

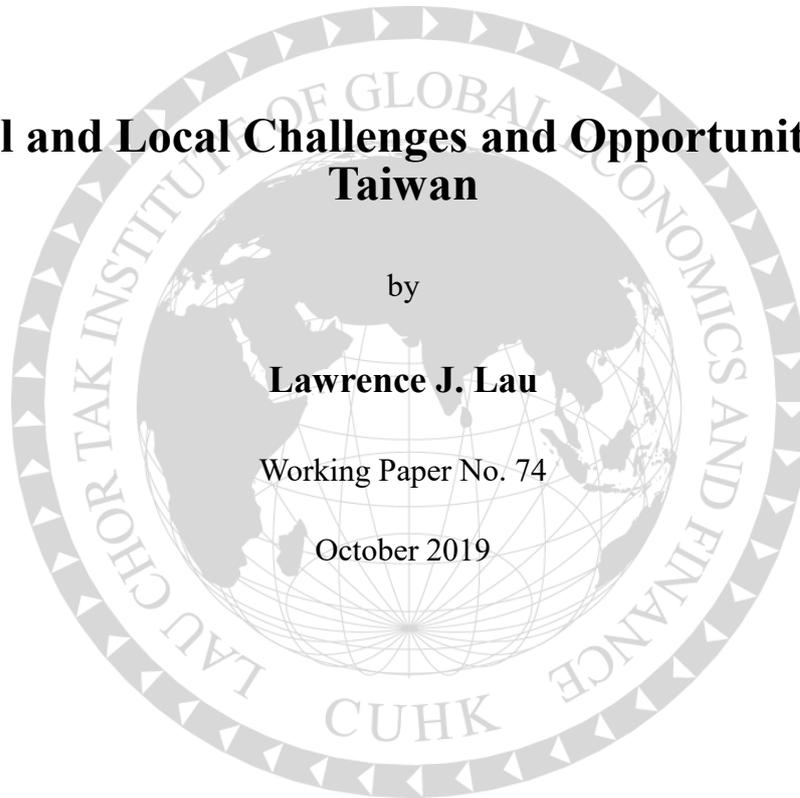
Global and Local Challenges and Opportunities for Taiwan

by

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Global and Local Challenges and Opportunities for Taiwan[§]

Lawrence J. Lau¹

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Abstract: There are both global and local challenges for Taiwan during the next several decades. Taiwan must think, plan, and act long-term. It must adopt a rational and sustainable strategy that takes into account changes in the world (for example, the rise of the Mainland), focuses on its own long-term best interests, and transcends short-term domestic political differences. There are also opportunities for Taiwan. Taiwan must decide where it wants to be, and where it expects to be, in say 2035 or 2050. It must decide what can be achieved and what cannot, and act accordingly. It is best to focus on developing the economy and promoting peace.

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1. Introduction

I am an economist. This paper is written from an economist's point of view, focussing on the challenges and opportunities faced by the economy of Taiwan. There are both global and local challenges for Taiwan during the next several decades. Taiwan must think, plan, and act long-term. It must adopt a rational and sustainable strategy that takes into account changes in the world (for example, the rise of the Mainland), focus on its own long-term best interests, and transcend short-term domestic political differences.

Long-term thinking is important because what one does today can have lasting, and often irreversible, impacts on the future. Moreover, developments are also often path-dependent. Climate change (global warming) is one such example. If we do not do something about it today, we shall regret it sometime in the future; but by the time we regret it, there is nothing that we can do to change the (bad) outcome.

There are also opportunities for Taiwan. In order to assess these opportunities, it is useful to consider the likely global developments during the next several decades. What will the world look like then? Taiwan must decide where it wants to be, and where it expects to be, in say 2035 or 2050, and act accordingly.

2. The Evolving World

We begin by considering where the world economy will be by the middle of this Century. The world has changed dramatically since 1970. The Soviet Union and the Eastern European Communist bloc are no more. The United States has become the sole hegemonic power. The cell phone has supplanted the fixed-line telephone and the internet is now ubiquitous. During this same period, the economic centre of gravity of the world has been shifting from North America and Western Europe to East Asia and within East Asia from Japan to Mainland China.

The "Washington consensus" has not worked out well for developing economies. The "Big Bang" shock therapy has failed miserably, as witnessed by the experiences of the former Soviet Union and Eastern European Communist countries. The "Washington consensus" also faces a challenge posed by the "Beijing consensus".

The centre of gravity of the global economy has been shifting (see Charts 1 and 2). In 1970, the United States and Western Europe together accounted for almost 60 percent of world GDP. By comparison, East Asia (defined as the 10 Association of Southeast Asian Nations (ASEAN)—Brunei, Cambodia, Indonesia, Laos, Malaysia, Myanmar, Philippines, Singapore, Thailand and Vietnam—plus 3 (China including Hong Kong, Macau and Taiwan, Japan and the Republic of Korea)) accounted for only approximately 10 percent of world GDP. (Hong Kong, Republic of Korea, Singapore and Taiwan are also known collectively as the East Asian “Newly Industrialised Economies (NIEs)”.) By 2017, the combined share of United States and Western Europe in world GDP has declined to approximately 40% whereas the share of East Asia has risen to almost 28%. The share of the U.S. has shrunk to 24% from over 36%. The Japanese share of world GDP declined from a peak of almost 18% in the mid-1990s to 6% in 2017 while the Mainland Chinese share of world GDP rose from 3.1% in 1970 and less than 4% in 2000 to over 15.1% in 2017 (see Chart 3).

Chart 1: The Distribution of World GDP, 1970, US\$

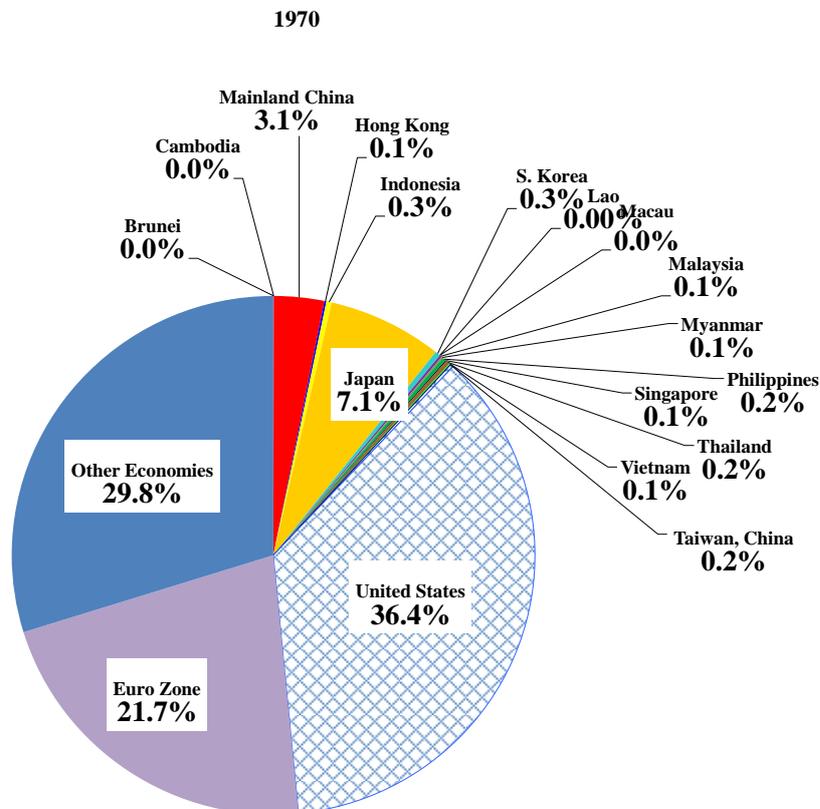


Chart 2: The Distribution of World GDP, 2017, US\$

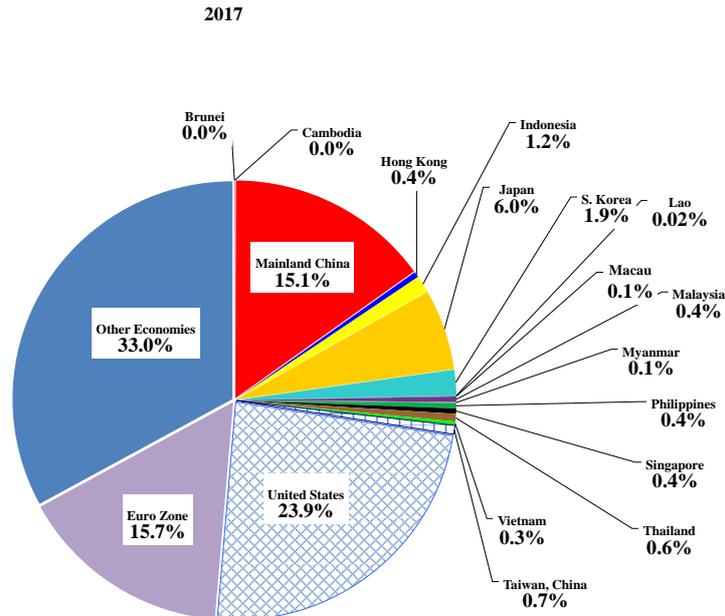
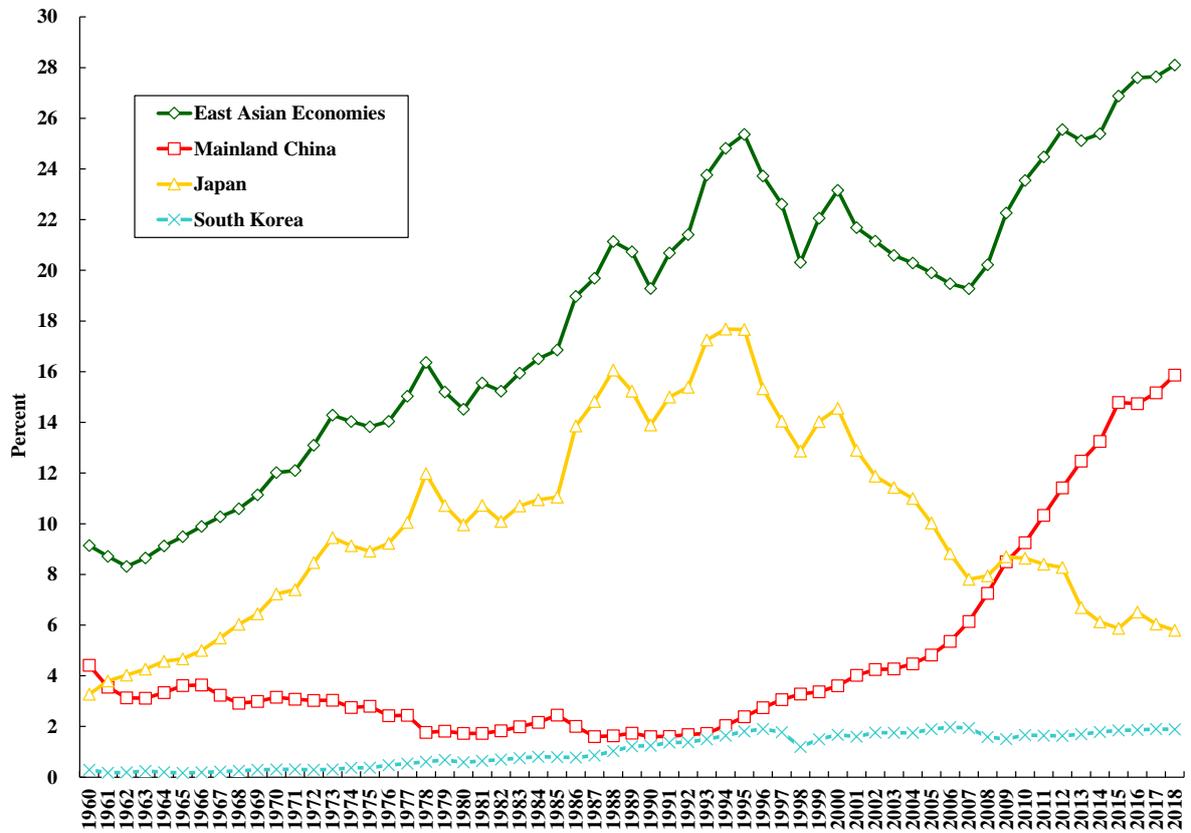


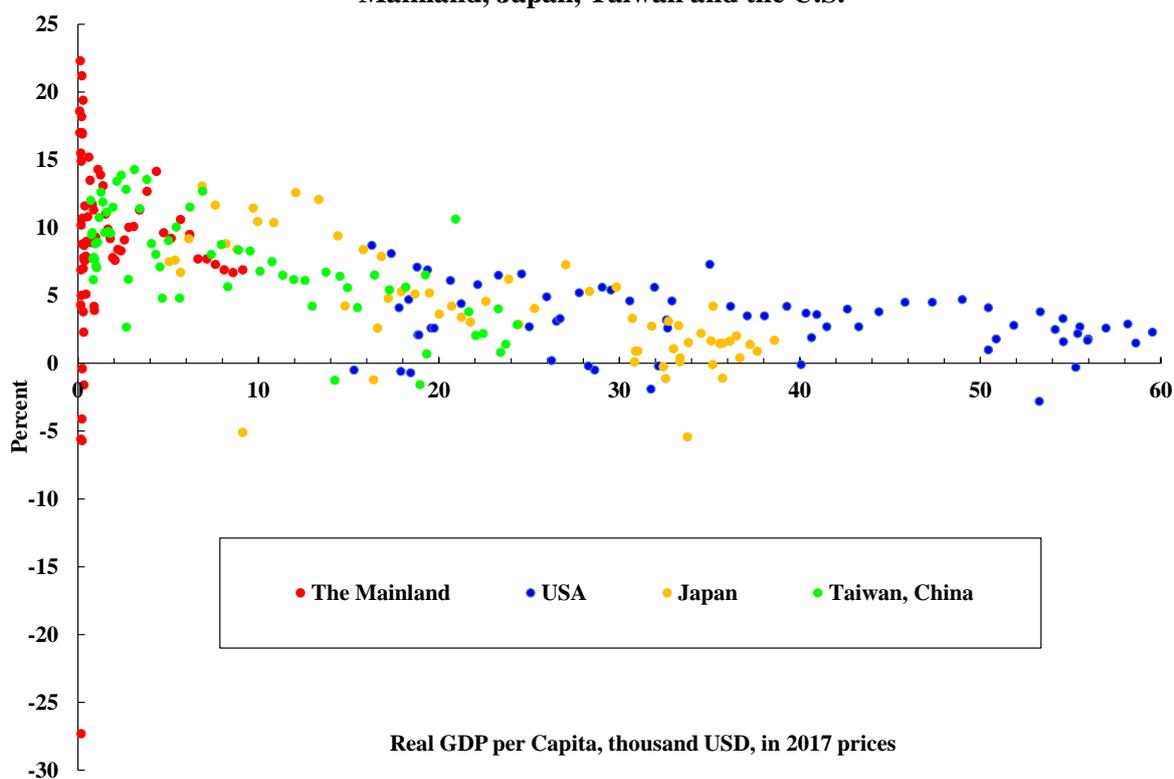
Chart 3: The Shares of East Asia, China, Japan and South Korea in World GDP, 1960-present



Long-Term Projections of the Mainland Chinese and the U.S. Economies

It is assumed that between now and 2050, the Mainland economy will continue to grow around 6% per annum for a few years, and then slow down gradually to between 5% and 6%, and that the U.S. economy will grow at an average rate of 3% per annum, approximately the same as its long-term average rate of growth since 1950. It may be thought that the Mainland economy will be unable to sustain an average annual rate of growth of between 5% and 6% for such a long time and that the U.S. should be able to grow faster. However, our assumed rates are based on the actually achieved rates of growth during the past two decades. In Chart 4, a scatter diagram of the rate of growth of real GDP versus the real GDP per capita of four economies—the Mainland, Japan, Taiwan and the U.S.—are presented. While it is clear that the rate of growth of real GDP will decline with real GDP per capita, and the Mainland is no exception, Japan, Taiwan and the U.S. all had higher rates of economic growth when their economies had real GDP per capita in the range between US\$10,000 and US\$30,000 (in 2017 prices). This is precisely the range of projected real GDP per capita for the Mainland between now and the early 2040s.

**Chart 4: Growth Rates vs. Levels of Real GDP per Capita:
Mainland, Japan, Taiwan and the U.S.**



In addition, the Mainland still has a relatively low tangible capital per unit labour. Moreover, there is still and will continue to be significant surplus labour in the Mainland economy. The share of employment in the primary sector on the Mainland is slightly below 30% whereas the share of GDP originating from the primary sector is below 10%. For the U.S., given its already very high level of real GDP per capita, it is unlikely that its economy will be able to grow much faster than 3% per annum in the long run. Chart 4 also shows that the U.S. has had a systematically higher rate of growth than Japan at the same level of real GDP per capita, and this can be attributed to the higher innovative capacity of the U.S. By comparison, the rate of growth of the Taiwan economy has under-performed those of the U.S. and Japan at comparable levels of real GDP per capita.

The projections of the Mainland and the U.S. real GDPs and real GDPs per capita and their rates of growth between now and 2050 are presented in Charts 5 and 6. Our projections show that by 2032, Mainland real GDP will surpass U.S. real GDP (US\$31.2 trillion versus US\$30.2 trillion), making the Mainland the largest economy in the world. However, in terms of real GDP per capita, the Mainland will still lag behind significantly, with US\$21,134 compared to US\$84,543 for the U.S. By 2050, Mainland and U.S. real GDP will reach US\$82.5 trillion and US\$51.4 trillion respectively, accounting for approximately 30% and 20% of the world GDP, which is projected to be US\$280 trillion. In terms of real GDP per capita, the Mainland will reach US\$52,870, still more than 10 percent below the current level of U.S. real GDP per capita, compared to US\$134,071 for the U.S. It will not be until the end of the 21st Century that the Mainland real GDP per capita can catch up with the U.S. real GDP per capita.

Chart 5: Actual and Projected Levels and Growth Rates of Mainland and U.S. Real GDP (2017 trillion US\$)

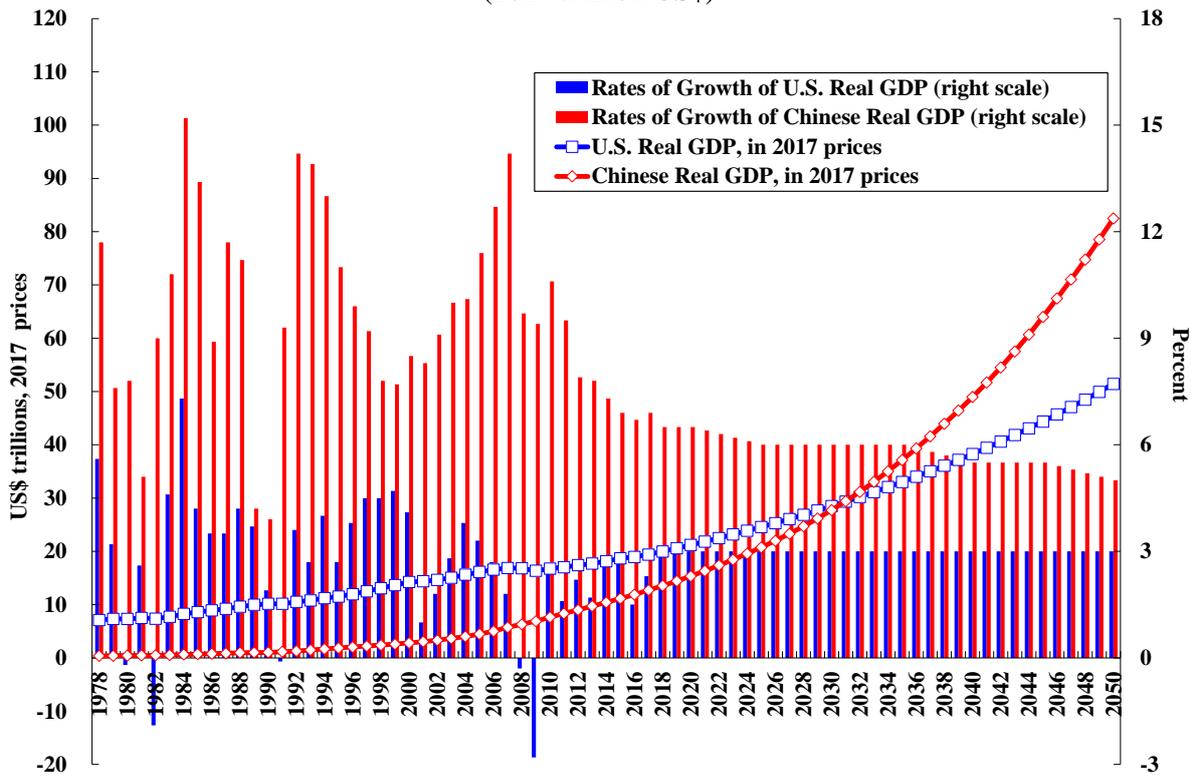
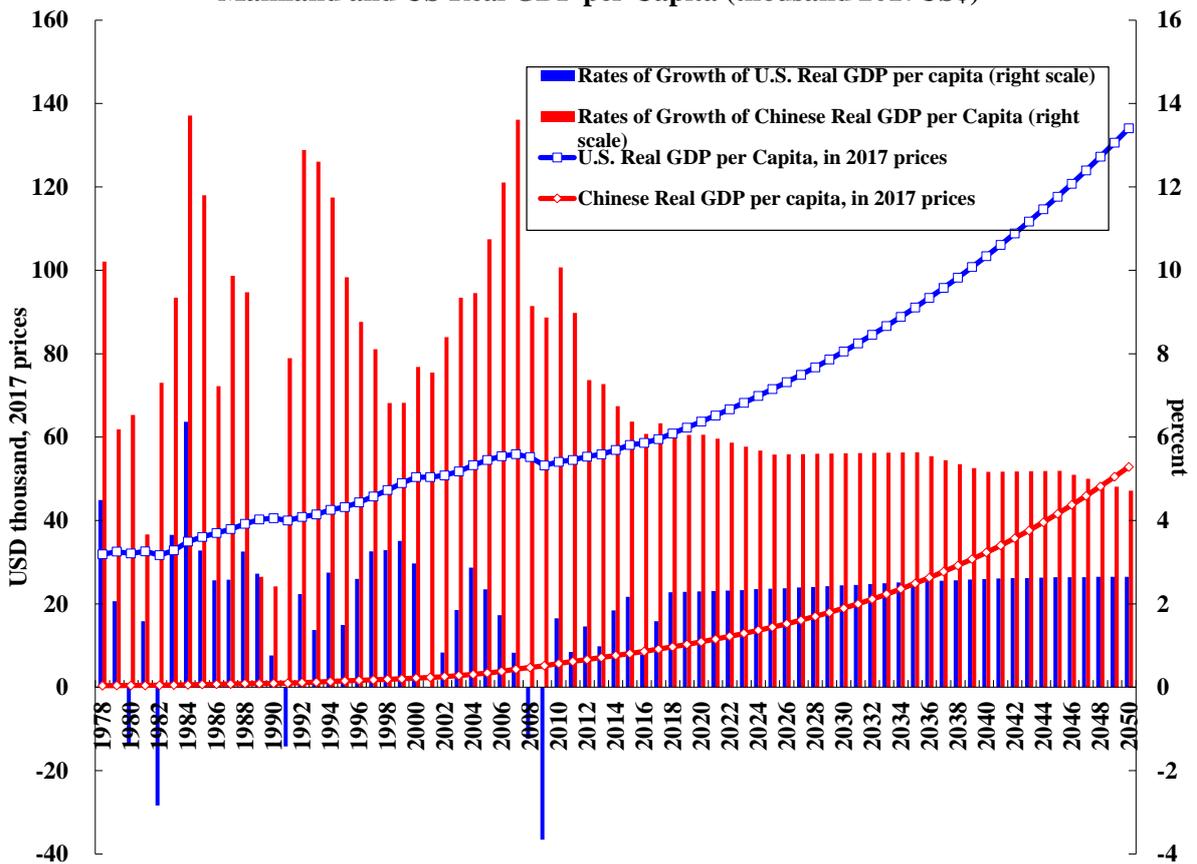


Chart 6: Actual and Projected Levels and Growth Rates of Mainland and US Real GDP per Capita (thousand 2017US\$)



The distribution of world trade has also been shifting (see Charts 7 and 8). In 1970, the United States and Western Europe together accounted for almost 47% of world trade in goods and services. By comparison, East Asia accounted for 9.6% of world trade. By 2017, the share of United States and Western Europe combined in world trade has declined to 37.1% whereas the share of East Asia has risen to almost 28%. The Mainland Chinese share of world trade rose from 0.6% in 1970 to 10.2% in 2017. The growth in Chinese international trade may be attributed in part to the adoption of current-account convertibility of the Renminbi by China in 1994, accompanied by a significant devaluation of the Renminbi, and to Chinese accession to the World Trade Organisation in 2001. Since 2015, Mainland China has also been the largest trading partner of the U.S., surpassing Canada. The U.S. is also the largest trading partner of Mainland China.

Chart 7: The Distribution of International Trade in Goods and Services, 1970

1970

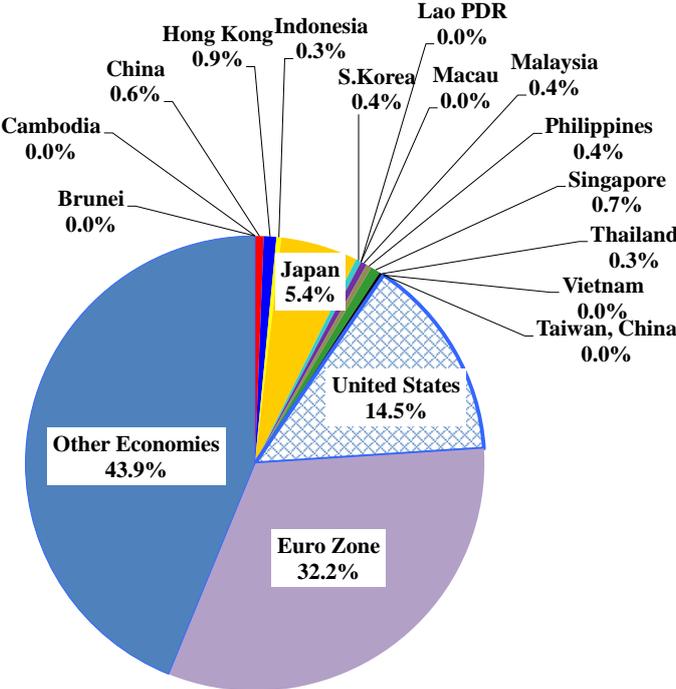
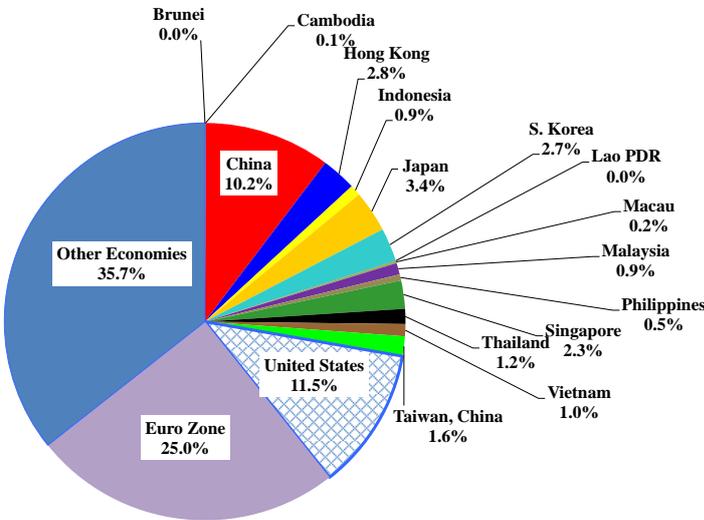


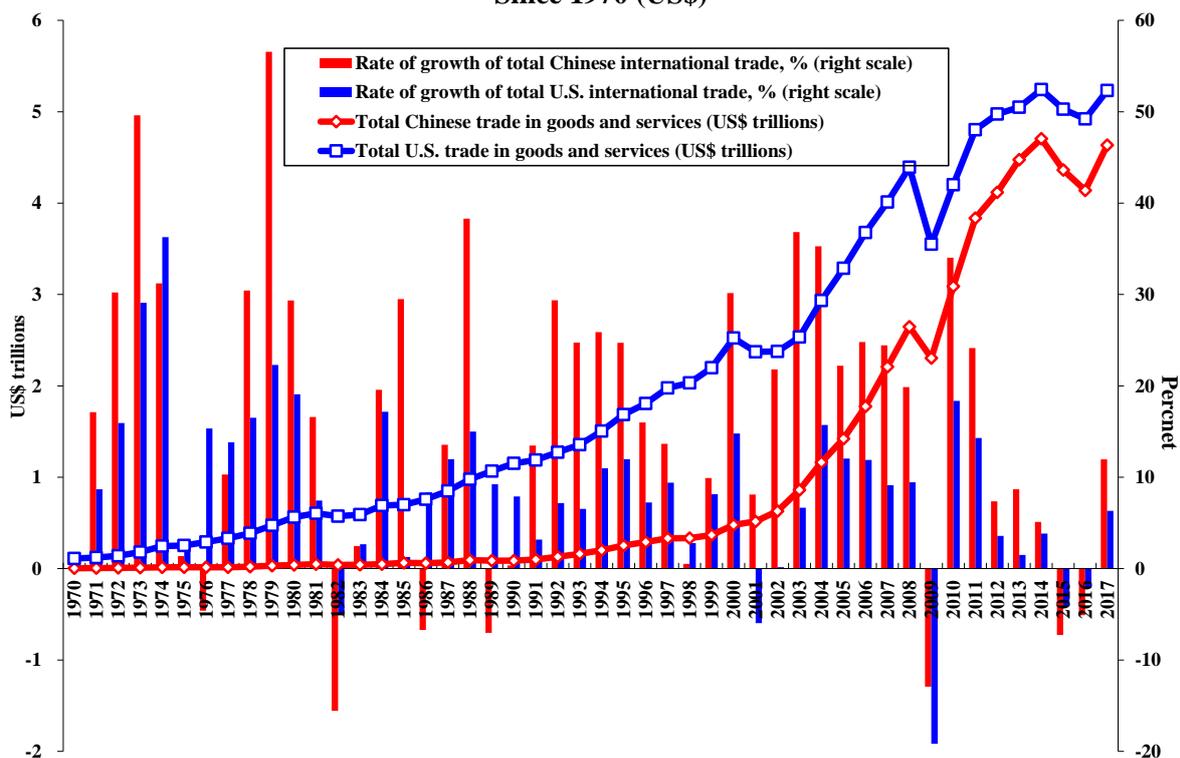
Chart 8: The Distribution of International Trade in Goods and Services, 2017

2017



During the past decade, the average annual rates of growth of the international trade of the Mainland and the U.S. were respectively 8.6% and 3.2%. If these rates persist, which appears likely given the rise of protectionism in the U.S., the Mainland is likely to surpass the U.S. to become the largest trading country in the world by 2020. The Mainland and the U.S. will each account for between 11% and 12% of world trade then. By 2050, the U.S. share of world trade will be in the single digits. It is likely that the Mainland will maintain an approximately 10% share of world trade on the strength of its large and growing domestic demand for imports and its exports of new manufactured products.

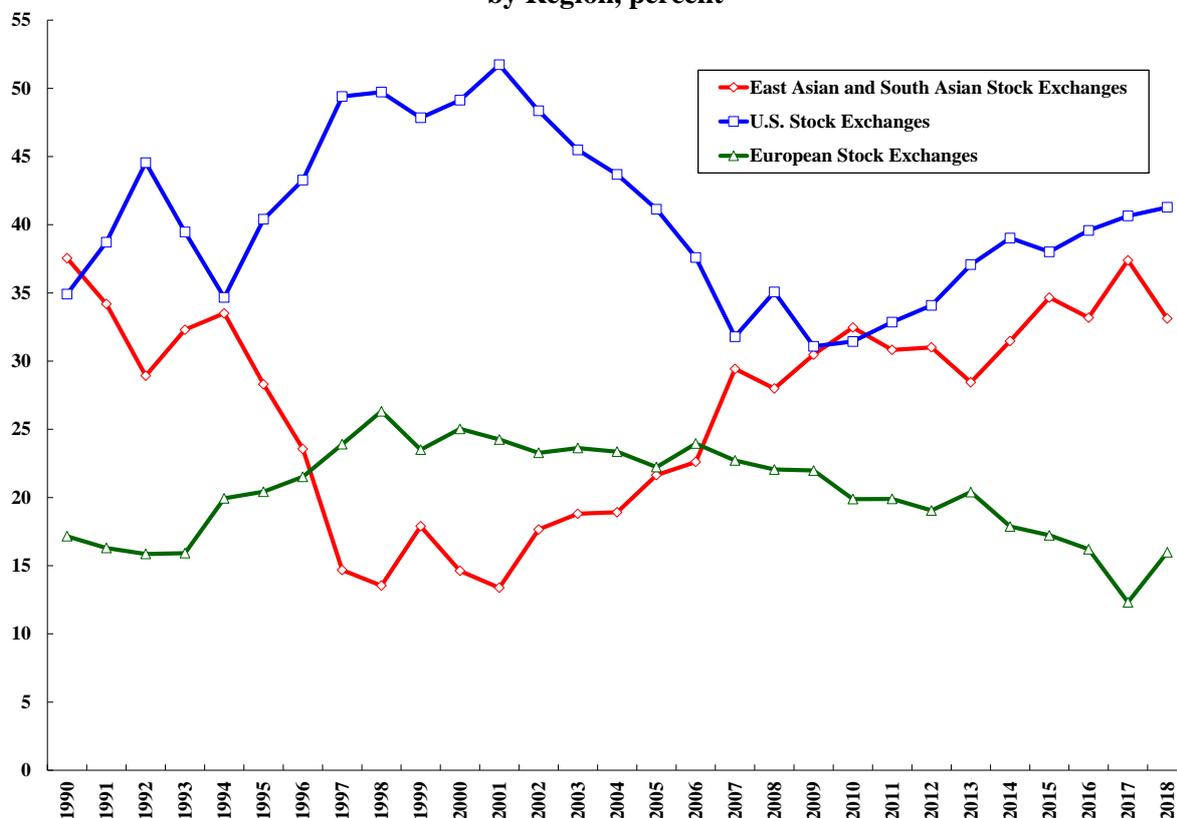
Chart 9: Chinese and U.S. International Trade and Their Respective Rates of Growth Since 1970 (US\$)



The distribution of wealth in the world has also been shifting in the same way: from North America and Western Europe to East Asia and South Asia. Data on the world distribution of wealth are not readily available on a time-series basis. However, a reasonable proxy is the distribution of the market capitalisation of the stock exchanges in the different regions. This is presented in Chart 10, which shows that the East Asian and South Asian stock exchanges combined surpassed the European stock exchanges in market capitalisation in 2007 and is within striking distance of the market capitalisation of the U.S. stock exchanges. In 2017, the number of known U.S. Dollar billionaires on the Mainland is reported to have

exceeded the number in the U.S., both more than 600. The number of unknown U.S. Dollar billionaires on the Mainland is probably on the same order of magnitude as the number of known ones. Total Asian wealth is likely to surpass total U.S. wealth within the next decade.

Chart 10: The Distribution of the Market Capitalisation of World Stock Exchanges by Region, percent



There is and has always been quite a bit of concern in the Western press as to whether the Mainland economy is stable enough to survive. The Mainland has a very low overall dependence on exports. Exports as a percent of Mainland GDP has been declining over the past decade and currently stands at 20%, compared to 12% for the U.S. (see Chart 11). Going forward, the export share of the Mainland economy is likely to decline further, approaching the same level as Japan and the U.S. Moreover, the Mainland has shown itself to be relatively immune to external economic disturbances. While the rates of growth of its exports and imports fluctuate just like other Asian economies (see Charts 12 and 13), the rate of growth of its real GDP has remained quite stable (see Chart 14). The Mainland economy survived the East Asian crisis, the internet bubble, the global financial crises and the European sovereign debt crisis relatively unscathed. This is due to both the scale and the diversity of its economy, which is today mostly driven by the growth in its own domestic demand.

Chart 11: Exports of Goods and Services as a Share of GDP in Selected Economies

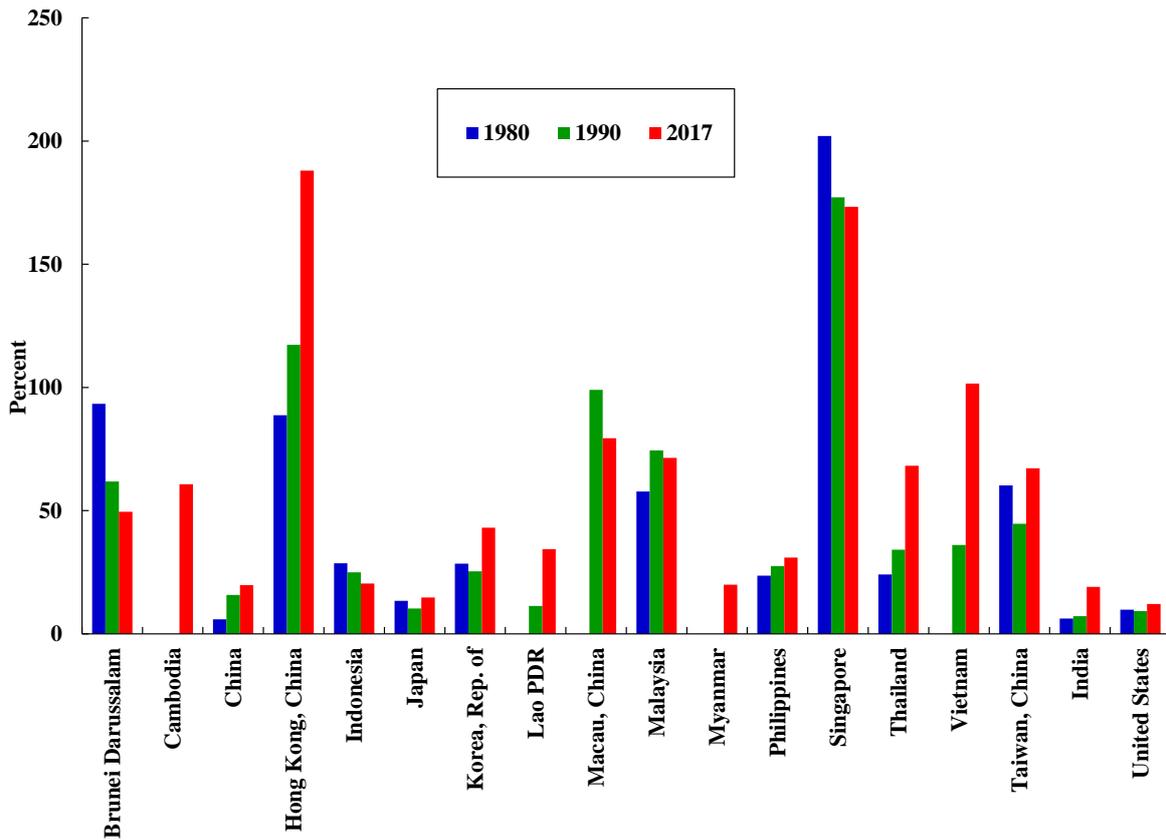


Chart 12: Quarterly Rates of Growth of Exports of Goods: Selected Asian Economies

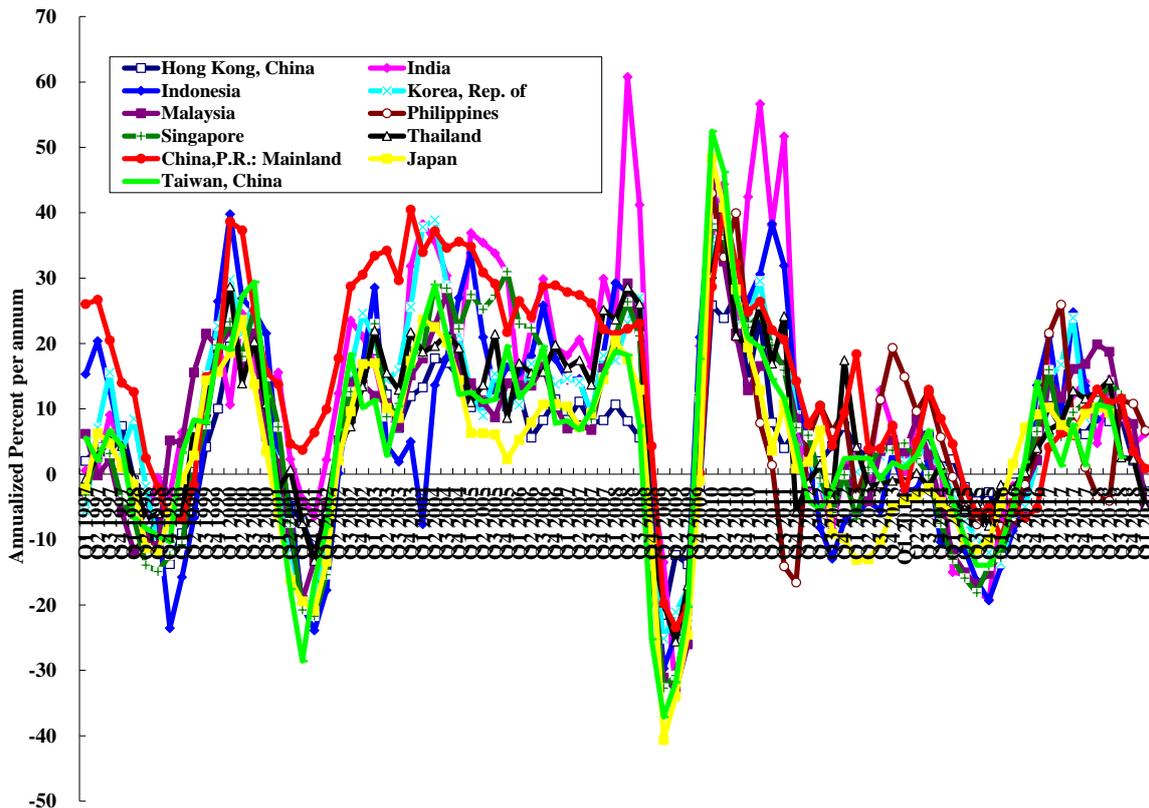


Chart 13: Quarterly Rates of Growth of Imports of Goods: Selected Asian Economies

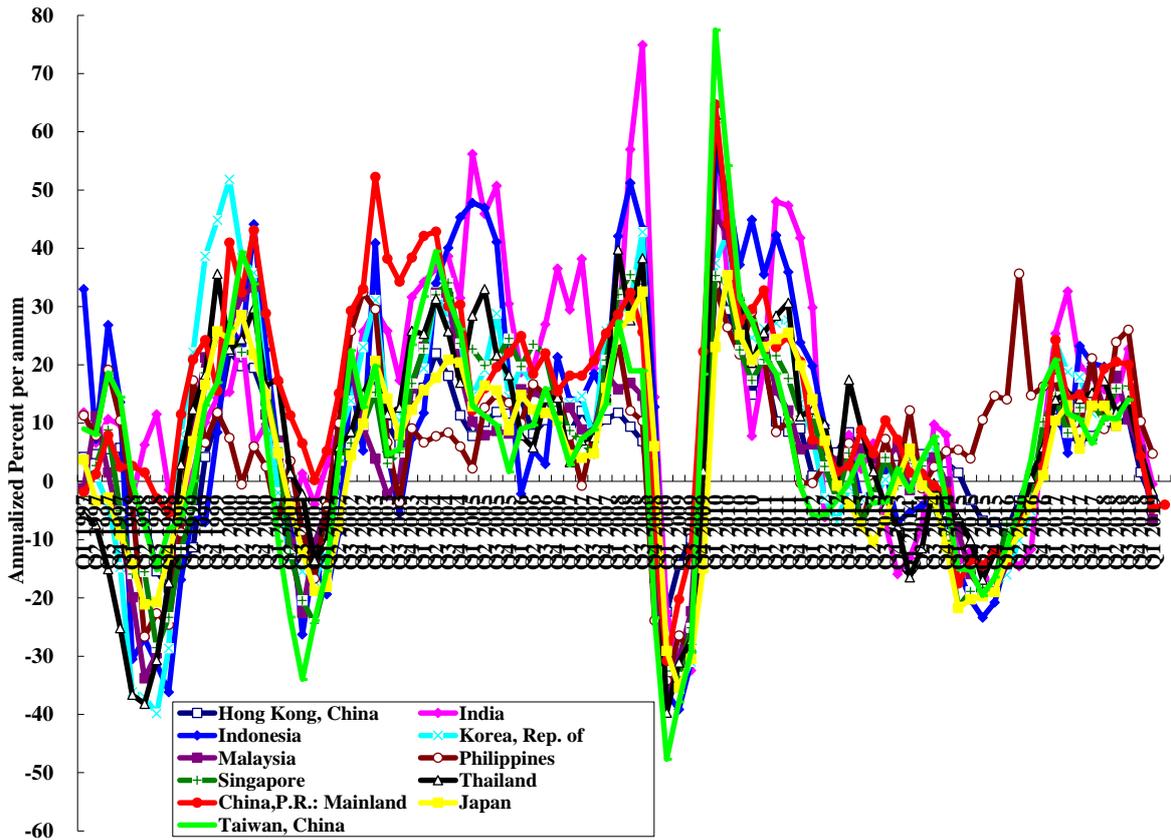
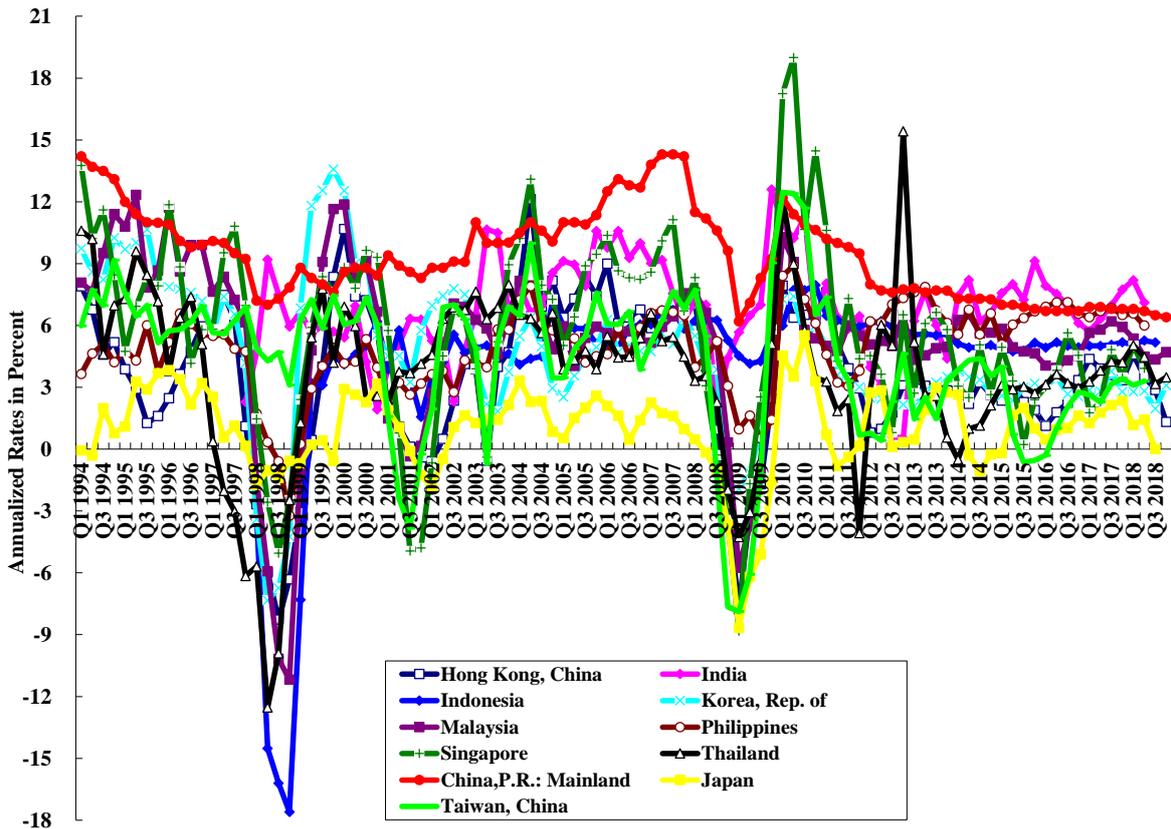


Chart 14: Quarterly Rates of Growth of Real GDP, Y-o-Y: Selected Asian Economies



The fact that the Mainland economy has been able to keep growing at more than 6.5% per annum since the global financial crisis of 2007-2008 lends credence to the partial decoupling hypothesis, namely, that the East Asian economies can continue to grow even as the North American and Western European economies go into recession. While the Mainland economy may have some financial vulnerability because of the non-performing loans resulting from its excess production capacities, its high national savings rate, in the mid-forties, should make any such financial crisis manageable.

Can India, which will have the world’s largest population sometime after 2030, be a possible economic counter-weight to the Mainland? While India has been growing in recent years even faster than the Mainland, its GDP in 2017 was only US\$2.6 trillion, or a little more than one-fifth of the Mainland’s US\$12 trillion (see Table 1). Indian real GDP is likely to surpass Japanese GDP in another decade, but it will take a long time for India to catch up to the Mainland in aggregate terms, and even longer in per capita terms, given that its rate of growth is at most only a couple of percentage points higher than that of the Mainland. India will be a major player in the world economy, but not until after the middle of the 21st Century. Thus, the “Indo-Pacific Quartet,” consisting of Australia, India, Japan and the U.S., is unlikely to become a major economic force any time soon. Neither is the “Trans-Pacific Partnership (TPP)” without the U.S. and China. The European Union, with a 2017 GDP of US\$17.1 trillion, is a possible economic counter-weight to and perhaps a partner for the Mainland on the global economic scene if it can remain united (less the U.K. of course).

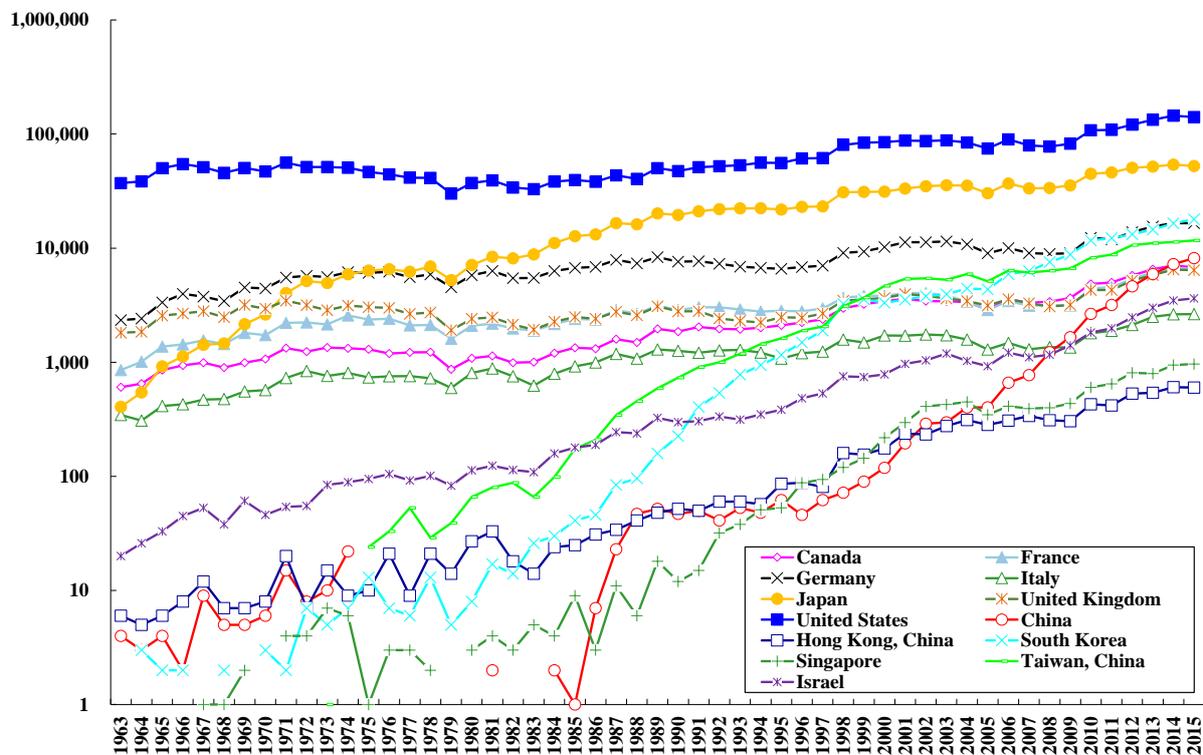
Table 1: Comparisons of the Economic Indicators (2017) of Selected Economies

	Mainland	Taiwan	U.S.	India	Japan
2017 GDP (US\$ billion)	12,014.6	573.2	19,390.6	2,611.0	4,872.1
2017 year-end Population (million)	1,390.1	23.6	325.9	1,316.9	126.7
2017 GDP per Capita (US\$ thousand)	8.6	24.3	59.5	2.0	38.4
2017 Real Rate of Growth (percent)	6.9	2.9	2.3	6.7	1.7
2017 Total Exports (US\$ billion)	2,422.9	395.0	2,331.6	488.1	875.3
2017 Total Imports (US\$ billion)	2,212.2	322.8	2,900.0	561.4	837.6

The Innovation Race

However, the U.S., despite its relatively slow growth, is still the most innovative economy in the world. One indicator of the potential for innovation is the number of patents created each year. In Chart 15, the number of patents granted in the United States each year to the nationals of different countries, including the U.S. itself, over time is presented. The U.S. is the undisputed champion over the past forty years, with 140,969 patents granted in 2015, followed by Japan, with 52,409 patents. (Since these are patents granted in the U.S., the U.S. may have a home advantage; however, for all the other countries and regions, the comparison across them should be fair.) The number of patents granted to Mainland applicants each year has increased from the single-digit levels prior to the mid-1980s to 8,166 in 2015. The economies of South Korea and Taiwan, granted 17,924 and 11,690 U.S. patents respectively in 2015, were far ahead of the Mainland.

Chart 15: Patents Granted in the United States: Selected Economies

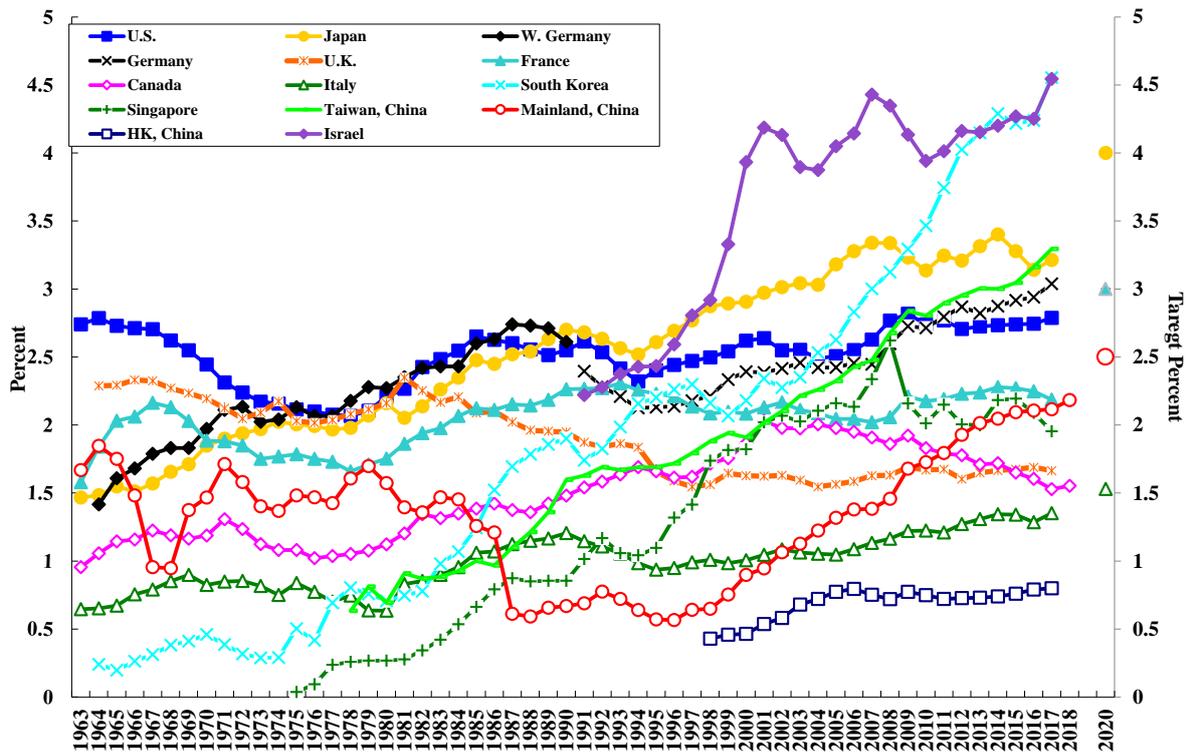


The Mainland has been strongly promoting innovation itself. The number of patents granted on the Mainland is today the highest in the world. The Mainland has also stepped up

its enforcement of intellectual property rights in recent years by setting up permanent special courts for intellectual property right disputes with jurisdiction over the entire nation.

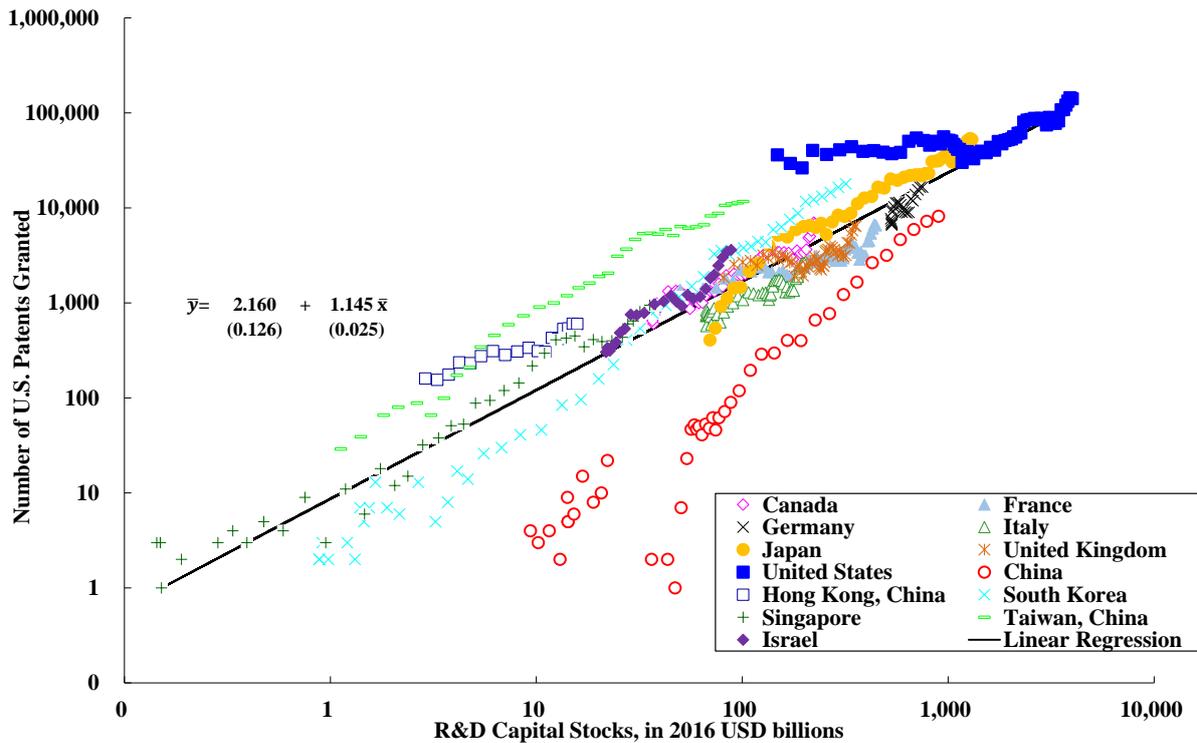
The high number of patents granted to U.S. nationals is in part a reflection of the fact that the U.S. has consistently invested a high percentage of its GDP in research and development (R&D), averaging 2.5% over the years (see Chart 16). The Mainland's R&D to GDP ratio has risen very fast in recent years, but still lags behind Israel, South Korea, Japan, Taiwan, Germany, the U.S., France and Singapore. It is targeted is to reach 2.5% in 2020.

Chart 16: R&D Expenditures as a Share of GDP and Their Target Levels in 2020: Selected Economies



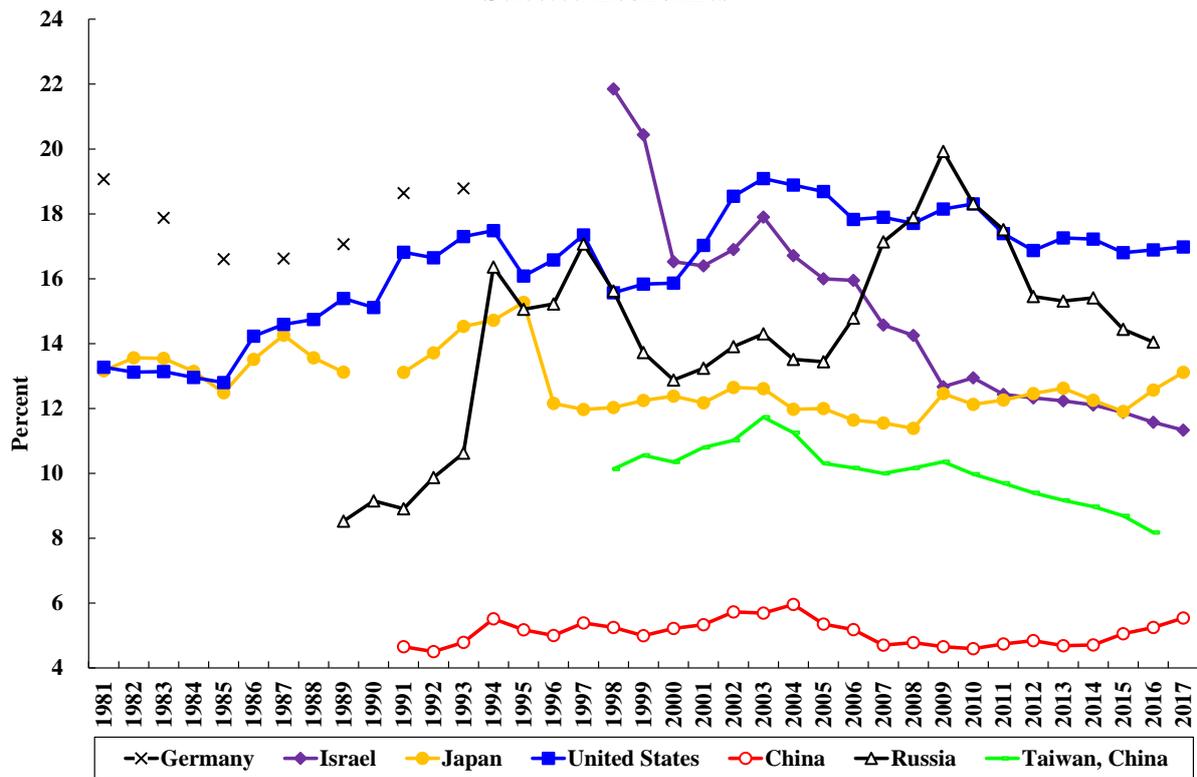
The R&D capital stock, defined as the cumulative past real expenditure on R&D less depreciation of 10% per year, is a useful indicator of innovative capacity. R&D expenditure should quite properly be treated as investment since R&D efforts generally take years to yield any results. The R&D capital stock can be shown to have a direct causal relationship to the number of patents granted (see Chart 17, in which the annual number of U.S. patents granted is plotted against the R&D capital stock of that year for each economy). Chart 17 shows clearly that the higher the stock of R&D capital of an economy, the higher is the number of patents granted to it by the U.S. each year.

Chart 17: U.S. Patents Granted and R&D Capital Stocks: Selected Economies



In order to have a chance to make a break-through discovery or invention, there must be significant and sustained investment in basic research. Basic research is by definition patient and long-term research. The rate of return of basic research, at any reasonable discount rate, will be low. It must therefore be financed by the government or non-profit institutions and not by for-profit firms. The atomic and hydrogen bombs, the nuclear reactors, the internet, the packets transmission technology and the browser are all outcomes of basic research done many years ago. However, Mainland investment in basic research has remained low relative to other economies (see Chart 18). Mainland devoted only 5 percent of its R&D expenditures to basic research, compared to the more than 15 percent of the U.S. Germany, Israel, Japan, Taiwan and Russia all devoted a higher percentage of their R&D expenditures to basic research.

Chart 18: Basic Research Expenditure as a Share of Total R&D Expenditure: Selected Economies



Thus, it should be no surprise that the FAANG (Facebook, Amazon, Apple, Netflix and Google), and Microsoft and Uber, all originated in the U.S. The Mainland internet giants, Alibaba, Baidu and Tencent, have all benefitted from the protection against foreign competition on the Mainland. However, Tencent’s Wechat and Alibaba’s Alipay are genuinely original innovations which fit the conditions on the Mainland, where few have fixed landline telephones or desk computers, and no one has personal checking accounts. Unfortunately, it is ingrained in the East Asian culture to respect age and established authority, it is therefore more difficult to have break-through discoveries or inventions of a revolutionary nature in East Asia, including China. While the Mainland has made great progress in science and technology, and has caught up with the U.S. in a number of fields such as super-computers, quantum communication and 5th generation wireless systems (5G), it still lags far behind the U.S. in many other fields, for example, in semiconductor manufacturing. It will take a while, in some cases up to a couple of decades, before the Mainland is able to fully match the U.S. technological capability.

Military Power

In terms of military capability, the Mainland is currently no match for the U.S. If a war breaks out between the Mainland and the U.S. today, there is no question that the U.S. will win readily, but it will possibly also suffer a significant loss of lives. The Mainland has a minimally sufficient second-strike capability as a deterrent to a potential nuclear attack by the U.S. (or any other country). The Mainland is committed to a “no first use” policy as far as nuclear arms are concerned. However, the potential outcome of a war between the Mainland and the U.S. is so unthinkably devastating to both sides that it is most unlikely to occur. It is therefore in the best interests of both the Mainland and the U.S. to avoid the so-called “Thucydides Trap”.² But a war between an established power and a rising power is not inevitable—an example was the rise of the former Soviet Union since the Second World War, which only resulted in a cold war, even though the Soviet Union’s rise did not last long.

Will Pax Americana be Succeeded by Pax Sinica?

Given continuing American superiority in innovation and military power, it is premature to talk about a post-Western world, even though a gradual transition may begin to take place around the middle of this Century. It took the United States more than a generation, from the First World War to the early 1950s to finally assume undisputed leadership of the Western (or non-Communist) world. It will likewise take more than a generation before the world becomes more pluralistic, that is, not solely dominated by the West. However, as the Mainland’s economic power grows, it is likely to become a more active participant in international rule-setting, as it did in making the unanimous passage of the Paris Climate Accord in 2015 possible.

It is still far too early to be able to see the Mainland playing the same active role as the U.S. on the world scene, to see Pax Americana succeeded by Pax Sinica. If there is ever such a transition, it is unlikely to be totally peaceful, but hopefully a hot war may be avoided. It is inevitable that the two largest economies of the world will compete commercially,

² For a discussion of the “Thucydides Trap” as it applies to China-U.S. relations, see Graham T. Allison, “The Thucydides Trap: Are the U.S. and China Headed for War?” [The Atlantic](#), 24 September 2015. Allison argues that a China-U.S. war is eventually inevitable as a rising power challenges the dominance of an established power.

economically and technologically, especially as the Chinese economy moves up the value-added chain. The current China-U.S. trade war is only a manifestation of the underlying competition which is much broader and more encompassing than trade alone.³

However, it is possible to envisage the Mainland and the U.S. learning to live peacefully with each other, respecting each other's core interests, collaborating and cooperating when their national interests align, and agreeing to disagree when their national interests differ, but without getting into a war. For example, it is unlikely that the Mainland will privatise its centrally-controlled state-owned enterprises any time soon. Historically, neither China nor the U.S. have treated a friendly nation as an equal: so both of them have to learn. For China, it was either the centre of the universe, or a defeated country at the mercy of the victors. For the U.S., it won the two World Wars for the Western world, occupied both Germany and Japan, and defended Western Europe from the Soviet Union. The only country it considered equal was probably the former Soviet Union, but it was an adversary, not a friend.

3. The Global Challenges

There are many global challenges, for example, global warming, cyber-security, geopolitical conflicts and uncertainties, truth decay, epidemics, terrorism, and the rise of artificial intelligence. They will all affect Taiwan. Here we shall consider only the challenges which have a much more direct and immediate impact on Taiwan's future. We shall discuss in turn the following global challenges: economic de-globalisation, the relative decline of U.S. economic power, the risks of the "Thucydides Trap", and intensified global competition.

Economic De-Globalisation

The growth of both world trade and cross-border direct investment has essentially halted since the global financial crisis of 2008 (see Charts 19 and 20). They have met headwinds coming from isolationism, nationalism, populism and protectionism. Can economic globalisation be revived and continued? The Mainland (and Taiwan before it) have been major beneficiaries of economic globalisation. (The Mainland's economic growth trajectory became

³ See the discussion in Lawrence J. Lau, The China-U.S. Trade War and Future Economic Relations, Hong Kong: The Chinese University of Hong Kong Press, 2019.

noticeably steeper after its accession to the WTO in 2001.) The Mainland is thus most likely to continue to support continuing economic globalisation, working together with similarly-minded European Union and other developed and developing economies, including Taiwan. From its own experience, the Mainland fully understands the benefits of an open economy. Its Belt and Road Initiative is a recognition that connectivity and openness can create enormous economic benefits to all participants in the world economy.

Chart 19: Total World Trade in Goods and Services as a Percentage of World GDP Since 1960

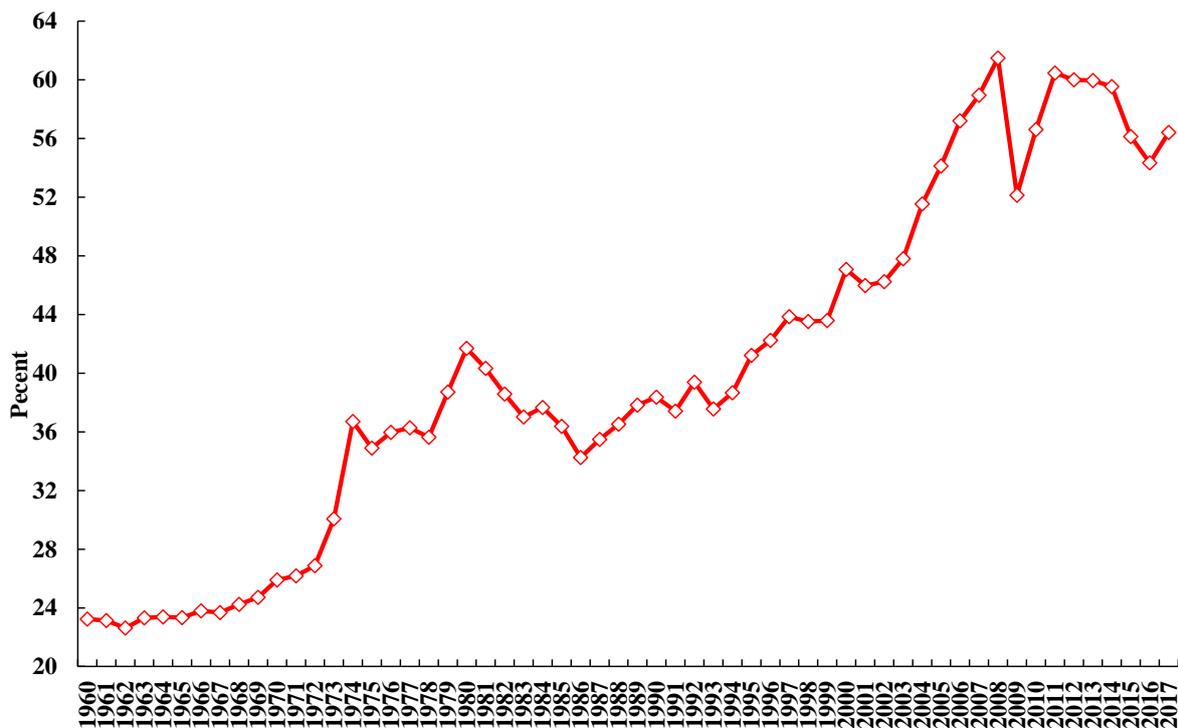
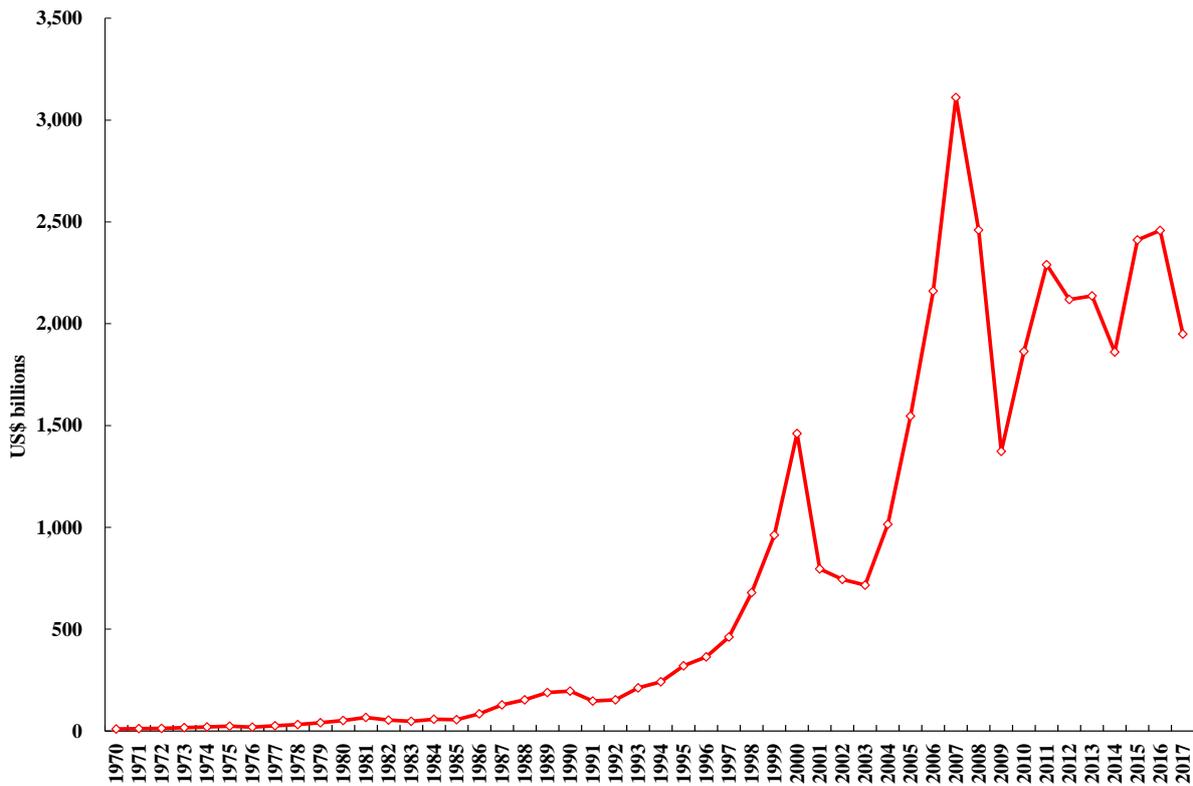


Chart 20: Total World Foreign Direct Investment since 1970, US\$ billions



Given Taiwan's high degree of dependence on international trade (see Chart 11), isolationism and protectionism are likely to hurt Taiwan much more than the Mainland. Unlike the Mainland, the Taiwan economy cannot prosper by going alone. For Taiwan, the optimal strategy is to be as open as possible. Its economy is too small to achieve efficient scale if it pursues a protectionist trade and direct investment policy, which will certainly be countered by a similarly protective policy elsewhere. Populism, which tends to favour isolationism and protectionism, must be carefully managed in Taiwan.

The Relative Decline of U.S. Economic Power

U.S. economic power is based on a number of factors. First of all, it is the largest economy in the world. Second, it is also the largest market. Third, it is the largest foreign direct investor in the world. Fourth, it is the provider of the principal international medium of exchange and the only safe haven currency, the U.S. Dollar. Fifth, it is the leading source of innovation in the world. Of course, U.S. economic power is also simultaneously buttressed and supported by the military might of the U.S. All of this confers on the U.S. leverage that it can use to enforce sanctions through banking, import controls and other means against

countries deemed unfriendly, such as Cuba, Iran and North Korea, successfully. With the relative decline of U.S. economic power, it will become more difficult for the U.S. to exercise such power unilaterally. The question is: Will similar leverage be available and used by another country with rising economic power?

The Risks of the “Thucydides Trap”

Is a war between an established power and a rising power inevitable? A war between the Mainland and the U.S. cannot be good news for Taiwan. Taiwan is in the best situation if Mainland and U.S. relations are good. Taiwan is actually worse off if relations between the Mainland and the U.S. turn sour. Can the Mainland and the U.S. manage their potential conflict and maintain good relations despite differences? Taiwan should avoid taking sides or being used as a pawn in big-power games. Some in the U.S. are not yet willing or ready to accept the possibility that in terms of aggregate GDP the Mainland will be Number One some day. However, Mainland economic growth is unlikely to be stopped. If it ever stops, it is due to internal, rather than external factors. A war between the Mainland and the U.S. will be unthinkable devastating, with huge spillover negative effects. The U.S. will probably win if a war breaks out today, but there will be no real winners, only losers.

However, whether the Mainland and the U.S. will be friends or foes in the future depends on mutual long-term expectations, which can be self-fulfilling. If both sides expect to be ultimately friends, and act accordingly, they will be friends. If both sides expect to be foes, and act accordingly, they will be foes. Thus, it is the responsibility of leaders on both sides to manage carefully the mutual expectations. The truth is that the degree of mutual economic interdependence between the Mainland and the U.S. is already very high. ZTE, among the top five cell phone manufacturers in the world, relies on the U.S. for more than 30 percent of its critical components. The closure of ZTE will hurt both Mainland and U.S. enterprises and workers. Apple not only assembles its iPhones on the Mainland, but sells one-quarter of its iPhones on the Mainland as well, which accounts for a significant proportion of its profits.

Intensified Global Competition

The real threat to the Taiwan economy is the obsolescence of its technology. The Hsinchu Science Park, founded in 1980, was very critical in Taiwan’s transition from an

exporter of light manufactured products to an exporter of high-technology products and components. However, comparative advantages are not static. Taiwan must continually upgrade its technology to maintain its competitiveness. The key is to encourage, promote and support research and development (R&D), especially basic research, and to try to be always one step ahead of potential competitors, and to make new investments. It is also important to improve the business environment. The overall competitiveness of the Taiwan economy has declined recently. The 2018 IMD (International Institute for Management Development) World Competitiveness Rankings show that the Mainland has risen to 13th place from 18th place but Taiwan has slipped down to 17th place from 14th place (see Table 2). Persistent tension between the two sides of the Taiwan Strait cannot be good for business or for new investment in Taiwan.

**Table 2: The Top 20 2018 IMD World Competitiveness Rankings
(2017 Rankings in Parentheses)**

1	USA (4)
2	Hong Kong SAR (1)
3	Singapore (3)
4	Netherlands (5)
5	Switzerland (2)
6	Denmark (7)
7	UAE (10)
8	Norway (11)
9	Sweden (9)
10	Canada (12)
11	Luxembourg (8)
12	Ireland (6)
13	China Mainland (18)
14	Qatar (17)
15	Germany (13)
16	Finland (15)
17	Taiwan (14)
18	Austria (25)
19	Australia (21)
20	United Kingdom (19)

Source: IMD World Competitiveness Yearbook 2018, Lausanne: International Institute for Management Development, 2018.

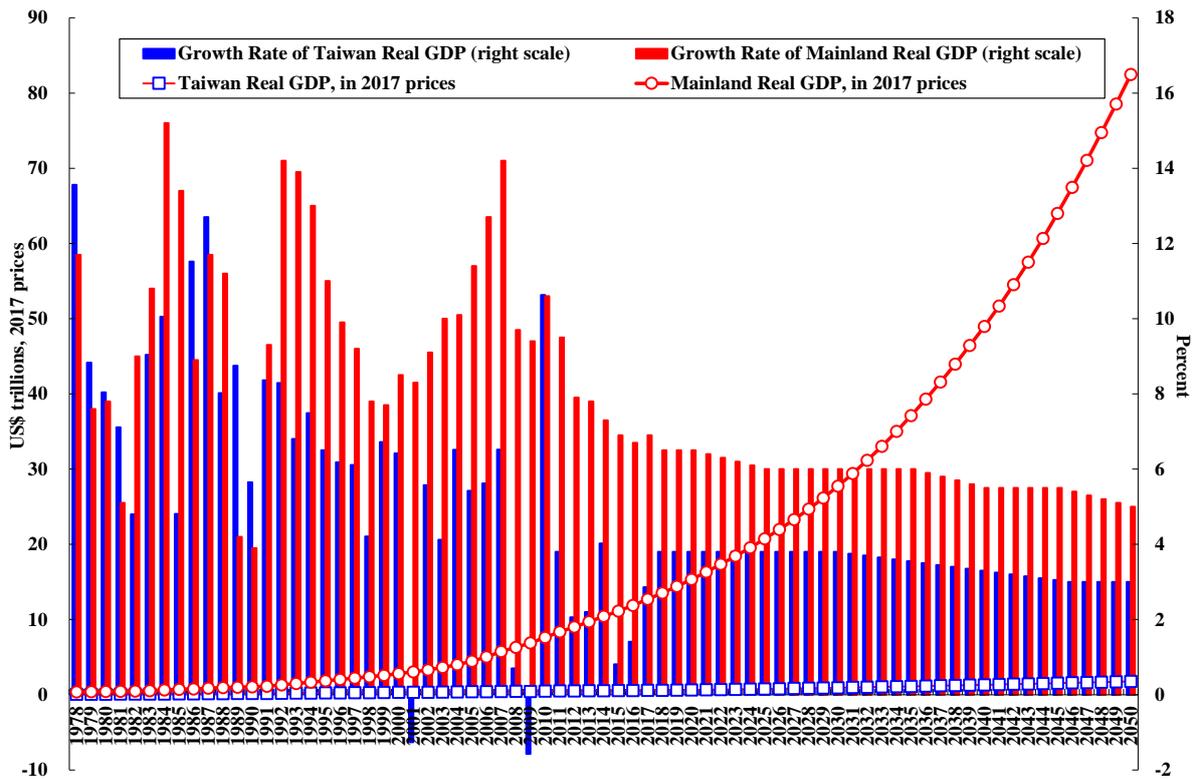
4. The Local Challenges

The two principal local challenges to Taiwan are first, the rise of the Mainland economy and second, how to manage its economic dependence on the Mainland and to create economic interdependence with the Mainland.

The Rise of the Mainland Economy

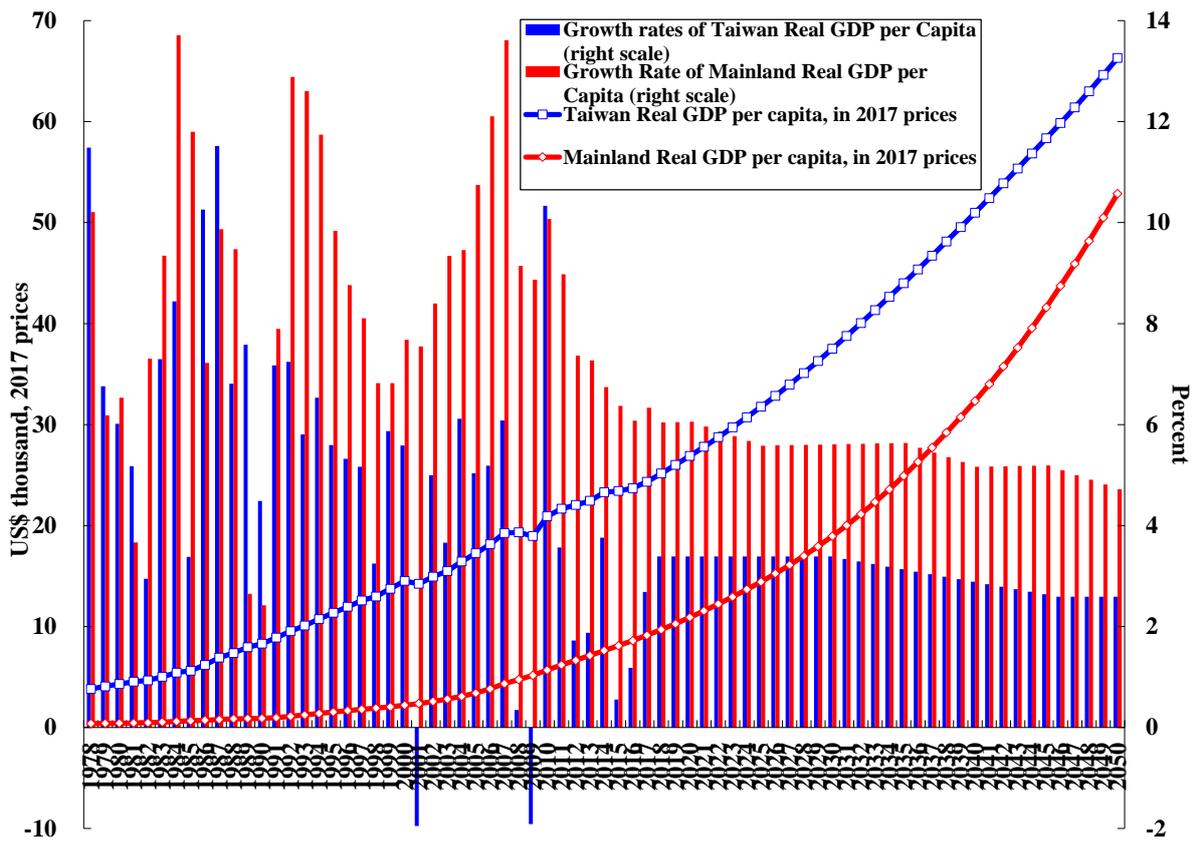
Since the beginning of its economic reform in 1978, Mainland China has been growing at an average annual rate of just under 10% per annum. It is already the second largest economy in the world and the second largest trading nation. It will become the dominant economic power, certainly in Asia today, and in time in the world. In 1978, Taiwan GDP was US\$65 billion (2017 prices), compared to a Mainland GDP of US\$369 billion. The Taiwan economy was almost 18 percent of the Mainland economy. Taiwan was among the earliest and the most important direct investors on the Mainland in the 1990s and made significant contributions to its economic development. However, by 2017, while the Taiwan GDP grew to US\$573 billion (2017 prices), the Mainland GDP surged to US\$12.7 trillion. The Taiwan economy has become less than 5 percent of the Mainland economy. The economic bargaining power of Taiwan has been greatly eroded.

Chart 21: Actual and Projected Mainland and Taiwan Real GDPs and Their Rates of Growth



In 1978, real GDP per capita of Taiwan was US\$3,814 (2017 prices), ten times the Mainland’s US\$383. By 2017, real GDP per capita of Taiwan grew to US\$24,335 (2017 prices), only approximately two and a half times the Mainland’s US\$9,138.

Chart 22: Actual and Projected Mainland and Taiwan Real GDPs per Capita And Their Rates of Growth

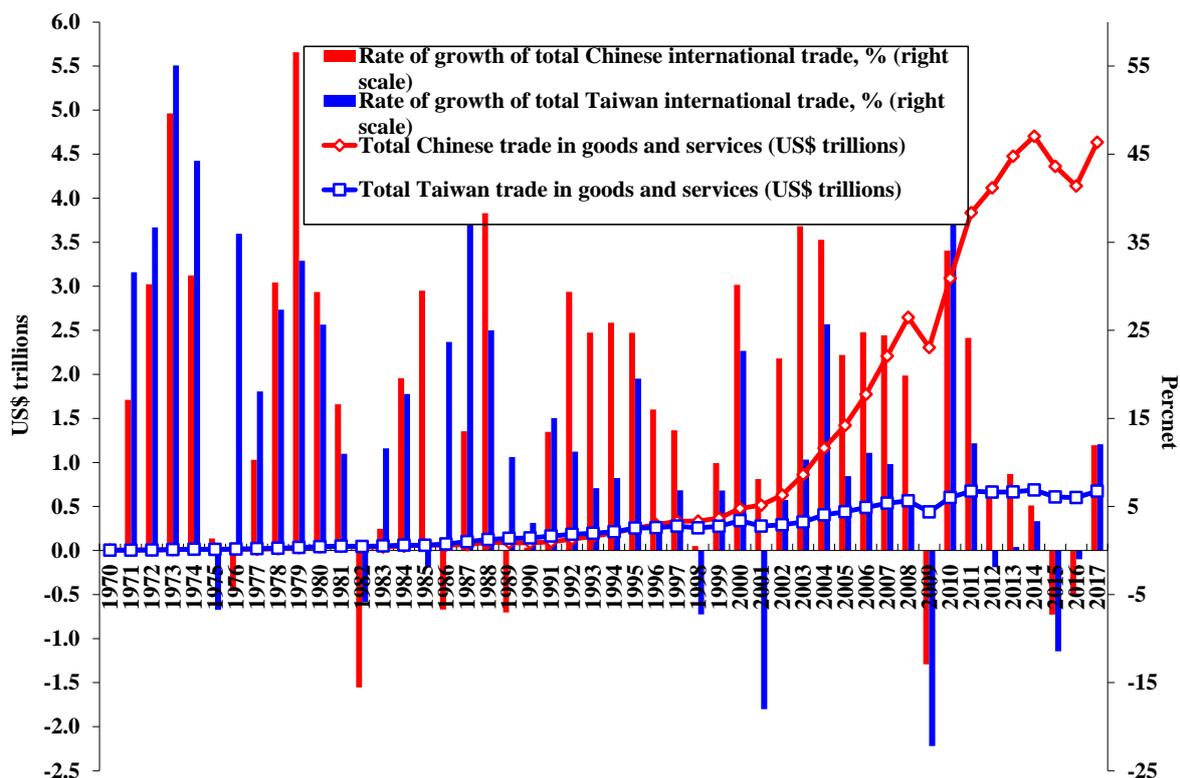


By 2050, Taiwan real GDP will be approximately US\$2 trillion (2017 prices), compared to a Mainland real GDP of US\$82 trillion. The Taiwan economy will be less than 2.5 percent of the Mainland economy. However, Taiwan real GDP per capita will be approximately US\$66,000 (2017 prices), still higher than the Mainland real GDP per capita of US\$52,870 by 20 percent. In these projections, the rate of growth of real GDP of Taiwan is assumed to be similar to the actual rates of the past decade. It is assumed to be lower than that of the Mainland because the Taiwan real GDP per capita is higher (see Chart 4 above).

In 1978, Taiwan international trade was US\$26 billion, more than the then Mainland international trade of US\$20 billion. Mainland international trade did not surpass Taiwan international trade until 1996. Mainland international trade increased by leaps and bounds after its accession to the World Trade Organisation (WTO) in 2001. By 2017, total Mainland international trade has increased to US\$4.64 trillion, almost seven times the total Taiwan international trade of US\$0.68 trillion. Over the past ten years, the average annual rate of growth of Mainland international trade was 8.6% compared to Taiwan's 3.4%. The disparity in the rate of growth of international trade is likely to persist given that the demand for imported

consumer goods is likely to grow rapidly with the rising middle class on the Mainland. Since 2002, Taiwan has been running a huge trade surplus vis-a-vis the Mainland (see Chart 24).

Chart 23: Mainland and Taiwan International Trade and Their Rates of Growth



Today, the Mainland is Taiwan’s most important trading partner. Taiwan is the Mainland’s fifth most important trading partner. The Mainland has, since its accession to the WTO, replaced the U.S. as Taiwan’s most important export destination and its most important import origin (see Chart 24). The relative importance of the U.S. as a trading partner of Taiwan has greatly declined. In 1985, almost half of Taiwan exports was destined for the U.S.; today, less than 15%. In 1990, Taiwan exports to the Mainland was virtually zero; for the last decade it rose to almost 30 percent of total exports of Taiwan (see Chart 25). Many economies count the Mainland as their most important trading partner. Taiwan is the 3rd most important trading partner of Hong Kong, 4th most important trading partner of Japan, and the fifth most important trading partner of the Mainland, Singapore and Vietnam (see Table 3).

Chart 24: Taiwan Exports to and Imports from the Mainland and the U.S. since 1981

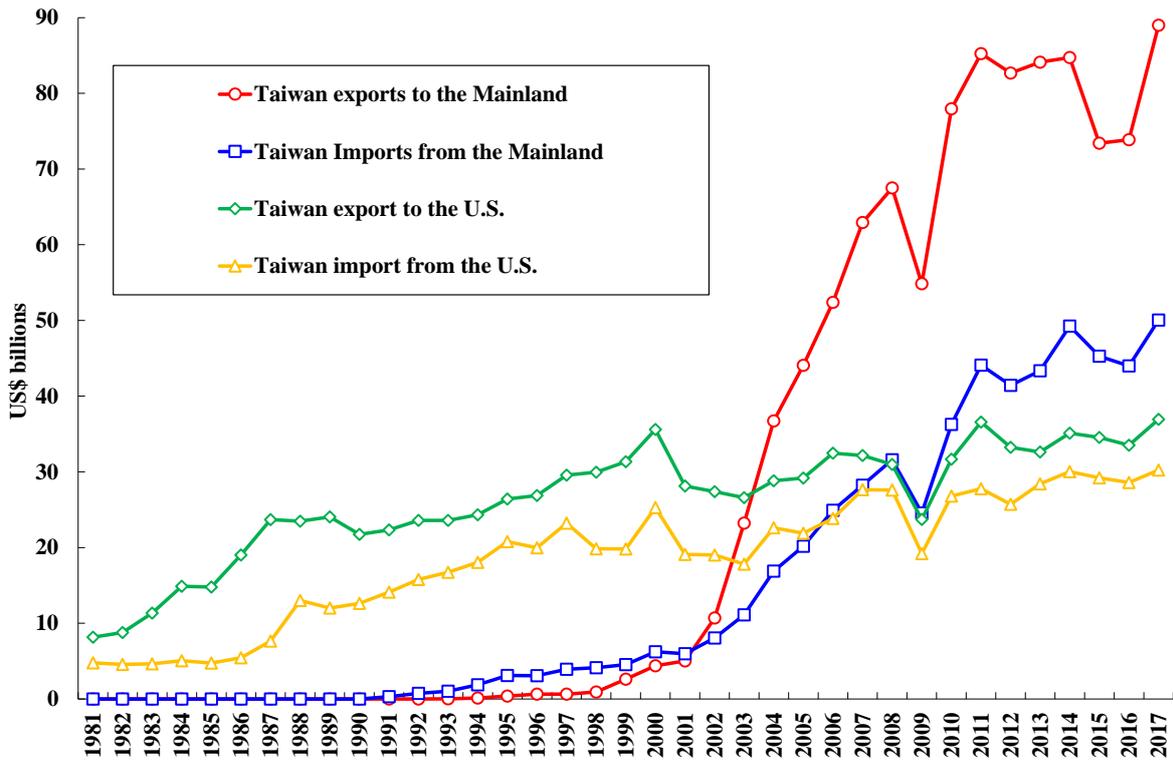


Chart 25: Taiwan Exports to and Imports from the Mainland and the U.S. as Percent of Total Exports and Imports

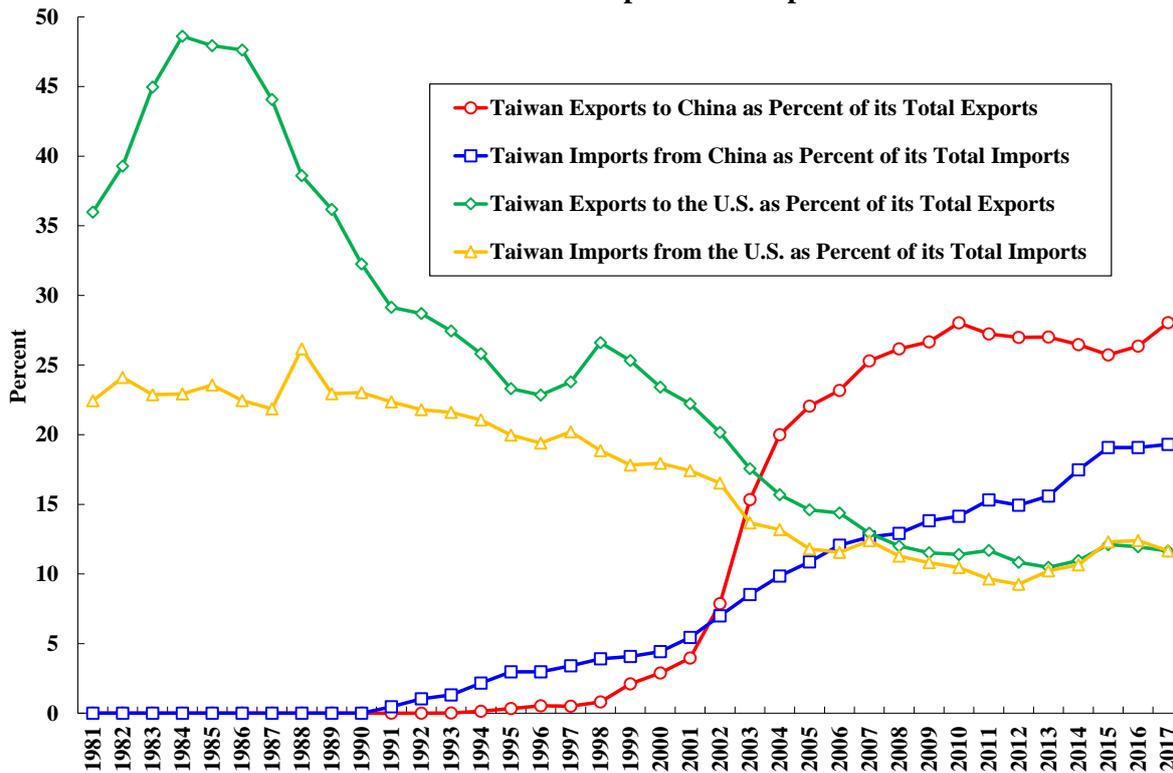


Table 3: The Ranks of Mainland and Taiwan as Trading Partner of Selected Countries/Regions and Vice Versa, 2017

Country/Region	Mainland Rank as Trading Partner of Country/Region	Rank of Country/Region as Trading Partner of the Mainland	Taiwan Rank as Trading Partner of Country/Region	Rank of Country/Region as Trading Partner of Taiwan
Mainland China	NA	NA	5	1
Taiwan	1	5	NA	NA
Australia	1	7	12	11
Brunei	4	125	10	65
Cambodia	1	63	12	46
Hong Kong	1	3	3	4
Indonesia	1	17	10	14
Japan	1	2	4	3
Korea	1	4	7	5
Laos	2	85	28	119
Macau	1	81	11	88
Malaysia	1	9	6	7
Myanmar	1	44	10	64
New Zealand	1	41	11	36
Philippines	1	20	9	10
Singapore	1	14	5	6
Thailand	1	13	12	12
United Kingdom	3	15	30	17
United States	1	1	11	2
Vietnam	1	8	5	9

Taiwan should manage cross-strait economic relations carefully to avoid marginalisation in the long run. The experience of the Mainland economy before its economic reform and opening in 1978 and those of the Cuban, Iranian and North Korean economies up until now are cautionary tales. Taiwan should attempt to create economic interdependence with the Mainland, taking advantage of the complementarities between the two economies. For example, Taiwan enterprises supply many critical electronic components to the Mainland. They should continue to invest to upgrade so that their products will always be needed. This will require significant new investment in human capital and in R&D, especially basic research.

5. The Opportunities

Development into a “Silicon Island”

Given the already high level of human capital in Taiwan, as well as its existing high-technology industries, Taiwan should increase its investment in R&D and technology to make Taiwan into a “Silicon Island”. These investments will pay off much more easily with access to the large Mainland market. This strategy requires both continuing investment in research at the technological frontier and cooperation with the Mainland, taking advantage of the

technology-large market complementarity. If successful, this should transform Taiwan into a high-value-added service economy, specialising in basic research, applied research, development, pilot production and commercialisation.

Energy Research and Exploration

There are a number of possibilities for cross-strait collaboration and cooperation. There is significant interest and as well as efforts in fusion energy research on both sides of the Taiwan Strait. I believe this can be a real game-changer for the world, especially in view of the risks of global warming. There can be joint research on as well as joint application and implementation of renewable energy, especially wind energy, which is gaining prominence in Taiwan. The Taiwan Strait is supposed to be ideal for wind power because of its high winds. Joint exploration for oil and gas in the Taiwan Strait and possibly in the Spratly Islands on a shared revenue and cost basis is another possibility.

E-Commerce

Taiwan has the world's highest rate of internet utilisation in the world. E-commerce has the ability of making small and medium enterprises (SMEs) just as competitive as much larger enterprises. Taiwan excels in having many SMEs developing and producing innovative consumer products appealing to consumers in special niches (nougat candies and cookies are one example). Distribution via e-commerce will expand the market and lower the costs for SMEs. It should lead to a mushrooming of internet-savvy SMEs. What Taiwan needs to do is to facilitate cross-border e-commerce, through the simplification of export and import, remittance and tariff procedures, and allowing delivery services to operate both inbound and outbound in Taiwan, thus opening new markets for its SMEs.

The Green Economy

Taiwan has an excellent record of environmental protection, preservation and restoration. It can provide lessons and services to other economies. For example, it leads the world in the pre-sorting of waste so that it can be appropriately treated and recycled. It also emphasises individual voluntary participation in environmental protection and preservation. It can be a model for the rest of the world.

Tourism

Tourism is also something that should be promoted. As I often emphasise, with economic globalisation, any job that can be moved away will be moved away. Tourism generates jobs that cannot be moved away. People who want to see Sun Moon Lake will have to come to Taiwan. Another source of “long-term tourists” is higher education. Taiwan should consider opening its tertiary educational institutions to students from all over the world. Taiwan has more than sufficient capacity to serve its own college-aged students. But it can also generate a great deal of revenue and create many jobs by using the excess capacity to serve non-local students. When these students graduate and return home, they become Taiwan’s goodwill ambassadors in their respective home communities. And if they stay, they become a source of talents for Taiwan.

6. The Alternatives for Taiwan: Confrontation or Accommodation?

The Taiwan economy risks being increasingly marginalised in the face of a rapidly growing Mainland with rising economic influence. In the same way that the U.S. was able to keep Cuba, Iran and North Korea poor, the Mainland could in principle do the same to Taiwan in the future. Taiwan should not and cannot be seen as a threat, or aiding and abetting a threat, to the Mainland. Moreover, it is unlikely that the U.S. will ever go to war with the Mainland over Taiwan.

The U.S. also has strong economic interests in maintaining stable relations with the Mainland. The Mainland and the U.S. are the most important trading partners of each other. Taiwan is only the eleventh most important trading partner of the U.S. Many U.S. companies, such as Apple and Qualcomm, derive significant shares of their revenues from sales to the Mainland.

There are many communalities between the Mainland (especially the Province of Fujian) and Taiwan. There are the common cultural, ethnic, historical and linguistic ties. There is economic complementarity. And the two sides have similar positions on the Diaoyu Islands in the East China Sea and the Spratly Islands in the South China Sea. There are many possible opportunities for cross-strait economic collaboration and cooperation as described above.

Successful collaboration and cooperation can generate goodwill and mutual trust, which both sides need for an eventual peaceful resolution.

7. Concluding Remarks

It is necessary for Taiwan to think and plan ahead for twenty or thirty years. Where can Taiwan be in Asia and the World then? Where will Taiwan be in Asia and the World then? What can be achieved and what cannot? What is in the long-term best interests of the people of Taiwan? It is best to focus on developing the economy and promoting peace.