

On Twin Circulations
試論雙循環

by

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Working Paper No. 83

September 2020

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Acknowledgements

The Lau Chor Tak Institute of Global Economics and Finance is grateful to the following individuals and organizations for their generous donations and sponsorship (in alphabetical order):

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Abstract: The twin circulations are the “domestic circulation (國內循環)” and the “international circulation (國際循環)” respectively. The evolution of the twin circulations in China since 1960 is reviewed. The relative size of the twin circulations and its changes over time is measured by the ratio of the total international trade in goods and services to the sum of the components of domestic aggregate demand. It is pointed out that complete isolation and total self-sufficiency for China today are likely to result in a significant reduction in the real standard of living. Obstacles to the sustainability of twin circulations are identified, with the conclusion that in time China is expected to be able to manage successfully.

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1. Introduction

On 24 August 2020, in a meeting with experts in the fields of economics and sociology, President XI Jinping of the People's Republic of China said, "China should promote the formation of a new pattern of economic development, with the twin domestic and international circulations mutually reinforcing each other, but with the larger domestic circulation as the principal focus".

I take this opportunity to explore the concept of "twin circulations (雙循環)". The twin circulations are the "domestic circulation (國內循環)" and the "international circulation (國際循環)" respectively. By circulation we mean supply meeting demand and vice versa. From 1950 to the launch of the economic reform and opening in 1978, there was essentially only a "single circulation (單循環)"—"domestic circulation"—in China, with only limited barter trade with the former Soviet Union and former Eastern European socialist countries in the decade of the 1950s. This is due in part to the trade embargo against China imposed by Western countries led by the U.S. as a result of the Korean War, and in part to the dispute between China and the former Soviet Union beginning in the late 1950s.

After the launch of the economic reform and opening in 1978, a second circulation, the "international circulation", began again in China. This may be regarded as the resumption of the "twin circulations" in China. However, the primary focus in this early reform and opening period remained the domestic circulation. Moreover, the twin circulations were deliberately kept separate and insulated from each other. For example, the "processing and assembly" manufacturing operations run by the foreign direct investors in China had to import all their equipment and other inputs, sometimes including generating their own electricity, so that they would not create any demand for any inputs domestically, and to export all of their outputs so that they would not increase any supply domestically. This separation enabled the central economic plans to continue to function as before.

So in the 1980s and early 1990s, the twin circulations were completely independent of each other and not inter-connected. The goods and services produced in one circulation cannot

be used to supply the other circulation, and vice versa. “Never the twain shall meet.”² The only common links were the labour employed by the “processing and assembly” operations and the land provided by the local governments in the special economic zones. But since labour was in surplus in China, its employment by foreign direct investors would have no impact on the domestic labour market or the wage rate.³ And land was, at the time, also in surplus, and in any case could not be used for any other purpose by the foreign-direct-investor lessee, so that the domestic economy was not affected. The objective of these arrangements is to shield the domestic economy completely from any and all possible international disturbances.

The twin circulations of this early period of economic reform and opening may be described as two non-intersecting circles, one representing domestic circulation and the other representing international circulation, barely touching each other with no overlap at all. The dominant circulation was still the domestic circulation.

2. The Evolution of the Twin Circulations

In Chart 1, Chinese exports and imports of goods and services as a percent of Chinese GDP from 1960 to 2019 are presented.⁴ It is clear that before the launch of the economic reform and opening of the economy in 1978, the share of total Chinese international trade in GDP exceeded 10% in only one year and averaged only 7.1 percent between 1960 and 1978. Between 1978 and 1994, there were a series of adjustments of the Renminbi exchange rate, culminating in the Renminbi becoming current-account convertible coupled with a major devaluation on 1 January 1994 (see Chart 2). As a result, exports began to grow and foreign direct investment (FDI) began to flow into China (see Chart 3) using it as a manufacturing base for exports to take advantage of the low cost of its labour, especially in U.S. Dollar terms. The share of foreign direct investment into China in total Chinese gross domestic investment reached a peak of 15% in 1993 but has been declining since to only 3% in 2019. This reflects the increase in the domestically financed component of gross domestic investment (see the rise of the share of gross domestic investment in GDP over time in Chart 4).

² From Rudyard Kipling, “The Ballad of East and West”, 1889.

³ Moreover, these workers were not paid directly by the “processing and assembly” operators but special labour service companies that essentially skimmed off any premium that these workers might have been able to earn from the operators.

⁴ Data on international trade in services prior to 1960 cannot be found. That is why Chart 1 begins in 1960. Data on international trade in goods only are available from 1952.

Chart 1: Chinese International Trade in Goods and Services as a Percent of GDP

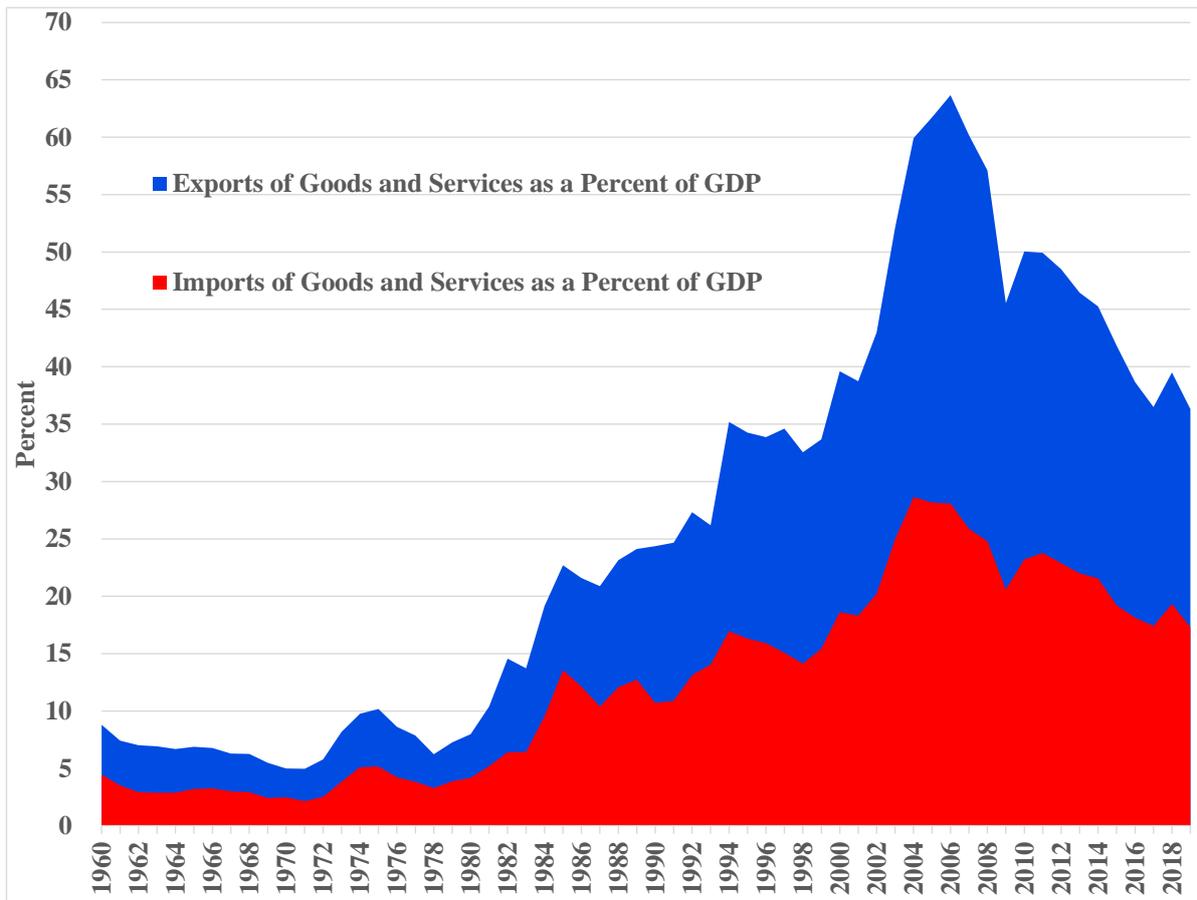


Chart 2: Nominal Exchange Rate of the Renminbi, Yuan/US\$, 1978-present

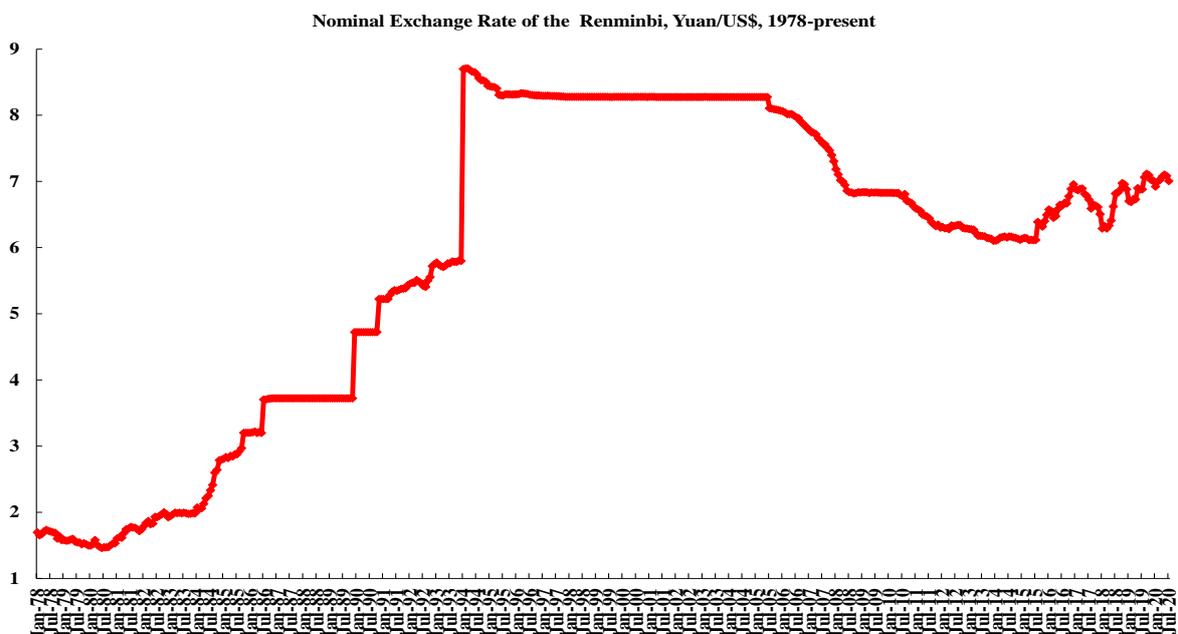
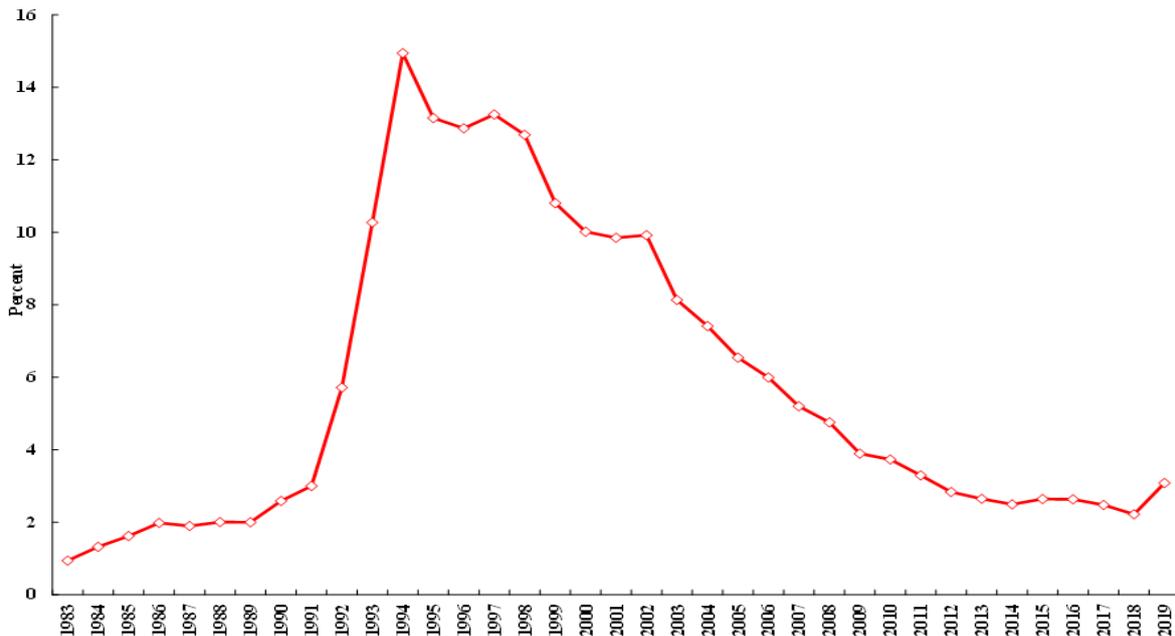


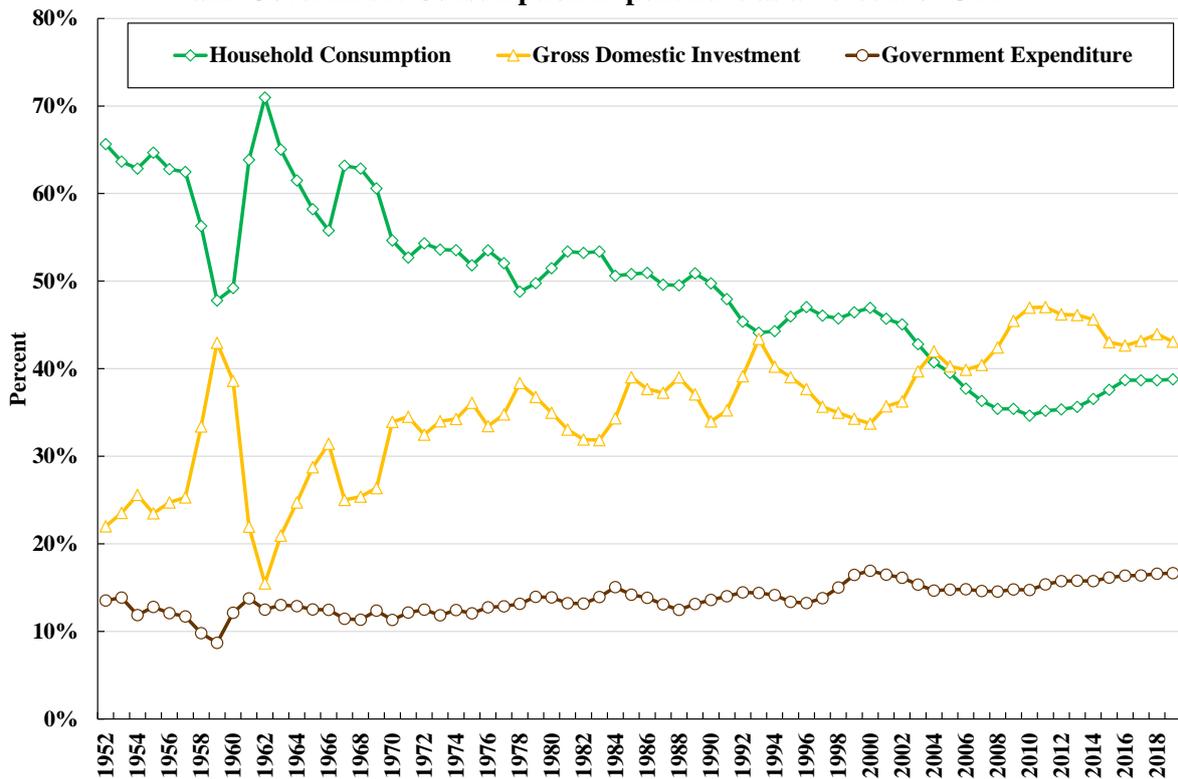
Chart 3: Chinese Inbound Foreign Direct Investment as a Percentage of Gross Domestic Investment



In Chart 4 we present the separate components of the domestic aggregate final demands: household consumption (C), gross domestic investment (I), and government current expenditure (G). Chart 4 shows that the share of household consumption in GDP fell from 65.6% in 1952 to 38.8% in 2019. This is a huge decline. It reflects, in part, the low per capita GDP in the early 1950s, but also in part the low-wage policy that the Chinese Government has maintained over the years. The Chinese household consumption’s share of GDP is among the lowest in the world. (The corresponding share for the U.S. is 68%.) In contrast, the share of gross domestic investment almost doubled from less than 22% in 1952 to 43.1% in 2019 (at its peak in 2011, it was over 47%).⁵ The share of government consumption was quite stable—it increased gradually from 13.5% in 1952 to 16.6% in 2019, with a peak of 16.9% in 2000. What this means is that gross domestic investment is still the most important component of aggregate demand in China.

⁵ It was actually briefly over 40% in the early 1990s, reaching 43.4% in 1993, but then managed to stay below 40% through 2003.

Chart 4: Household Consumption, Gross Domestic Investment, and Government Consumption Expenditure as a Percent of GDP



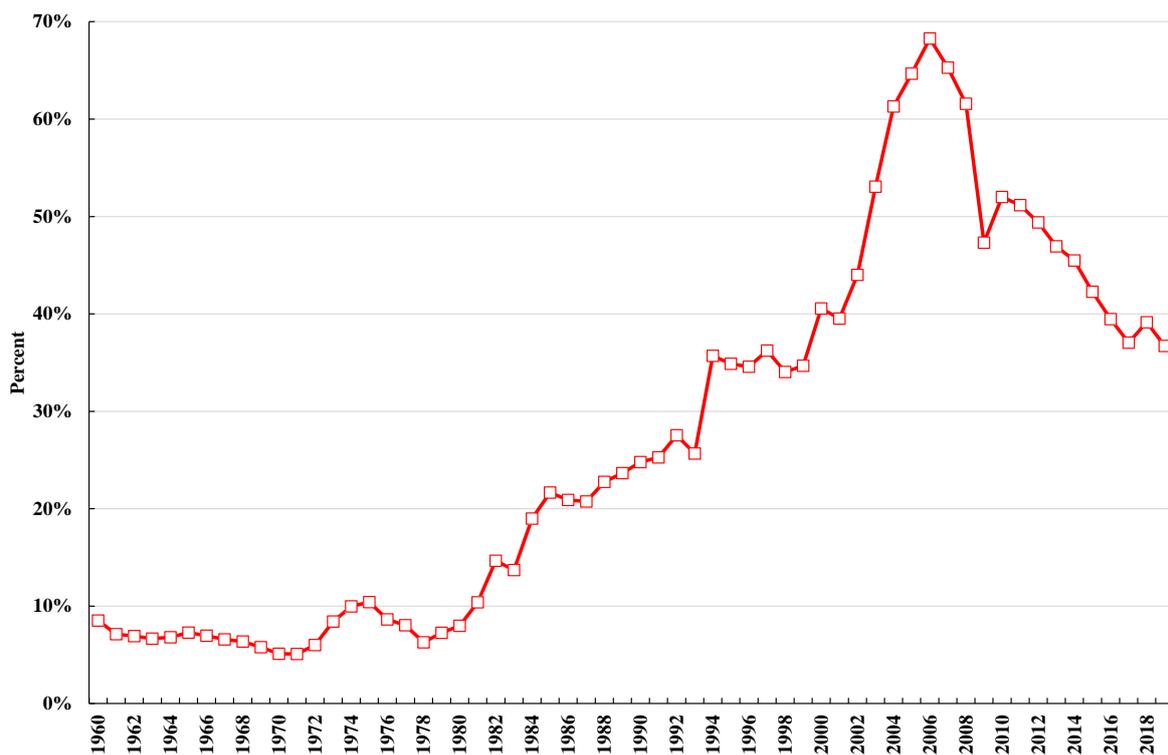
However, beginning in the mid-1990s, the twin circulations are no longer separated but are inter-connected instead. Foreign direct investors can purchase their inputs and sell their outputs within China. Similarly, domestic producers can use imported inputs and sell their outputs to anyone on the market, domestic or foreign (initially only after their obligations under the central plan have been fulfilled). Chinese accession to the World Trade Organisation (WTO) in 2000 further expanded the international circulation, which then became the dominant circulation until around 2010. After 2010, the domestic market began to regain its prominence because of the appreciation of the Renminbi, the rise of the wage rate in China, and the gradual saturation of the export markets for Chinese goods. However, the rise of the wage rate has also increased the purchasing power of the rapidly expanding middle class households in China, with their significant demands for imported consumer goods as well as products with imported components.

One useful indicator of the relative sizes of the twin circulations is the ratio of the international transactions (the sum of exports (X) and imports (M) of goods and services)⁶ to

⁶ Net exports (X-M) is not a good indicator of the size of the international circulation because a given level of net exports may be consistent with a wide range of values for total exports and imports.

domestic transactions (the sum of household consumption (C), gross domestic investment (I) and government current expenditure (G)).⁷ It is presented in Chart 5. Chart 5 confirms that the “international circulation” was only a very small percentage of the “domestic circulation” before 1980. Between 1980 and 1993, it grew from 10% to 25.7%. It jumped from 25.7% to 35.7% in 1994, the year the Renminbi underwent a major devaluation and became current-account convertible. It then stayed there until 2000, when China acceded to the WTO. It reached its peak of over 68% in 2006, when the Renminbi began to appreciate again, followed by the Global Financial Crisis in 2008-2009. It has now come back down to 36.7%, a level comparable to that of the late 1990s. This is probably a sustainable level of internationalisation. What has happened over the years is the increasing importance of China’s own domestic demands. The Chinese economy is no longer just the world’s factory, it has also become the world’s market.

Chart 5: International Circulation as a Ratio of Domestic Circulation (percent)



It is possible that the relative importance of the international circulation in the years prior to the economic reform and opening may have been under-estimated because of the over-

⁷ Another way to assess the importance of the international circulation is to use an input-output table to calculate the effects of partial or total cessation of international trade on final demands, GDP and employment.

valuation of the Renminbi exchange rate. However, an over-valued exchange rate would have also discouraged exports and thereby also indirectly discouraged imports because of the lack of a credible source of foreign exchange for their payment.

3. Are Complete Isolation and Total Self-Sufficiency Possible?

While complete isolation and total self-sufficiency at some level are in principle possible, as China did for much of the time prior to its economic reform and opening in 1978, and North Korea seems to be still practicing today, they are definitely not desirable from an economic point of view. Voluntary international trade between two trading-partner countries is always win-win—because the choice set available to each country is enlarged. Welfare must increase and cannot be decreased in both countries, unless the two countries happen to have identical comparative advantages in every sector and industry. Thus, an involuntary reduction of international trade is always lose-lose.

China has been a major beneficiary of economic globalisation. So have been its trading-partner countries. But, while economic globalisation has brought huge benefits to all countries, it has also created winners and losers in every country. The free market will only reward the winners but cannot compensate the losers. Economic globalisation actually generates sufficient gains in each country so that everyone can, in principle, be made better off. However, it is the responsibility of each government to compensate the “losers” in its own country. The problem is that most countries have not compensated its losers adequately, whereas China has made sure that everyone wins.

Total self-sufficiency is possible for China today only with a significant decline in its real standard of living. The quality of Chinese manufactured products has greatly improved over the past forty years, because, in part, of competition with imported manufactured products, and of “learning by doing”.⁸ However, there are still products that China is currently not able to make, such as large aircraft and advanced semiconductors. There are still commodities that China is currently not able to produce enough to meet the domestic demand, such as food, oil, and copper and iron ores. Large quantities of these products and commodities are imported

⁸ For the concept of “learning by doing”, see Kenneth J. Arrow, “The Economic Implications of Learning by Doing,” *The Review of Economic Studies*, Vol. 29, No. 3, June 1962, pp. 155-173.

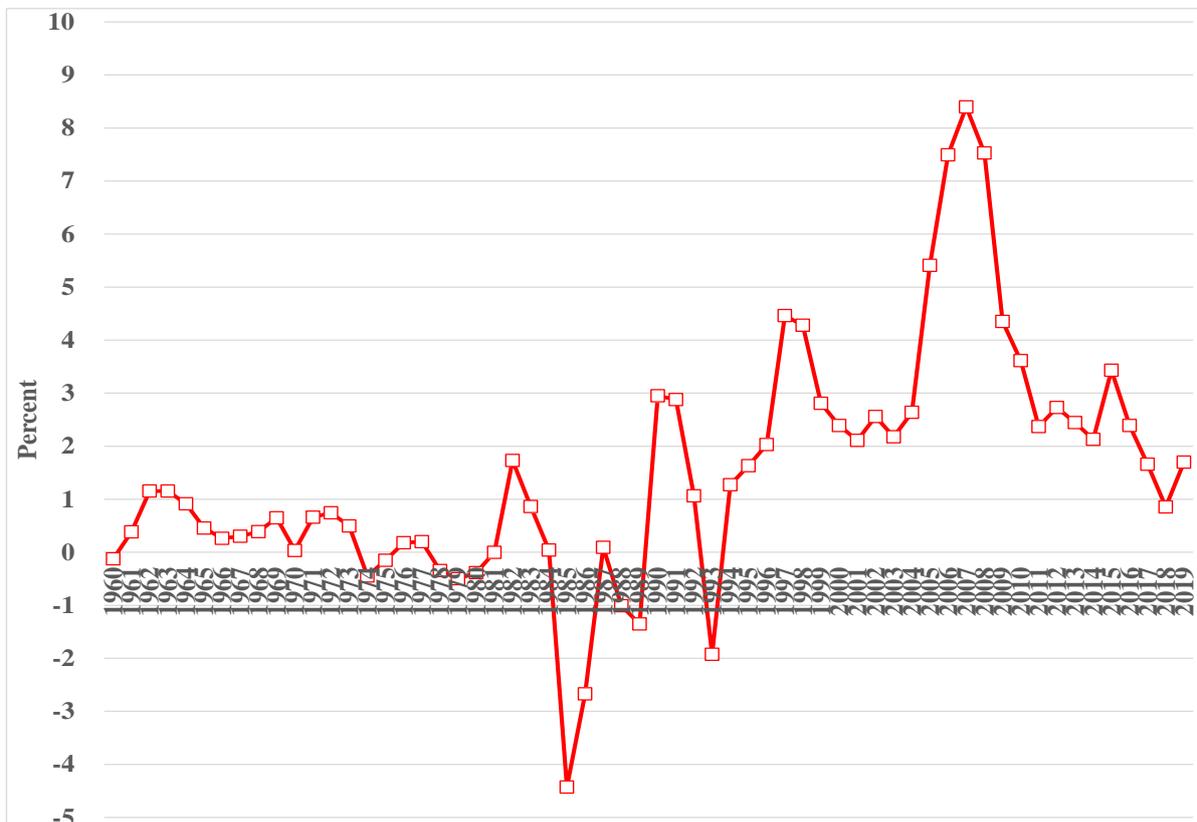
today. If China gives up international circulation altogether, it means doing either without or with only limited quantities of these products and commodities.

It is therefore not in China's own self-interest to return to single, or domestic only, circulation. China does need to be self-reliant, but self-reliance should not be equated with self-sufficiency. China cannot win by withdrawing from the world. Economic de-coupling from the U. S. does not and should not imply economic de-coupling from the rest of the world. In order to maintain its international circulation, China needs the support of the other major trading countries in the world, especially those in the Euro Zone.

4. Obstacles to Sustainability

Sustainability can fail for many reasons. For example, a chronically large trade surplus or deficit is not likely to be sustainable. In Chart 6 the Chinese international trade balance as a percent of its GDP from 1960 to 2019 is presented. Between 1960 and 1994, the Chinese trade balance in goods and services was on average zero. The Chinese trade surplus peaked at more than 8% of GDP in 2007 but has since fallen back to less than 2% in 2019. Going forward, the Chinese target is a trade balance of close to zero, which looks achievable.

Chart 6: Chinese Trade Balance in Goods and Services as a Percent of GDP



Sustainability will also be disrupted if the critical supply chains are interrupted--if there are critical products or inputs that cannot be imported, for whatever reason. In this case, a second, alternate, source of imports, or a domestic substitute, will have to be found. No major country should be overly dependent on international demand or supply, which can be interrupted or even halted for many different reasons, and especially not on a single country. It is simply too risky to depend solely on a single supplier, even if it is located in the friendliest allied country. Unforeseen events that can disrupt critical supply chains include not only trade wars and pandemics, but also natural disasters such as earthquakes, floods, hurricanes, tornadoes and tsunamis, and also man-made disasters such as bankruptcies and fires, and nuclear disasters such as Three-Mile-Island, Chernobyl, and Fukushima, not to mention embargoes, wars and other geo-political conflicts and disputes.

While having a second source increases transactions costs, it is like buying insurance--there is a net cost, but there are also benefits. The existence of an alternate second source can prevent monopolisation, reduce monopoly power and the resultant monopoly rents, and lead to a more stable and more competitive world economy for the benefit of all consumers. With a second source, export control on a product by one country against another loses its usefulness. It only winds up hurting its own manufacturer. But having a second source should not be equated as trying to achieve total self-sufficiency. A second source in another country, which is often a possibility, is in many cases good enough. Stockpiling is another option, but it is not really a sustainable strategy in the long run.

The potential impacts of possible blockages of imports of critical commodities can also be mitigated through appropriate diversification of the sources of supply. Food, oil and metal ores are widely available in the world—appropriate diversification of the sources of imports provides the insurance against unforeseen interruptions of supply. Stockpiling is also a feasible but temporary form of insurance. Moreover, Chinese reliance on imported raw material such as copper and iron ores will eventually decline even if the Chinese economy continues to grow. Scrap metals from old automobiles and trucks and used cables and wires can be recycled and can substitute for a large proportion of currently imported raw materials. Even paper and wood can be recycled. This will permit a gradual shift from international circulation to domestic circulation.

However, the bans on the exports of critical products such as advanced semiconductors and semi-conductor manufacturing equipment to China from the U.S. or other countries⁹ poses a serious challenge as they cannot be easily mitigated. This is in fact a “Sputnik” moment for China, as it was for the U.S. when the former Soviet Union launched the first man-made satellite into orbit in 1957. It calls for accelerated indigenous innovation to achieve breakthroughs in these industries. It will take significant investment and time. China must become self-reliant in these critical industries. And in order to encourage innovation, China must also strengthen its protection of intellectual property rights.

In critical core technologies, self-reliance is actually the rule rather than the exception. The former Soviet Union, France, China, India, Pakistan and North Korea all developed their individual nuclear-weapon capability indigenously, without any foreign assistance. China was able to develop the atomic bomb successfully in 1964, when the country was still very poor, with a per capita GDP below US\$200 in 2019 prices. With a GDP per capita of over US\$10,000 today, it should be able to find solutions for securing the supply of advanced semiconductors and semiconductor manufacturing equipment on its own. However, such necessary self-reliance should be distinguished from total self-sufficiency.

Another obstacle to sustainability is not only China but our planet has to do with climate change and global warming. In this regard, China has committed to the Paris Agreement on Climate Change of 2015 and is likely to fulfill its obligations ahead of the agreed timetable. China has also been actively promoting renewable energy such as solar and wind power.

Sustainability may also depend on the available supply of labour. The working-age population in China, defined as those aged between 16 and 60, may have entered into a phase of decline. However, China can solve this problem, certainly in the intermediate run, by suitably postponing the mandatory retirement age, which is currently 55 for women and 60 for men. (These retirement ages were established in the early 1950s when life expectancy was in the low sixties.) Given the much longer life expectancies in China today, making 70 the mandatory retirement age for all seems quite reasonable, especially coupled with an option for early retirement once a person turns 60. Of course, the retirement benefits, from a “defined

⁹ Often there is only a single manufacturer for these products in the world.

contributions” pension, will be different between someone retiring at 60 as opposed to 70, as the retirement savings will have ten years fewer contributions and less time to earn returns.

In this connection, we should add an extension to the familiar “infant industry” exception for the protection of new start-up industries by import tariffs. The traditional “infant industry” argument basically says that a newly-started industry requires tariff protection for a certain period so that it has a chance to mature and be able to compete internationally. However, there is another case in which a country is denied access to a particular product or technology which is absolutely essential but cannot be bought at any price. The country then has no choice but to try to produce it on its own. Such production may require subsidies in the start-up phase, until the product can be produced at a cost approximately equal to the price of the product on the world market.¹⁰ In the absence of the domestic production of this product, both the domestic and the international circulations may be stymied. Thus, tariffs may be justified in the traditional “infant industry” case and subsidies may be justified in the extended “infant industry” case.

5. Concluding Remarks

The expansion of household consumption as a component of Chinese aggregate demand is a matter of high priority. This requires the increase of the share of labour in GDP, which in turn requires an increase in the average level of the wage rates. The low-wage policy is a legacy from the times when all non-agricultural workers in China were employed either directly or indirectly by the central and local governments and the wage rates were centrally determined. The challenge is how to change the low-wage policy without causing massive wage inflation which may in turn lead to massive goods inflation.

However, the Chinese people’s demands for a better life cannot be met entirely through increases in private household consumption. Increases in public consumption, led by the central and local governments, are also needed. This includes environmental preservation, protection and restoration, the creation or maintenance of blue skies, green mountains and clear water, and the provision of affordable healthcare and elderly care, and an adequate social safety

¹⁰ While it is true that the producer can in principle charge any price, the potential users of this product cannot pay a price that is significantly higher than the world market price, because that would make their down-stream products uncompetitive.

net for all. The government must also take responsibility for supporting the expansion of indigenous innovation capacity in China, especially through basic research, in order that the twin circulations can be sustainable over time.

As mentioned previously, as long as the economy is open, “winners” and “losers” will be continually created. The free market system, on its own, will not compensate the losers. It is the duty of the government to tax the “winners” on their gains and use the proceeds to compensate the “losers”. Unless the “losers” are compensated, they will be against economic globalisation and in favour of protectionism and isolationism.

China has compiled a most enviable record in the eradication of poverty. More than 800 million people have been lifted out of poverty in China over the past four decades. By the end of this year, there should be no one in China below the poverty line! Thus, China can proudly say that there are no “losers” in China: everyone is and has been a “winner” compared to 1978. Poverty alleviation and eradication can not only equalise the distribution of income but also at the same time increase aggregate household consumption demand because lower-income households have higher marginal propensities to consume.

The biggest risk facing China today is to be isolated from the rest of the world once again. China must continue to participate actively in the world economy, contribute what it can, and uphold the international order. The three zeroes strategy—zero tariffs, zero non-tariff barriers and zero subsidies—which can be reciprocally implemented with like-minded countries, is worth serious consideration, with, of course, “infant industry” exceptions.