), and as it went through the US-led global financial crisis, it changed course completely to nurturing the domestic market and industry sophistication. In order for a nation to nurture its domestic market, its people should be well off. Previously, China pursued development based on "the sacrifice of the people," but now it cares about "the life of the people." This is a huge change. If this policy succeeds, the middle class will expand and bring changes to the domestic market.

China's black hole has centered on resources until now, but this is expected to change. The backdrop of the black hole is shifting from an era of an export-driven economy to an era of nurturing the domestic market. A new incarnation of the black hole that will shock the world is emerging.

China's first commercial passenger jet, C919, on display at the Singapore Airshow in February 2014 [Shutterstock]

China's black hole expanding to other industries

How did China draw attention from the global market? Now China is the kingdom of automobiles. Only twenty years after China began attracting multinational automakers to the country, it has defeated the USA. Western companies have rushed to stand in a long line to enter the Chinese market. Next, China will become the kingdom of passenger airplanes. Experts predict that China will overtake the USA, having the world's largest commercial fleet by 2032. "Made in China" aircraft have already hit the market. The Commercial Aircraft Corporation of China (Comac) has secured 400 orders for the C919, the country's first large commercial passenger jet, from many domestic and foreign companies, including a subsidiary of General Electric. With China being their major customer, Boeing and Airbus are now on edge.

There are now signs of "China's black hole" spreading to the movie industry. In July 2014, just before *Transformers: Age of Extinc*tion was released in China, the Chinese sponsor of the movie, Beijing Pangu Investment, almost pulled out of its sponsorship deal, claiming that its flagship Pangu Plaza Hotel (盘古大观) is not featured on-screen for 20 seconds as contracted. Director Michael Bay flew to Beijing and was able to reach some compromise to keep sponsorship on track. The film earned about USD 410 million in the opening week, a third of which came from China. Walt Disney and DreamWorks are seeking joint ventures with China. Korean companies are following suit. The word on Chungmuro, the center of Korea's film industry, is that "If you want to make a Hollywood movie, you should go to China, not Hollywood, to get investment."

China's overseas investment expanding from mines to agriculture and foods

China's outbound investment has been focused on mine assets, excluding more than USD 1 trillion investment in U.S. Treasury Bonds. About one-third of Beijing's annual outbound investment, worth USD 100 billion, is made in mine assets. According to the China Mining Association, China bought over 100 mines in 36 countries in 2013 alone. China's largest state-owned metals trader, China Minmetals, paid USD 5.85 billion for the Las Bambas copper mine in Peru in April 2014. At the signing of an energy agreement between China and Russia in October 2014, Premier Li Keqiang said that PetroChina is examining a USD 10 billion investment in Russian gas fields. This is the latest in a string of China-Russia energy deals, including a USD 400 billion contract whereby Russia's Gazprom will supply the China National Petroleum Corporation (CNPC) with up to 38 billion cubic meters of gas annually for 30 years.

As of the end of 2013, China's non-financial direct investment overseas totaled USD 525.7 billion, invested in about 1,800 companies from 137 countries, according to China's Ministry of Commerce. Chinese state-owned and private companies have all been hunting for mine assets. However, such investment efforts have yielded meager results. Chinese state-owned companies' return on investment from mineral resources, such as nickel and coal, is as low as – 80%, provoking a clamor that China should revamp its investment strategies. China's investment in foreign mine assets, which began in earnest in 2005, is in its early stage. Recently, the focus of investment has expanded to the agricultural and food sectors, signaled by the purchase of U.S. pork producer Smithfield Foods by Chinese meat company Shuanghui (雙匯) for USD 7 billion in May 2013. It is premature to predict the direction of China's black hole, but global multinationals are rushing to China to secure the Chinese domestic market.

Passersby looking up at a giant statue of *Transformers'* Optimus Prime at a shopping center in Shanghai in July 2014 [AP/Yonhap News Agency]

The backdrop of China's black hole is shifting from an era of an export-driven economy to an era of nurturing the domestic market.

How will China's black hole influence Korea under the Korea-China FTA? China's black hole is not just a source of terror for Korea. The Chinese market is now turning over a new leaf. In 2013, Korea became the largest exporter to China, thanks mainly to exports of parts and intermediate goods. Based on this solid foundation, Korea should now try to take more opportunities in China's consumer goods and service markets.

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Conservatism and Nationalism Spread across East Asia

U.S. President Barack Obama meets with the leaders of the Trans-Pacific Partnership (TPP) countries in Beijing November 10, 2014. Leaders have gathered in Beijing for the Asia Pacific Economic Cooperation (APEC) summit. [Reuters]

With the mega trends of income inequality, aging population, and low growth, countries around the world will increasingly prioritize their domestic political and economic concerns over diplomacy in 2015. It will be difficult to seek international cooperation. Due to globalization, the issues of one country quickly turn into global issues, and issues that were of different realms are becoming increasingly interconnected. Today, multilateral cooperation is more necessary than at any time in the past. Nevertheless, the situation is becoming less favorable for international cooperation. In the case of East Asia, historical and territorial issues will likely remain distinctive regional problems. The USA, a current superpower, China, an emerging superpower, and Japan, a declining superpower, will compete for hegemony out of nationalistic ambition to reshape the regional order. As a middle power, Korea will be hard-pressed to find its footing.

Sweeping trends of 2015: income inequality, low growth, and population aging

Income inequality—a global trend and a risk factor—is caused by the reality that the economic benefits of globalization are not distributed equally.

East Asia has achieved economic growth by riding the wave of globalization. In this region, competition for and conflicts over economic redistribution intensify social unrest and political instability. Amidst slowing economic growth in China, the driver of the global economic recovery, as well as in Korea and Japan, conflicts over income distribution are frequent and require multifarious political efforts.

Aging societies are intensifying this trend. A lack of workforce caused by population aging has entrenched the trend of low economic growth. In the meantime, higher life expectancy has increased demand for healthcare and nursing services, and skyrocketing social welfare costs have resulted in class conflicts and generation inequality by passing on the burden of excessive financial expenditures and financial deficits to future generations. In many cases, conflicts over economic redistribution raise populism and nationalism.

USA's "Rebalance" to Asia, China's utilization of nationalism

In 2015, the above trends continue to affect the major countries upon which East Asian order depends. In order to keep China's influence in check and maintain its leadership, the USA, under the banner of rebalancing to Asia, has been making various efforts to solidify its standing in Asia: strengthening traditional alliances, expanding partnerships, implementing regional multilateral institutions, expanding trade and investment through the Trans-Pacific Partnership (TPP), forward deployment of military forces, and diplomacy emphasizing universal values, such as democracy and human rights.

With the USA facing economic decline and the necessity of tight fiscal policies, intensifying political divide in the country is standing in the way of pursuing rebalance to Asia. Since his party lost the midterm election in 2014, President Barack Obama's autonomy over diplomatic policies has been reduced significantly. With the reduction of available resources due to tight fiscal policy and deepening political divide, the Obama administration has responded leniently and indecisively to the Syria crisis, the Crimea crisis, and IS terrorism. Even when North Korea redoubled its nuclear and missile threats, the administration's response was merely "strategic patience" rhetoric. This situation is not likely to improve this year.

> In the midst of transformation in the regional order, Korea should serve as a middle power that mediates its neighbors and provide with knowledge that contributes to the design of a regional order that avoids an "either-or" situation caused by confrontational and violent rivalry among great powers.

China has been defining and expanding its core interests to match its increasing national power, and unilaterally creating institutions to establish a new order in East Asia. Criticizing the security order in East Asia, which has been maintained by the alliance system of the Cold War, China is advocating a "New Security Concept," which fosters a vision of common, comprehensive, cooperative, and sustainable security, and has proposed the Conference on Interaction and Confidence Building Measures in Asia (CICA), which excludes the USA, as a multilateral security forum for the region.

On the economic front, particularly in the areas of finance and development, China has proposed the establishment of the Asian Infrastructure Investment Bank (AIIB). In terms of trade, Chinese President Xi Jinping presented the "Beijing Road Map" for a Free Trade Area of the Asia-Pacific (FTAAP) during the recent APEC summit. On the diplomatic front, President Xi has set forth four keywords for foreign policy: friendship, sincerity, cooperation, and tolerance (親誠惠容). He has proposed a new type of international relations, claiming that "Only through better integration of China's interests with those of its neighbors can China's neighbors benefit from China's development and China benefit from theirs."

It remains to be seen whether the aim of China's actions is to coexist with existing powers, such as the USA and Japan, or to replace them in the new regional order. Xi's rhetoric, for example, "the great revival of the Chinese nation," reveals a China-centered, nationalistic timbre, raising concern that China's path is the latter.

President Xi seems to be utilizing nationalistic fervor with a view to easing social and economic unrest, and focusing political resources on the fight against corruption. To these ends, he has shown a firm attitude toward territorial and histori-

Chinese President Xi Jinping [JoongAng Photo]

cal issues.

Japan is an external factor that ignites China's nationalistic fervor. In 2014, on the 120th anniversary of the first Sino-Japanese War, President Xi described China's defeat in the War as a "heart-rending pain for the Chinese people," instilling patriotism. The Museum of the Sino-Japanese War in Weihai received a record number of visitors in 2014. As a backdrop to this, the Abe administration has taken an overt stance of historical revisionism and anti-Chinese diplomacy.

Japan going right-wing, less leeway for middle power Korea

Following the low economic growth trend of the so-called "lost two decades," Japan has been suffering a heavy welfare burden from its aging population, and massive debt hovering above 230% of GDP. Two years ago, Japan selected right-wing politician Shinzo Abe as the nation's leader. His party's landslide victory in the Lower House elections held on December 14, 2014 paved the way for the long-term rule of the Abe administration. With the centrist Democratic Party of Japan losing steam, Japanese politics are now controlled by Prime Minister Sinzo Abe, who is at the rightmost end of the Japanese political spectrum. While emphasizing patriotism, he does not hesitate to make revisionist historical remarks advocating the revival of the great and glorious Japan of the past, and backs right-wing politics that aim to strengthen Japan's military power through constitutional amendments.

Since its victory, the Abe administration has continued to pursue Abenomics, which aims to increase exports through the weakening of the yen, raising the possibility of a currency war. Japan is poised to have diplomatic conflicts with neighboring countries, as it is trying to legalize the use of collective self-defense. Heightened tensions over historical issues with Korea are expected this year, which marks the 50th anniversary of the normalization of diplomatic ties between the two nations.

The only country that is able to put the brakes on Japan is its military ally, the USA. However, the USA can hardly be expected to put effective pressure on Japan, because it is asking Japan to play a more active role in regional security to contain the newly-rising superpower, China, and because the USA is at a political standstill.

If the USA, China, and Japan continue their nationalistic tendencies and pursue diplomacy focused on competition rather than cooperation, Korea will face a difficult situation. In the transition to a new regional order, Korea should serve as a middle power that mediates and provides its neighbors with knowledge that contributes to the design of a regional order that pursues coexistence and balanced evolution. By doing so, Korean can prevent superpower rivalry from turning into hegemonic competition, and avoid an "either-or" situation caused by confrontational and violent rivalry among great powers. The stronger the competition among superpowers becomes, the less leeway that middle powers have for diplomacy. With low growth, population aging, and political divide, Korea has undergone conflicts and partisanism, instead of integration and coexistence. Moreover, the Korean government is losing the trust of its people. Korea faces a tumultuous year at home and abroad. C

Japanese Prime Minister Shinzo Abe [JoongAng Photo]

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The Shale Revolution, Shifting the Geopolitics of Energy

"No other element has shaped the history of the past 100 years so much as the fight to secure and control the world's reserves of petroleum," said American economist William Engdahl in his book, *A Century of War: Anglo-American Oil Politics and the New World Order*. This excerpt suggests that petroleum has worked as a determinant not only for the survival of each country, but also for the ups and downs of hegemonic powers. As world oil prices are plunging, it seems proper to substitute "reserves of petroleum" with "reserves of shale gas and oil."

Global competition for hegemonic control over petroleum

The conventional petroleum industry began to grow explosively in the 20th Century. The petroleum industry, which accounted for less than 10% of the primary energy supply in the early 20th Century, expanded to such a massive scale that petroleum supplied nearly 80% of the primary energy by the 1980s, thanks to surging demand for petroleum for transportation and industry. Consequently, petroleum became the most important strategic product for the survival of a country, as Mr. Engdahl pointed out, and countries fell into cutthroat competition to secure petroleum. A lack of petroleum has a direct negative impact on industrial development and defense, threatening the existence of a country. Former U.S. Secretary of State Henry Kissinger, a key figure of realistic international politics, asserted, "Control oil and you control nations."

Powerful countries involved in competition for global hegemony, including the USA and China, have made desperate efforts to secure control over petroleum. Many conflicts that occurred after

Workers drilling share gas in Texas, USA [JoongAng Photo]

the Second World War were largely about petroleum. It is widely accepted that U.S. President George W. Bush approved the Iraq War to remove Saddam Hussein, who hindered the stable supply of oil in the Middle East. Just before the Iraq War, reports were circulated in Washington projecting that much of the global oil and gas reserves would be depleted in the late 2010s, or even before 2010. Such predictions might explain why the Bush administration launched unilateral military operations against Iraq despite tremendous risks.

Shale gas and oil reshaping power dynamics

Something happened to push these predictions totally off the mark. At the end of the first decade of the 21st Century, non-conventional energy sources, such as shale gas and oil, began to be exploited in great quantities. The United States was quicker to begin exploitation of non-conventional energy than any other country. Since then, the USA has witnessed its oil imports fall significantly, and handed over the mantle of world's largest oil importer, which it held for 60-years, to China.

According to the U.S. Energy Information Administration (EIA), proven global shale gas reserves were 7,299 trillion cubic feet (tcf) as of June 2013, representing 40% of the world's natural gas. The USA holds the world's fourth largest shale gas reserves (665 tcf), after China (1,115 tcf), Argentina (802 tcf), and Algeria (707 tcf). However, the USA is the world's largest shale gas producer, as it exceeds other countries in shale gas exploration technology and drilling capability.

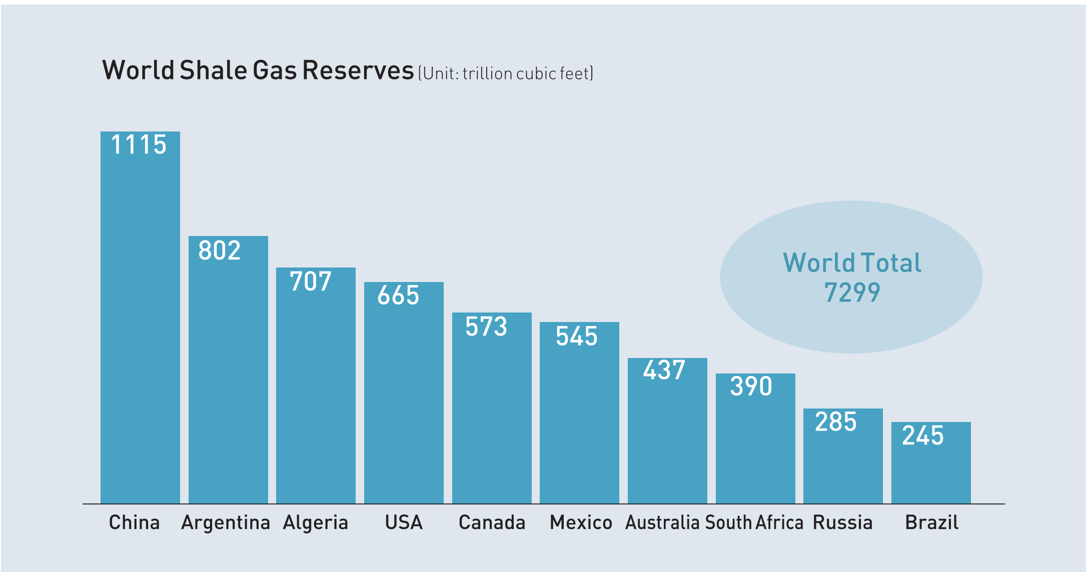
The massive volume of shale gas discovered has brought significant changes to the dynamics of international politics. The James A. Baker III Institute for Public Policy (The Baker Institute) analyzed the geopolitical consequences of expanding U.S. shale gas production in its 2011 report, titled *Shale Gas and U.S. National Security*.

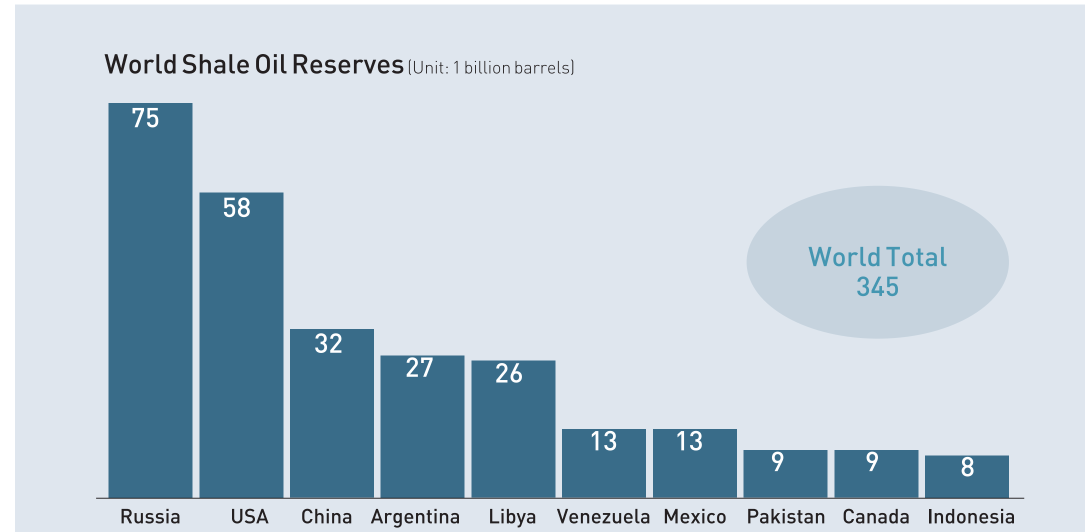
First, it will combat the long-term monopoly potential of major gas-producing countries, and prevent any single producer, such as Russia, from exercising dominance over large natural gas consumers in Europe or other regions. Second, it will cut Russia's market share in Europe from 27% in 2009 to 13% by 2040, thus reducing the chance that Moscow uses energy for political purposes. Third, it will reduce the share of gas supplied by Russia, Iran, and Venezuela. If shale gas were not discovered, these countries would have accounted for 33% of the global gas supply in 2040, but with shale gas exploitation, this figure is expected to fall to 26%. Finally, it will undermine Iran's ability to tap energy diplomacy as a means of becoming a regional power and realizing its nuclear aspirations. In conclusion, this report clearly states that U.S. shale gas production will diminish the petro-power of traditional energy producing countries, such as Russia and Iran.

In addition to shale gas, shale oil exploitation in North America has contributed to trimming the geopolitical influence of petro-states. Daily U.S. shale oil production increased 800 times, from 2,500 barrels in 2009 to 2 million barrels in 2012. The USA has the second largest shale oil reserves after Russia. The USA is projected to become the world's largest oil producer by 2020.

The future of energy hegemony

As a game changer in international politics, shale





Source: U.S. Energy Information Administration (EIA)

gas and oil have brought fundamental changes to global energy dynamics. As the Baker Institute predicted, U.S. shale gas production growth has reduced the monopoly power of key gas producers, and rising shale oil production has further increased energy supply, thereby weakening the geopolitical power of the members of the Organization of the Petroleum Exporting Countries (OPEC). Consequently, this has caused waves of continuous change to the international hierarchy of countries, as determined by oil supply and demand networks. The plunge in gas prices has led to lower oil prices, and the monopoly power of the "gas OPEC" has been diminished. Even the world's largest oil cartel, OPEC, is on the brink of collapse after losing its oil pricing power.

Feeling a sense of urgency, OPEC members declared war on the U.S. shale sector at a regular meeting in Vienna, Austria in late November 2014. Despite falling oil prices, OPEC is determined not to cut production. By letting prices fall, the oil cartel has thrown down the gauntlet. However, nobody is able to predict who will win the war, because the USA produces not only shale gas and oil, but also large quantities of cheap crude oil.

> U.S. shale gas production growth has reduced the monopoly power of key gas producers, and rising shale oil production has further increased energy supply, thereby weakening the geopolitical power of OPEC members.

The shift in the world's geopolitical landscape, caused by the tremendous potential of shale gas, is likely to change U.S. global strategies. According to the Baker Institute's report, U.S. shale gas development will "trim the petro-power of energy-producing countries such as Russia, Iran, and Venezuela to assert themselves using an "energy weapon" or "energy diplomacy" to counter U.S. interests abroad." This suggests that a country can control "potential enemies" with energy instead of weapons.

While the USA is weakening the power of its enemies by drilling shale gas and oil on its soil, Russia and Iran are becoming increasingly discontent. The two nations, already suffering from Western economic sanctions, are threatened by revenue loss due to declining oil prices and by possible defaults.

It is ironic that energy power struggles between OPEC and the USA are shaking the fundamentals of Russia, which once enjoyed global hegemony, and Iran, the "superpower of the Middle East." The USA now holds a dominant hand. Perhaps Washington is looking beyond OPEC to the next target. Even if the energy produced from its soil is sold at scrap values, the USA can expect other tremendous gains. It remains to be seen how the struggle over energy hegemony will unfold in 2015.

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Baby Boomer Retirement Diminishes Economic Vitality, Concerns of Long-term Recession Mount amidst Growing Bubbles

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Fears of global deflation are mounting. Despite the U.S. Federal Reserve's injection of trillions of dollars of liquidity into the market, the U.S. economy has not shown vitality as expected. While experiencing two "lost decades," Japan has unveiled various fiscal and financial policies to no avail. For these reasons, more and more people claim that a new kind of economic policy based on changing demographics is necessary.

Population aging drives down spending and economic vitality

A society is classified to be aging, aged, or super-aged when the percentage of its population that is 65 years and older exceeds 7%, 14%, and 20%, respectively. Many major advanced countries already have aging societies. Some of them have aged societies, while a few of them have super-aged societies. According to a report by LG Economic Research Institute (LGERI), France became an aging society as early as 1864, and Germany, Italy, and the USA became aging societies in the early to mid-1990s. Japan became an aging society in 1970. Twenty-four years later, in 1994, the country became an aged society, and another twelve years later, in 2006, it became a super-aged society. Korea became an aging society in 2000, and is projected to become an aged society in 2018, and a super-aged society by 2026. Korea is projected to overtake Japan to become the fastest aging society in the world.

An aging population is the result of life expectancy increasing due to medical advances, in conjunction with a lower birth rate. In 2013, Korea's total fertility rate–the average number of children that would be born to a woman over her lifetime–was only 1.19. In order to maintain the country's population, one Korean couple should give birth to two children. Taking into account singles, the figure should be more than two to maintain the current population. With its total fertility rate barely over one, the Korean population will certainly keep falling. Korea is at risk of its population plunging significantly. David Coleman, a population expert at Oxford University, has warned that Koreans will be the first national population to disappear from the world.

With regard to the impact of an aging population on an economy, we can learn lessons from Japan. Japan became an aged society in 1994. Coincidentally, the average growth rate of Japan's private consumption fell sharply from 3.7% in the 1980s to 1.5% in the 1990s. In the 2000s, Japan became a super-aged society, and its consumption stagnation worsened, with a private consumption rate of 0.9%. As LGERI suggests, the major cause of the decline in Japan's household consumption is the reverse wealth effect caused by falling asset prices. Japan has experienced a rapid decline in asset prices following the bursting of a bubble economy. With a rising number of retirees in Japan's rapidly aging population, Japanese households, worrying about future income, have reduced spending and increased savings, thereby leading to contracting consumption.

Retirees, who account for a lion's share of the aging population, tend to spend as little as possible, as their earnings are limited to pensions or asset income. This is why spending falls as a population ages. If household consumption declines, a vicious cycle occurs wherein sales fall and companies reduce production or hesitate to make investments, and, in turn, this reduces employment and spending contracts again. Not only Japan, but also many European countries, including Germany, France, and Italy, are groaning because of dull economies as their populations get older.

Baby boomer retirement, population aging, and asset bubbles are major factors that herald and extend deflation. The government's fiscal and monetary policies cannot work properly in the face of an immense wave of demographic changes.

Demographic trends: key economic variables

The retirement of the baby boomer generation has had a direct impact on the economy. Harry Dent, the founder of U.S. economic forecasting research firm Dent Research, said in a book that he co-authored with Rodney Johnson, *The Great Crash Ahead: Strategies for a World Turned Upside Down*, the recent U.S. economic recession is attributed to the retirement of the baby boomers and consequent demographic changes.

On average, Americans marry at 26 years old, and have their first child and begin spending to take care of their family at 28. They buy their first house at 31 and move into a bigger home between 37 and 42 years old. Spending peaks at around 46 years old, when their children leave the house. After that, they cut spending and increase savings in preparation for retirement. After adjusting for the number of immigrants, the baby boom in the USA is considered to have occurred between 1949 and 1959. Between 1995 and 2005, the baby boomers reached 46 years old and their spending peaked. This coincidentally matched the period of the U.S. economic boom. Of course, there was a series of events during those ten years, including the September 11 attacks, the foreign exchange crisis, and the dot-com bubble burst. Thanks to baby boomers with high purchasing power, the U.S. economy has overcome these crises and achieved robust


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Speed of Aging in Major Countries

	Starting Year			Years Taken	
	Aging Society (over 7% at 65+ years)	Aged Society (over 14%)	Super-aged Society (over 20%)	7% → 14%	14% → 20%
Japan	1970	1994	2006	24	12
France	1864	1979	2018	115	39
Germany	1932	1972	2009	40	37
Italy	1927	1988	2006	61	18
USA	1942	2015	2036	73	21
Korea	2000	2018	2026	18	8

Source: Population Projections for 2006, Statistics Korea, Quoted in *LG Business Insight*, LG Economics Research Institute, Feb. 12, 2014

growth. The problem is that excessive growth has led to a bubble. Worrying about an economic recession in the wake of 9/11, the U.S. government has cut interest rates dramatically and injected massive amounts of credit into the market, thus creating stock market and real estate bubbles. The U.S. economy has declined since.

Harry Dent states that the failure of the U.S. Federal Reserve's quantitative easing 1 (QE1), which came to an end in 2010, was caused by demographic changes, large bubbles, and the trend of debt reduction. Now, American baby boomers are reducing spending and paying off their debts. U.S. private debt climbed to USD 42 trillion as of 2010. If Americans had paid off 5% of total private debt for three years after the U.S.-led financial crisis, USD 2 trillion of credit would have disappeared from the market. The Federal Reserve poured USD 2.3 trillion into the market, but this merely offset the reduced amount of debt. For this reason, the Federal Reserve had no choice but to increase quantitative easing.

This phenomenon was previously witnessed during Japan's two "lost decades." Japan's baby boomers, known as the "*dankai* generation," were mostly born in the years between 1947 and 1949. They reached 46 years old and entered their peak-spending years between 1993 and 1996. After this peak, national spending was bound to decline. In the 1990s, the Japanese government launched massive fiscal stimulus programs to boost the economy, but they failed due largely to the retirement of the *dankai* generation, and the subsequent impact of population aging and debt settlement. Japan's household debt settlement has continued for a long time. According to LGERI, before the bubble burst, the average annual growth of Japanese household debt was 12.2% for four years from 1986. As a result, the country's household debt-to-GDP ratio jumped to 84.1%. The bubble burst coincided with the retirement of the baby boomers, making debt settlement inevitable and ushering in chronic deflation.

Demographic changes matter more than short-term economic stimulus

Baby boomer retirement, population aging, and asset bubbles are major factors that herald and extend deflation. The government's fiscal and monetary policies cannot work properly in the face of an immense wave of demographic changes. However, many countries around the world are dumping money into their markets, creating another bubble. Although it is not the case in Korea, stock markets around the world, including in the USA, Japan, and India, have been setting decade highs and record highs. Bond prices are also setting record highs. It is worrisome that another bubble burst could take place. As many cases suggest, deflation starts with the bursting of a bubble. We should not forget that the bursting of Japan's bubble in the 1990s ushered in long-term recession.

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Low-skilled Workers Losing Ground: Only Jobs with Human Touch Will Survive in the Face of Technology Innovation

The world is fighting unemployment. Many people worry that unemployment has worsened in the wake of the global financial crisis. Although most economic indicators have already returned to pre-crisis levels, employment-related indicators have been slow to recover. Is there any reason other than low growth for the lack of jobs?

Robots rapidly replacing employees after the global financial crisis

During 2014 Black Friday sales, U.S. online mega-retailer Amazon deployed 15,000 Kiva robots in its warehouses to transport goods. Orange Kiva robots can hold up to 340 kg of merchandise, and work 24/7. They also make fewer mistakes than humans. Ahead of the 2013 Christmas shopping season, Amazon hired 80,000 temporary workers, but still experienced its worst delivery crisis. To avoid a repeat of this situation, Amazon will install more robots. In July 2014, Foxconn installed 10,000 Foxbots on iPone 6 assembly lines. So far, this army of Foxbots is involved only in parts of battery production. Foxconn has promised to increase the number of Foxbots to one million.

Since the global financial crisis, there has been an increasing number of companies employing robots. If all companies employ robots like Kiva and Foxbot, what will happen to our jobs? The cases of Amazon and Foxconn show that the lack of jobs is not only caused by economic recession. The idea that machines will take over our jobs has existed for more than 200 years. A case in point is the Luddite movement, which English textile artisans broke power looms for fear of losing their jobs to machines during the Industrial Revolution in the 19th Century. With the advent of the information society, the fear of losing jobs has reemerged. Jeremy Rifkin wrote in his book *The End of Work*, published in 1995, that "more sophisticated software technologies are going to bring civilization ever closer to a near-workerless world."

Most economists disagree with Rifkin for the following two reasons. First, some jobs will disappear due to technological advances, but more jobs will be created. Statistics support this argument. In the 20 years since 1995, the number of jobs in Korea has increased by 4.65 million, from 20.41 million to 25.06 million. Manufacturing lost 880,000 jobs, but the service industry gained 6.32 million jobs. With the automation of assembly lines, the "end of work" has been realized in manufacturing, but the "invention of work" has taken place in the service industry.

End of Work vs. Invention of Work

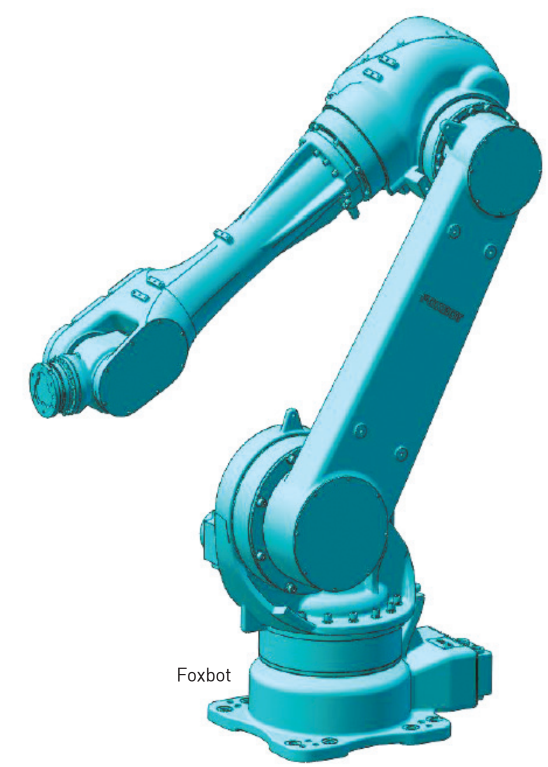
Second, many economists believe that the jobs that machines can take are limited, no matter how much technology advances. For example, cleaning robots can suck up dust well, but they might not think to bring an empty glass on the table to the sink. Tars, the robots in the Hollywood movie *Interstellar*, come equipped with humor level settings, but they cannot decide the levels by themselves; they are merely programmed. No matter how simple it looks, human behavior requires massive data and sophisticated calculation skills–an ability that robots cannot easily replicate. In particular, economists have maintained that robots will never be able to emulate humans when making decisions, handling complex feelings, and communicating ambiguous ideas.

Meanwhile, there have been signs in recent years that challenge these beliefs. One example is unmanned vehicles. Until the early 2000s, people believed that truck drivers could not be replaced by computers. Because of unexpected situations, such as sudden changes in traffic and road conditions, it was difficult to program the behavioral patterns of drivers. Within ten years, this assumption was invalidated, when Google succeeded in testing self-driving cars. With massive data from Google Maps and Street View, and sensors detecting road signals, road lanes, courses, and other roadway features, Google has proven that unmanned driving is possible.

A second example is IBM's Watson, an artificially intelligent computer system. In 2011, Watson competed on *Jeopardy!* against two of its highest-scoring champions, and beat them by a landslide. Many clues included plays on words, but Watson digested all of the clues. One of the disadvantages of machines is that they cannot understand emotions or ambiguous expressions, but Watson overcame this disadvantage completely. Watson responded to the clues right away through the repeated process of deriving multiple search results from data stored in a cluster of 90 servers, sifting out possible responses from thousands of derivative search results, and scoring the possible responses to find its final response.

A third example is robot journalists. LA Times' robot journalist writes articles on earthquakes regularly. Forbes has adopted Quill to write articles on the economy. About 15% of Forbes articles are written by automated journalists. How trustworthy are these articles? In October 2014, at Tilburg University in the Netherlands, a study was conducted on news

The gap between high- and low-skilled workers, and between capitalists and ordinary workers, will widen as technologies develop, because low-skilled workers are highly likely to be replaced by machines, and the owners of the machines are capitalists.



Foxbot

consumers, comparing two articles written by a robot to two articles written by a human. Surprisingly, they found no difference between robot-written news articles and those authored by humans.

Widening gap between high- and low-skilled workers

What do unmanned vehicles, quiz robots, and robot journalists indicate? The number of areas where machines can be employed is multiplying as rapidly as transistors under Moore's law. In the 1980s, manual labor on assembly lines was replaced by automated machinery. Today we are entering an era when machines replace knowledge labor. In 2013, Oxford researchers released a gloomy outlook, that 47% of U.S. jobs will be replaced by machines within the next 20 years.

What will happen if machines continue to encroach on human labor? Will technologies continue to create new jobs as they did for 200 years? Or will the era really come when humans fight with machines for jobs, as Eric Schmidt, executive chairman of Google, warned at the World Economic Forum in Davos in 2014?

It is unclear whether more jobs will be replaced or created. With the advent of the iPhone, dozens of industries have collapsed, including MP3 players, GPS navigation devices, portable game platforms, hand-held camcorders, digital cameras, recorders, and PMP devices. In the meantime, many new jobs have been created by applications, mobile phone cases and accessories, and mobile games.

Erik Brynjolfsson and Andrew McAfee, the authors of *The Second Machine Age*, predict that the gap between high- and low-skilled workers, and between capitalists and ordinary workers, will widen as technologies develop, because low-skilled workers are highly likely to be replaced by machines, and the owners of the machines are capitalists.

This argument is in line with Thomas Piketty's book *Capital in the Twenty-First Century*, which suggests that the world is increasingly polarized. Highly-skilled workers cannot be complacent. Richard Freeman, Professor of Economics at Harvard University, claims that the jobs at risk of being replaced by machines include doctors, lawyers, accountants, and translators and interpreters. These jobs require high skill and knowledge, but patterns can be found in their work and can be programmed.

Seeking coexistence with machines, not competition

How should we react to the imminent "second machine age?" We should find ways to coexist with machines, rather than competing with them. Since 2005, the greatest world chess champions have been teams consisting of humans and machines. Humans cannot beat machines at chess, but men and machines working together in teams can achieve the highest results. We should continue to cultivate our human capacity, such as emotions, creativity, and insight. How we work is now more important than what work we do. Journalists who write articles full of clichés will be replaced by robots, but those who write penetrating articles with keen insight will continue to be in high demand. ©

Amazon's Kiva robots, deployed at a fulfillment center in Tracy, California, carry shelves of products. [AP/Yonhap News Agency]