



ISSN: (Print) (Online) Journal homepage: https://www.tandfonline.com/loi/rcea20

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To cite this article: Lin Justin Yifu & Xiaobing Wang (2021): Dual Circulation: a New Structural Economics view of development, Journal of Chinese Economic and Business Studies, DOI: 10.1080/14765284.2021.1929793

To link to this article: https://doi.org/10.1080/14765284.2021.1929793

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Published online: 04 Jun 2021.

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## Dual Circulation: a New Structural Economics view of development

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#### ABSTRACT

This paper provides a detailed account of China's Dual Circulation Development Paradigm and examines its theoretical foundation from the perspective of the New Structural Economics approach. The purpose of this Paradigm is to shift the focus from foreign to domestic circulation as the major driving force for China's sustainable development, and to emphasize the importance of a positive reciprocal relationship between domestic and international economic circulations. This paper argues that aim of the Paradigm is to facilitate a gualitative leap in industrial upgrading to achieve both a higher-guality domestic circulation and a higher-level of international circulation. By explaining the development thinking from the Chinese policy-makers' perspective, this paper also casts light on growth and development issues facing other countries.

#### **ARTICLE HISTORY**

Received 23 March 2021 Accepted 24 April 2021

#### **KEYWORDS**

Dual Circulation: economic development; new structural economics

## 1. Introduction

Following 40 years of reform since 1978, the Chinese economy has transformed from being one of the most isolated economies in the world, to become a highly globalised economy. A virtuous circle of domestic circulation powered by high savings, high private investment and public infrastructure building, a young and well-educated labour force, a pro-growth political system, and a strong international circulation powered by high levels of FDI, export and import has caused China's extraordinary growth. As a result of this, over the past 40 years, China lifted 800 million people out of extreme poverty and contributed more than 70% of the reduction in the world's poverty. By the end of 2020, China has eliminated extreme poverty,<sup>1</sup> and its economic size has increased from 1.7% to around 17% of the world economy at market exchange rates.<sup>2</sup>

After growing at nearly 10% per annum for more than 30 years, China's growth has slowed down to around 7% per annum after 2012. The slowdown in growth in China has been described as the start of a 'New Normal' era. As many of the domestic and international problems and uncertainties are likely to persist in the medium and long run, this new era is thought by many policy makers to require a new development paradigm to deal with these new problems.

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To better cope with the domestic and international challenges, the Chinese government in 2020 adopted the Dual Circulation Development Paradigm in which domestic economic circulation plays a leading role while international economic circulation acts as in a supporting role, boosting and supplementing the domestic development. While the Belt and Road Initiative (BRI) remains the international development and cooperation strategy for China,<sup>3</sup> the adoption of the Dual Circulation Development Paradigm is the response to new challenges as well as the economic reality that China is facing.<sup>4</sup>

National income accounts can be decomposed into two parts, the activities of consumption, investment and government spending can be regarded as domestic circulation, and the economic activities of exports and imports are external circulation.<sup>5</sup> Dual Circulation is an objective description of a country's economic operation pattern as long as there is foreign trade. Emphasising Dual Circulation as a paradigm highlights the priorities of a new development pattern where the domestic circulation is highlighted as the main driving force of the development, and the domestic and international circulations are being used to mutually promote and reinforce each other to achieve a higher-quality economic circulation both domestically and internationally. The aim is to provide a reference point for domestic policy makers at various levels of governments, firms, and foreign agencies when they make economic decisions, by showing where the national priority is, with reference to self-reliance and trade dependence, when facing scarce resources or restrictive foreign economic policy initiatives.

As the second largest economy and the largest trading country in the world, China's exports and imports have a big impact on both the quantity and prices of the goods it sells and buys. The Chinese economy is too big to be mainly relying on external circulation and China's economic growth will be increasingly driven by domestic consumption and investment. China's restatement of the roles of trade and domestic consumption and investment is an inevitable step as its economy grows larger with rising household incomes and the services sector accounting for a greater portion of its GDP. Whilst the highlight of domestic circulation in Dual Circulation paradigm is a response to the short run changes of the external trade environment, it also reflects longer term fundamental economic structural change. It is in the context of the Dual Circulation paradigm that the Chinse government is carrying out a series of reform measures to cultivate a more efficient domestic market and unleash the country's potential for higher-quality growth.

The purpose of this paper is 1) to provide an accessible analysis to the economic principles behind China's dual-circulation paradigm; 2) to explain why China is proposing dual circulation as a development paradigm and thus providing useful information to those who would like to understand China's development thinking; 3) to provide a development mind-set that can be useful for other developing countries.

This paper is organized as follows: section 2 briefly discusses the origins of economic thought on view the economy in terms of dual circulations; section 3 discusses the New Structural Economics view of development and how the role of the state can promote useful structural transformation; section 4 discusses the evolution of international trade patterns during the development process; section 5 focuses on the evolution of trade patterns of China; section 6 explains the growing importance of domestic circulation in China and discusses the government's role in promoting industrial upgrading and ensuring high-quality growth; section 7 concludes and discusses policy implications.

#### 2. Thoughts on economic circulation

A nation's wealth and its per capita income depend both on its level of production and consumption. The macro economy can be seen as a circular system, where in the process of economic operation, various production factors gradually accumulate in a continuous positive feedback loop in order to satisfy consumption. These production factors include labour, land, physical capital, human capital, public infrastructure and so on. The economic activity in this positive feedback loop can be measured by the total value of output in terms of Gross Domestic Product (GDP), which is also an indicator of a country's earning power. A high level of GDP often means high levels of average living standards, education, and life expectancy and welfare.

Adam Smith in his 'the Wealth of Nations' (1776) argues that the division of labour and the accumulation and circulation of capital are the sources of the wealth of nations. Before him, the Physiocrats argued that only agriculture creates wealth; thus, trade is irrelevant, whilst Mercantilism argued that only surpluses from foreign trade created wealth, and thus domestic circulation was not that important. Adam Smith criticized both the Physiocrats and Mercantilists and emphasized that all sectors of production create wealth. He emphasized that labour is the source of national wealth, and believes that the increase of national wealth depends on the increase of the labour productivity, and increase the number of productive workers. The former depends on strengthening the division of labour, and the latter depends on increasing capital. The division of labour and the accumulation of capital for Smith were both drivers of technical progress. Smith in his vent for surplus theory states that when a country produces more than it can consume it produces a surplus, which causes an inward movement on the production possibilities frontier. International trade can be used to vent off this surplus and to bring the production possibilities frontier back to full capacity.<sup>6</sup> Thus he believes that capital accumulation is an important condition for expanding production and increasing wealth. From his point of view, because capital accumulation depends on the allocation of total social assets into capital and consumption, and because thrift increases capital and over-spending reduces capital, he advocates accumulation of capital against extravagance and waste.

Karl Marx discussed circulation extensively in his '*Das Kapital*'. The second volume of '*Das Kapital*' (1885) is subtitled 'The Process of Circulation of Capital' and divided into three parts: 1) The Metamorphoses of Capital and Their Circuits; 2) The Turnover of Capital; 3) The Reproduction and Circulation of the Aggregate Social Capital. It examines the process of capital circulation and studies how value and surplus-value are realized. In addition to the direct production process, the exchange process is added. It analyses the reproduction of individual capital (circulation and turnover of capital) and the reproduction of total social capital, revealing the operating process of the capitalism economy both at the micro and macro level. These analyses are supplements and expansions to the first volume of '*Das Kapital*', which shows that capital is not only a value that brings surplus value, but also a process of continuous movement (reproduction), in which proliferation can be achieved.

John Maynard Keynes in his 1936 book 'The General Theory of Employment, Interest and Money' also treats national economic activity as the circular flow of income. Different from Adam Smith, Keynes argues that the total output of an economy is strongly influenced by aggregate demand, and aggregate demand does not

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necessarily equal the productive capacity of the economy. Although thrift may allow the accumulation of capital at the micro level, it might reduce demand at the macroeconomic level and thus result insufficient effective demand and lower equilibrium output. Thus the government should play an active role helping the market economy to reach its production potential. Many economists such as John Hicks and Paul Samuelson further developed and formalized Keynesian macroeconomic theory, as part of the new neoclassical synthesis. In Samuelson's 'Economics' textbook, the circular flow of income becomes popularized.

As national income is created through the circulation of production and consumption, a simplified version of the economic growth pattern can be illustrated as follows. Assuming that aggregate output is determined by equilibrium in the goods market, and that the equilibrium condition is that production equals demand, national income (Y) equals household expenditure (C) plus business investment (I) plus government spending (G) plus export (X) less of imports (M). Mathematically it can be expressed as Y = C + I + G + (X-M).

Consumption is the goods and services purchased by consumers, ranging from food to concert tickets, and it is by far the largest component of GDP. Fixed investment is the purchase made by firms for new machines and by residents for houses etc. Government spending is the purchases of goods and services by all levels of governments. If an economy is closed and does not trade with the rest of the world, both exports and imports are zero. The total national income is the sum of consumption, investment and government spending: Y = C + I + G.

Exports are the sale of domestic produced goods and services to foreign countries, and import is the purchases of foreign goods and services by domestic consumers, firms and governments. The difference between exports and imports (X - M) is net exports, or the trade balance. The country is running a trade surplus if exports exceed imports and is running a trade deficit if exports are less than imports. The purpose of the external circulation ultimately is not to accumulate surplus, but to be able to enjoy more varieties of foreign goods and services (as a result of either comparative advantages or increasing returns of scale).

In 1949, William Phillips built the 'Monetary National Income Analogue Computer' (MONIAC) based on Keynesian and classical economic principles, showing the circular flow of income. In the machine, coloured water in separate tanks represent house-holds, firms, government and the export and import sectors of the economy. The water pumped around the system measures consumption, investment and national income. Thus it can simulate the changes in interest rates, and trade balances, and thus enables experiments with fiscal policy, monetary policy and exchange rates. The MONIAC was built before the modern computer era mainly for teaching purpose. The machine was designed to be able to solve nine simultaneous equations in response to any change of the parameters. Modern computers can simulate these relations to a great accuracy. However, as the economy is much more complex, much more complicated models are used by agents such as central banks but their reliability are still challenged by many.

#### 3. Economic structure and industrial development

#### 3.1. Economy has structure

In a simple version of the neoclassical model, it is often assumed that all firms produce the same good (or a few types of goods), which can be used by consumers for consumption, by firms for investment, or by the government for providing public services. This simplification makes it easier to handle a range of problems such as the nature of equilibrium conditions in the markets in the model, but in doing so it does not allow a proper differentiation of some important issues related to the separation of domestic and external circuits. However, the real economy has a huge variety of goods and services and sometimes the real economic problem, especially some of those concerned with development, are often ignored by the mainstream economics. It should be emphasised that all economies have structure, and different economic structures are associated with different economic development stages. The development process can be described as the complexity of the market and the variety of goods and services in the market, as Hidalgo et al. (2007) argue, economies grow by upgrading the products they produce and export and countries move through the product space by developing goods close to those they currently produce. That is development is about not only growth but also structural change.

It is precisely because the real economy does have structure, it is important to distinguish domestic and international circulation and emphasise their association with different development stages. The focussing on the structure of the economy is at the heart of the New Structural Economics approach, which is the third generation of development theory after the structuralism and the neoliberalism. It is an application of the neoclassical approach to study the determinants of economic structure, structural change and their impact on economic operations in the process of development. The main argument is that economic structure, including considerations of the structure of technology and industry, which determine labour productivity, and hard and soft infrastructure, which determine transaction costs, are endogenous to the structure of factor endowment, which is given at any specific time but changeable over time, and this is a key premise of the New Structural Economics (Lin 2012).

In line with Keynesianism, the New Structural Economics approach argues that government not only can help the economy to increase productive capacity by providing hard and soft infrastructure, but can also to stimulate changes in the structure of demand to promote appropriate structural change. Using latecomer advantages, which reflect the distance to the global frontier technologies and industries, China still has the potential to continue growing at over 8% per annum at least the next decade. The government should help the real economy to realize its potential by facilitating technological innovation and industrial upgrading in competitive markets through removing bottlenecks in hard and soft infrastructure.

## 3.2. Dual circulation in different industries

After 40 years of rapid growth, per capita GDP in China has exceeded \$10,000 and is likely to cross the high-income economy's threshold of \$12,535 by 2025. With rising income,

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Chinese people will increasingly value the quality of life more than the quantity aspect of life. Meanwhile, more and more industries in China have either narrowed the technological gap or moved to the global technological frontier. It is likely that China will increasingly rely on indigenous innovation rather than technological transfer for its technological innovation and industrial upgrading. In order to achieve high-quality development to meet people's expectations for a better life, on one hand, the country has to follow its comparative advantage in the technological innovation and industrial upgrading in their development, which will generate the largest surplus and highest incentives for savings and investments (Lin and Wang 2017a). On the other hand it needs a facilitating government to play an active role in an efficient market to provide incentives for innovative firms and to overcome bottlenecks in hard and soft infrastructure for turning the economy's comparative advantages into the competitive advantages. It will open its economy to the world market to exploit the potentials of its comparative advantages and achieve macroeconomic stability as a result of its competitiveness. The use of both domestic and international markets for high quality development will allow Chinese people not only to share the world's prosperity but also the benefits and experience of China's development will help other countries.

Income growth depends on the continuous growth of both domestic and international circulations, which in turn depend on upgrading the industrial structure, from labour intensive to capital intensive industries (including both physical and human capital), along with the accumulation of capital and a change of comparative advantage in a useful direction. The economy with such industries and appropriate hard and soft infrastructure will be more competitive, produce the large surpluses, have higher returns to capital and thus greater savings, ensure a fast upgrading of the endowment structure, and achieve the a rapid industrial upgrading and income growth (Ju, Lin, and Wang 2015). In this process, a developing country can have latecomer advantages and thus have a faster technological innovation and industrial upgrading than high-income countries, which leads to faster growth and convergence with high-income countries.

Industrial policy is a useful instrument for a state to facilitate structural transformation. This is because the required compensation for the first movers' externality and coordination for improvements in infrastructure and institutions may differ among industries and locations, and the government's resources and capacity are limited so the government needs to use them strategically. However, for an industrial policy to be successful, it should target sectors that conform to the economy's latent comparative advantage. The latent comparative advantage refers to an industry that has competitive, low factor costs of production internationally, i.e. consistent with the country's comparative advantage determined by its factor endowments, but the transaction costs are too high, due to inadequate hard and soft infrastructure, to be competitive in domestic and international markets.

Hausmann and Rodrik (2003) argue that in the presence of uncertainty about what a country can be good at producing, there can be great social value to discovering costs of domestic activities because such discoveries can be easily imitated. Firms in an industry with a latent comparative advantage will be viable and the sectors can be competitive once the government helps the firms overcome coordination and externality issues in the improvement of hard and soft infrastructure to reduce transaction costs and risks. Lin (2017) classifies industries in a high-middle income country like China, into five categories, depending on their distances to the global technological frontier, the length of innovation cycle and the conformity with comparative advantages and recommends government's facilitation according to their respective needs for growth. These five types of industries are catching-up industries, leading-edge industries, comparative advantagelosing industries, short innovation- cycle industries and comparative advantage-defying strategical industries.

For catching-up industries, which China still has a distance to the global technology frontier, normally the quickest way to catch up is to buy better equipment, make joint ventures with advance foreign companies, as well as investing in R&D to digest and absorb these advanced technologies. Of course, when possible, the country should also carry out independent research and development in practical technology that combines the imported technology with the local knowledge and skills. This international circulation on the one hand would reduce the need for Chinese firms to carry out repetitive research, spending scarce resource to reinvent the wheel, on the other hand increase the returns of technology held by foreign firms.

This international exchange of technology can sometime be interrupted due to protectionism, arising from geopolitical reasons. For example, when the US beefs up its pressure to restrict China's micro-chip imports and access to other technologies, the Chinese government should treat those products and technologies as strategical and step up its industrial policy to encourage domestic firms to carry out research and development to allow the development import-substituting technologies. That is, although it might be mutually beneficiary to have more international circulation, it is necessary sometimes to raise domestic circulation in certain areas, where international circulation is likely to be reduced for geopolitical reasons.

For industries that China is already on the global frontier, in addition to satisfying domestic markets, the government should support firms to do R&D and help them to reduce the barriers in the international market. This enhancement of international circulation does not only mean selling Chinese goods and services abroad, but also means setting up international R&D centres and opening subsidiaries with international partners. This will not only helping maintain the global frontier nature of the technology, but will also allow technological spillovers to international communities, which could help China fulfil its obligations to the international community and the common destiny of humankind.

For industries that have already lost their comparative advantage, such as labourintensive industries in China, the government should help firms either to shift to branding, product designs and marketing management, of which the returns are high, or relocate to countries with lower wages. This international circulation will help countries poorer than China to utilize their abundant labour resources and improve their living standards.

For short innovation-cycle industries, China should invest in its rich human and physical capital, and utilize its own large domestic market to accelerate domestic circulation. Firms should carry out technological innovation according to the comparative advantages of different industries in various places. The government should set up incubation parks, encourage venture capital and protect intellectual property to facilitate innovations.

For industries of strategic importance such as national defence, which are usually characterized by high capital-intensity, long R&D cycles, and large-scale economies,

although they are often not compatible with a country's comparative advantages, and especially so in the case of developing countries, the government should provide subsidies and protections as firms in such industries will not be viable in an open, competitive market. These comparative advantage-defying strategical industries are essential for most countries and the country needs to own them domestically. As these industries are sensitive to international political environment and often face international embargos, a complete industrial system and domestic circulation is of highest importance. The government should provide necessary support in all aspect including R&D investment, making sure there is no bottleneck technology that is subject to foreign sanctions.

## 4. External circulation

## 4.1. Change of international trade pattern

It is necessary to briefly review the evolution of international trade patterns and the main arguments in trade theories. Broadly speaking, global trade can be categorized into three types or stages, namely: inter-industry trade, intra-industry trade, and global value chain trade.

An individual firm or a country is said to have absolute advantage if it is able to produce more efficiently. The concept was first introduced by Smith (1776) in his 'An Inquiry into the Nature and Causes of the Wealth of Nations', where he argues that all countries would gain simultaneously if they practiced free trade and specialized in accordance with their absolute advantage. Absolute advantage trade theory argues that the firm or country with more efficient means of production in all goods will not gain by trading with a lessefficient partner. However, as introduced by Ricardo (1817), the trade theory of 'comparative advantage' argues that as long as trading partners have different relative efficiencies in terms of opportunity cost, it is possible that the trade can be mutually beneficial. Under the Ricardian framework, because technologies differ between countries, a country that is more efficient than another in all activities benefits from trade as long as relative factor prices differ. The Heckscher-Ohlin model assumes the situation that each country has access to the same technology and cannot be more or less efficient than another. In this case the natural endowment of these countries determines the trade directions and the activities they undertake. Countries will export products that use their abundant factors of production and import products that use the countries' scarce factors.

Inter-industry trade dominated international trade after the industrial revolution with the products such as textiles, tea and porcelain, which belonged to different industries. Countries export goods produced with abundant resources in the home country and import goods that use more scarce resources. Inter-industry trade was the object studied in the Ricardo, and Heckscher-Ohlin models, and comparative advantage based on labour productivity or natural resources were the main driving forces of this trade.

Since the Second World War, there were increasing levels of intra-industry trade. This was a result of people's demand for more varieties of goods and firm's increasing returns to scale, as described by Dixit and Stiglitz (1977) and Krugman (1979). New trade theory advanced by Krugman (1979) shows that even two countries with identical productivity and endowment could benefit from trade as a result of increasing returns to scale. For this reason, both economies can gain from trade because it makes a deeper division of labour

possible. This means that it is possible that a country can intervene in a market using industrial policies to build up an industrial base in certain industries and this would then allow those sectors to thrive. Krugman later extends this in his new economic geography approach where he emphasizes the importance of network effects and agglomeration. This implies that a concentration of industries can stimulate the interaction of increasing returns as well as reduce trade costs.

Since WWII, especially since the 1980s, the development of transportation and information technology, rapid economic integration and the reduction of tariffs, have brought a continuous decline in transport, communication and transaction costs. This has provided opportunities for firms to fragment the manufacturing process and this has allowed parts, rather that total products, to be produced in different countries in accordance with a country's comparative advantage. By treating components as individual goods in the inter-industry trade, this allows firms to utilize the advantages of labour, technology and human capital of different countries. There has been an increasing amount of global value chain (GVC) trade and it now accounts for more than half of the total global trade volume. This division of labour reduces the cost in a way that is similar to the previous inter-industry trade, but it is for parts, not for complete finished products. On the one hand, this provides opportunities especially for developing countries to participate in the international division of labour, creating development opportunities. On the other hand it has significantly increased production dependencies and makes some firms and countries more vulnerable to international trade frictions.

Global value chain trade can be further decomposed into different categories but we will limit the discussion to a specific form: factory-less goods producer (FGP), where all of the transformation steps traditionally considered manufacturing, such as the actual physical, chemical, or mechanical transformation of inputs into new outputs, are outsourced to other countries, and the firm instead only undertakes the entrepreneurial steps to arrange required inputs such as R&D to make a good and do the marketing of the goods. The rights to the intellectual property, such as design and brands, of the final manufactured product owned by those multinational firms generally account for a very large share of the value added of their products sold in overseas markets. For example, when factory-less American multinational firms employ contract manufacturers located outside of the US to produce their products, and then sell those in international markets, those 'American goods' are not counted as a 'US export', because they are not exported from the US but from foreign countries, such as China, where these products are manufactured and/or assembled (Xing 2020). The calculation of trade balances and external circulation should take into consideration of this evolution of international trade patterns especially the increase of GVC trade, both in terms of trade values and in terms of risks it is exposed to.

#### 4.2. Export to GDP ratio

It should be noted, although the trade to GDP ratio is often used as an indicator for a country's openness, and external reliance, the values of trade and GDP are not strictly comparable, because trade is calculated in terms of gross value, and GDP is normally in terms of value added. In the simplified national income formula, all export goods' added value is produced domestically, so whether net export (X-M) is in value added or in gross value, they are the same.

However, in the real economy, different export goods have different compositions of added value as different proportions of components and intermediates might be from other countries. Economists use gross value and added value for different things, for example, although value added tax (VAT) is based on value added, export tariffs are often calculated based on gross value. However, this inconsistency of the use of gross value and added value often causes confusion in policy debates. The debate on China's trade surplus with the US is often heated. Xing and Detert (2010) pointed out that conventional trade statistics tend to exaggerate the exports of countries that import many intermediate inputs for the creation of exports and this inflates significantly the bilateral trade imbalance between China and the US in real terms. For example, a large proportion of Chinese exports to the US involve substantial amounts of components that are imported intangible technologies licensed from many countries then this inflates China's trade surplus with the US. If the value added approach is used, China's trade surplus will be significantly lower (Fu and Ghauri 2020).

A recent estimate by the OECD reveals that 17% of the gross value of Chinese exports originated from foreign countries (Xing 2020). Johnson and Noguera (2012) estimate the value added content of bilateral trade and show that the US-China trade imbalance in 2004 would be 30–40% smaller when measured in value added. Xing (2020) argues that in the age of global value chains (GVC), value added, not gross value of exports, should be used in assessing bilateral trade balances.

Therefore, in 2019, China's export to GDP ratio 17% should not be interpreted as that export contribute to 17% of Chinese GDP, as some of the export value added was not be created within China. Apple sells about 200 million mobile phones every year and almost all of them are assembled in China. However, all the core components, the chips, the operating system, the design and the organisation of production are mostly done in the US. Clearly printed on the back of iPhones, is 'designed by Apple in California, assembled in China'. China assembles the components imported from other countries, but when the phone is exported to the US, all the gross value rather than added value are counted as China's exports. The share of China's added value in iPhone was lower than 4% for the iPhone 3 G in 2009 but this has increased to about 25% for iPhone X in 2019 (Xing 2020). This increase in China's value added in the iPhone is a reflection of its industrial upgrading.

#### 4.3. Exports and development

The contribution of the external circulation to the domestic economy is not just the bringing in of money from sales in foreign markets, but also the technologies that are associated with those imports, the technological spill-over effects and management skills connected with foreign direct investment (FDI). For a less developed country, the external circulation would help to stimulate the economy and kick-start the development process.

What matters is not only the volume of exports but also the structure. Hausmann, Hwang, and Rodrik (2007) argue that the mix of goods that a country produces may have important implications for economic growth. They construct an index of the 'income level of a country's exports,' document its properties, and show that the gains from globalization depend on the ability of countries to appropriately position themselves along this quality spectrum.

With above in mind, we put forward two simple propositions regarding a country's level of development and its trade-to-GDP ratio: 1) the relationship between the trade-to-GDP ratio and the level of development is generally an inverted-U shape, when the level of development is graphed on the horizontal x-axis and trade-to-GDP ratio on the vertical y-axis. That is in the early stage of development, the economy is mainly subsistence agriculture and is relatively closed where trade with outside world is relatively small. As per capita national income increases, the share of tradable manufacturing goods increases, and the trade-to-GDP ratio rises. When a country grows richer, the economy is dominated by service industries, many of which are non-tradable. Thus domestic circulation increases faster and as the economy becomes less reliant on external circulation, the trade-to-GDP ratio falls. This hump-shaped trade-to-GDP ratio can sometimes be mitigated or amplified by industrial policies. For example, to kick-start development, many developing countries may adopt an import-substitution strategy to develop comparative advantage-defying capital-intensive industries, which reduces external circulation, or export-oriented development strategy to facilitate the development of latent comparative advantage industries, which increases external circulation.

2) The larger an economy becomes, the less the trade-to-GDP ratio will be. In general, the larger the economy, the larger the domestic market, the stronger the domestic ability to digest and produce products, and the more GDP depends on domestic circulation. Many of modern industries exhibit increasing returns to scale, which means that small economies have to rely on exports to utilize this, whilst large economies are able to consume most of their output domestically. Many of the new industries such as artificial intelligence, cloud computing, 5 G, digital services, and the creative industry, demonstrate an extreme form of increasing returns to scale, where there are formidable initial costs, but with very low even zero marginal costs for replication. Second, a large part of the service sector's output is non-tradable. As the proportion of the service industry in the overall economy increases, the proportion of exports in the total economy will be lower.<sup>7</sup> Third, in the increasing GVC trade, especially factory-less goods trade, much of the added value in advanced large economies are not counted in the export values and thus might also contribute to the lower export-to-GDP ratio for those countries like the US.

Therefore, for a big economy, the domestic circulation should be the driving force of growth. For example, in the US, domestic consumption accounts for about 85% of GDP and its trade-to-GDP ratio is only about 20%. It is a typical domestic circulation driven economy where consumption drives production, production creates income growth, and income growth in-turn drives consumption. Thus, when an economy grows bigger in size, the proportion of external demand to internal production will tend to decrease; and the development pattern will evolve more towards domestic circulation.

## 5. China's external circulation

#### 5.1. The evolution of China's external circulation

Before 1978, China's exports were mainly raw materials and agricultural goods, and the imports were mainly capital-intensive goods such as machinery. Since the reform and

opening-up in 1978, China gradually became embedded into the global value chain by developing labour-intensive manufacturing industries, as many multinational companies relocated the labour-intensive segments of their production chain to China. As a result, a large proportion of Chinese trade was processing trade, which utilized the cheap labour costs to produce or assemble the materials and parts imported from other countries and sell the final goods abroad.

With the upgrading of technologies and industries and the gradual reduction of surplus labour, wages would tend to go up and the labour cost advantages would gradually diminish (Lewis 1954; Wang and Piesse 2013; Villamil, Wang, and Zou 2020). As a result of structural change, the share of labour-intensive processing trade will drop. For China since the 2008 global financial crisis, there is a clear reallocation of export goods from apparel, textiles, footwear and toys towards electrical machinery, office machines and telecommunications. Although processing trade has been the major form of high-tech exports, there is a clear rise in sophistication in China's exports. With China's continuous growth and increasing technology upgrades, there is an increase in the similarity of China's export structure to other high-income countries.

Since the 1980s, China's trade dependence first increased, peaked and then came down to a medium level compared with other major countries. In 1980, external circulation was negligible, with trade-to-GDP ratio being only 12.4%, and it was ranked last among all major countries. In 2006, the trade-to-GDP ratio increased by 5 times compared with 1980, reaching around 65%. Since then, the status of external circulation has dropped significantly to around 33% in 2019, with the exports-to-GDP ratio dropping from 35% in 2006 to 17% in 2019.

China's per capita GDP in 2006 was US\$2,100, and its GDP was only 5.3% of the world's total GDP. At that time, China's service industry accounted for 41.8% of the total economy. By 2019, China's per capita GDP has increased to US\$10,261, and its share in the global economy has risen to 16.4%. The service industry's share of GDP has increased to around 54% in 2019. With the continuous increase in income and changes in the industrial structure, the service industry has been accounting for an increasing proportion of GDP. Because many of the service industries outputs are not tradable, with the increase of the service industry, the proportion of exports to GDP has gradually declined.

In summary, the status of external circulation in the Chinese economy is in line with the general principles discussed above. The larger the domestic market, the stronger the domestic digestibility of the products produced, the more the GDP will rely on domestic circulation. In the new era, as the effect of exports on economy has gradually reduced, the Chinese government stresses that China needs to highlight a development paradigm in which internal economic circuit is the mainstay of development, and the domestic and international circulation complement and support each other.

## 5.2. Worsening external environment in certain areas

China's highlighting of domestic circulation in the proposed development paradigm is a result of both the economic principles discussed above and a result of recent changes in the external environment, especially the rise of trade protectionism.

The current world order, especially its trade rules, were initially setup after the Second World War by western countries led by the US, who often use these rules to sanction countries or commercial entities that are in some way not in line with the US's national and or the West's geostrategic interests. This is not only manifested in the establishment of various barriers to trade and investment in other countries, but also in extending the long arm of US laws to sanction-specific countries, blocking specific business contacts. One example is the use of the unlimited scope of the 'Foreign Corrupt Practices Act (FCPA)'<sup>8</sup> to weaken possible foreign competitors (e.g. see Pierucci 2019). It is argued that the US uses domestic laws to sanctions foreign companies and uses hard power to fragment the global market for their interest, which seriously hindered the comparative advantages of many emerging economies in trade and investment.

The concentration of wealth and increasing inequality causes social and economic instability (Piketty 2014) and the rise of populism in many developed countries. In order to shift attention, some governments blame other countries for their domestic problems such as lack of job creation and having high inequality to other countries. For example, in the last four years, there have been many trade disputes and sanctions from the US administration against many other countries or trade blocs including China, the European Union, Canada and Mexico. Blaming others is always easier than solving one's own problems, but this has meant a worsening of the international trade environment.

The recent US interventions, which have interrupted global value chains, have shaken the long belief that countries can rely on the current global trade order and WTO rules. Many argue that the US confrontation with China is to protect their economic supremacy, not for the security reasons they claim. The 'America First' ideology was behind its retreat from international treaties and disrespect for many global agreements. Take the US sanctions against the Chinese telecommunication equipment firm Huawei as an example.<sup>9</sup> Although the US banned the use of Huawei equipment in their telecommunication networks, Huawei has still grown to become the world's number one telecommunication equipment manufacturer, and has achieved a world-leading position in 5 G. The US administration beefed up its restrictions especially since 2018, by pressuring other countries not to use Huawei products. Although many countries declared various restrictions as a result, Huawei's sales were still growing in this highly competitive market due to Huawei's technology being both advanced and cost-effective. Not only in the telecommunications equipment market, Huawei also leads in some consumer products such as mobile phones. In the first quarter of 2020, Huawei's sales of mobile phone ranked number 1 in the world ahead of Samsung and Apple. However, Huawei was put into the Entity List<sup>10</sup> and Huawei mobile phones were prohibited from using Google's core application system (Google Mobile Service, GMS) by the US administration. Although Android is open source which cannot be restricted, many core applications, such as popular maps, search engines can no longer be downloaded. As a result, Huawei phone sales in many countries dropped sharply causing Huawei mobile phone sales to fall to fourth place by the end of 2020. Huawei was forced to increase its investment and accelerate the development of its own Harmony operation system and Huawei Mobile Service (HMS). This was a huge shock, but Huawei was still able to sell its phones in the Chinese market which does not rely on GMS.

Seeing Huawei was still growing, despite the tough measures, the US administration announced another blow, whereby starting from 15 September 2020, any company that uses 'any' US technology are not allowed to supply any component to Huawei for the production of 5 G equipment and mobile phones. In the age of global value chains, there

is rarely any component that does not contain US technology. Although Huawei designs their own mobile phone chips they use others to manufacture it, and only Taiwan Semiconductor Manufacturing Company (TSMC) and Samsung have the capacity to produce the most advanced 5 nanometre chips used in advanced Huawei phones. Although many of Huawei's international suppliers lost revenue from not supplying Huawei, these companies have no bargaining power with the US government, since they are afraid that the US will also sanction them if they do not cooperate.

China in the reform period became deeply integrated into global value chains and as a result is not well prepared for this extreme form of sanctions. China is the world's largest microchip importer with the value of its chip imports being higher than the value of its total oil imports. As a result of its reliance on global value chains, China's chip manufacturing technology is lagging behind the world leaders. Now, a large part of Huawei's operation is forced to withdraw from external circulation and rely on domestic circulation. Although it might have to take many years (estimates of 3–5 years) before bearing fruit, China, including Huawei, is now investing heavily in chip manufacturing systems that are completely free of US technology.

It might be difficult in the short run, but many Chinese firms see it as an opportunity in the long run partly because the interruption has stimulated the awareness of the importance of the security of product supply.<sup>11</sup> More key enterprises have started to pursue selfreliance without using US technology. And Chinese consumers are now more willing to try domestic suppliers who thus have more opportunities to sell their products and technologies. Many Chinese firms have started to collaborate together to tackle key problems, to invest, or support partners to carry out R&Ds in producing importsubstituting parts and promote overall innovation capabilities.

As discussed in section 3, different industries have different coping strategy with regard to domestic and international circulation. Countries should open up most of their industries and strengthen their external circulation, using their comparative advantage to join the international division of labour, which will not only enable them to enjoy more variety of goods and services at lower costs, but also bring in capital investment, technology and skills (Lin and Monga 2017). Only limited policies should be used to facilitate specific industries that have latent comparative advantage by providing incentives to the first movers and removing barriers in hard/soft infrastructure to reduce transaction costs in order for it to grow to gain revealed comparative advantage. Successful import substitution normally built on successful export and internal R&D capacity.

However, the recent disruption of global value chains has forced some firms like Huawei to follow a strategy that usually only suitable for comparative advantagedefying strategical industries. It is in effect forcing people to raise a cow if they wish to drink milk. Self-reliance might be feasible for a large country like China and a big company like Huawei, but it could be fatal for small economies and small companies. The US's deviation from and violation of international consensus will damage both its hard and soft power in the long run. With the technological advance, and the rise of developing economics such as China, India and African economies, a pluralistic world economic order requires that international trade rules should also reflect the interest of the developing countries (Rodrik 2006). The reinstallation of a fair global trading system is urgently needed for the welfare of the world.

## 6. China's highlighting of domestic circulation

China's dual-circulation development paradigm, highlighting the importance of domestic circulation as the mainstay of the economy, is a natural choice given its rising incomes and a growing services sector, but it does not mean that exports and trade are not important. China will continue to utilize its competitive advantage to supply global market with low cost and high quality goods and services, and further open its large consumer markets to foreign companies.

Some observers tend to view the emphasis on domestic circulation as a sign that China is becoming more introspective or would even isolate itself from the rest of the world. We argue that it is a misperception that China is moving toward an inward-looking and closed economy. China will continue to utilize resources in both internal and external markets and to further deepen reforms and push a higher level of opening-up. Although exports have played an important role in China's development process, it is not accurate to say that China was pursuing an export-oriented development strategy before and is now trying to play down the importance of external circulation. It should be noted that the decline of the trade-to-GDP ratio is not because of a reduction in China's engagement with the rest of the world, but due to the increased GDP as a denominator in the ratio. For example, China's GDP in 2006 was 2.8 trillion US dollars, the export-to-GDP ratio of 35%, just short of 1 trillion dollars. In 2019, China's GDP was about 14.3 trillion dollar, and a 17% export-to-GDP ratio means that China exported approximately 2.5 trillion dollars' worth of goods. This means a total increase of 1.5 trillion dollar in exports between 2006 and 2019 although the export-to-GDP ratio has halved. Meanwhile, China's imports increased from 792 billion dollars in 2006 to 2.077 trillion dollars in 2019, a net increase of 1.286 trillion dollars, while the imports-to-GDP ratio decreased from 28.8% in 2006 to14.4% in 2019.

The weight of domestic circulation very much depends on the size of the economy and service sector, both of which are endogenous to income growth. In order to increase domestic circulation, China should adopt measures to further deepen the reform to improve the allocative function of markets so as to develop the Chinese economy exploiting its comparative advantages, which is the way for sustainable and inclusive growth. After 40 years of economic transition, the product markets in China have been mostly liberalized but many interventions in factor markets remain. Bolder reform measures are needed in areas including the financial services sector, the labour and land markets and the country's ownership system to reduce market distortions and better unleash the country's growth potential for high-guality development. For example, small and median size enterprises should be offered more financial support and be given wider access to industries where there are barriers to enter (Lin 2013). Reform should also be carried out in the area of income distribution to reduce inequality, promote regional integration and allow more people to enjoy the benefits development (Kakwani et al. 2019; Rangazas and Wang 2019, Wang 2019). Meanwhile, the government should continue to invest in public infrastructure and to stimulate economic growth (Wang, Weaver, and Xue 2019). It is also important to improve the coordination between the market and the government so that the economy can benefit from an efficient market and a facilitating government (Lin 2012, 2017).

Although the US sanctions on Chinese firms like ZTE and Huawei have restricted their globalization strategy, forcing them carrying out more independent technological research and development, China and Chinese firms are continuing to embrace globalization, in addition to focusing on strengthening their own capabilities. As Huawei founder Ren Zhengfei put it, 'if you don't embrace globalization, there will be no future.' He argues that Huawei does not harbour any resentment towards the US, and they continue treat many great US companies like Apple as their teachers or role models. It is argued that Apple has built an eco-system where all the companies in the Apple eco-system can make money and prosper. When Apple accumulates wealth, it not only invests in more research and development to make finer products that consumers enjoy, they also treat their employees and suppliers better, for this reputation every firm want to be part of the Apply supply chain.

## 7. Conclusions

This paper offers a solid, yet accessible theoretical underpinning for the concept of the 'dual circulation' and provides a detailed account on the Chinese Government's recent proposal of this development paradigm. By highlighting it as a national paradigm, it provides policy makers and firms a clear reference point about China's development trajectory in a new era. By emphasizing domestic circulation as the mainstay of Chinese economy so the Chinese economy will be more resilient to external shocks. However, for a high-quality growth, China will continue to rely on external circulation to facilitate the expansion of domestic circulation. The dual-circulation development paradigm does not mean closing the door to opening up, but means a much deeper and broader scope of reform.

In 1997, the Chinese government set up two Centenary Goals which are: to finish building a moderately prosperous society in all respects by the time the Communist Party of China celebrates its centenary in 2021; and to turn China into a modern socialist country that is prosperous, strong, democratic, culturally advanced, and harmonious by the time the People's Republic of China celebrates its centenary in 2049. China's per capita GDP has just exceeded \$10,000 in 2019, much lower than the US level of about \$60,000. China's advantage lies in its large domestic market and high growth potential. China's future hangs on continuous growth, and it is crucial that China is able to maintain a relatively high level of economic growth. This depends on resolving many of the profound economic problems China is facing, such as the capital and labour market structural distortions and income inequality. The extent that these problems can be solved will determine the future growth of the Chinese economy and the living standards of the Chinese people.

China continues embracing globalization and promoting global collaboration. Domestically, China has made 'common prosperity' its essential stipulation and the goal of the country. Common prosperity means that through hard work and mutual help, all people can finally achieve a high living standard by eliminating polarization and poverty. The common prosperity was echoed by the World Bank's promotion for shared prosperity. Internationally the Chinese ideology is to believe in pluralism and non-interventionism, and to build 'a community of common destiny for mankind', which is a new type of international relations based on win-win cooperation of all countries. China's BRI aims to assist developing countries providing an opportunity for development, respect for their rights to develop, by providing development funds, by unconditional aid, and by building infrastructure in these countries. (Wang, Ozanne, and Hao 2014; Lin and Wang 2017b). The best form of globalization is one where every country and every firm has a place in the economic ecosystem, and each country contributes to the international division of labour according to their comparative advantage, and thereby gets to enjoy the consumer products and reach a higher level of prosperity.

Facing the challenges of the uncertain world, the key for China is to strengthen its own capabilities, manage its own affairs, broaden its own vision, and take more responsibility in the world. A healthy international competition should be about who can bring greater good to the world and who can make greater contributions to the well-being of human civilization. Such a competition should not just be on innovation of products and services, but also on the creation and maintenance of a fair and collaborative global order. Chinese companies should not only consider industrial competitors, but also pay attention to the constraints of the external environment, and help to build an appropriate economic ecosystem. When Chinese companies become more and more competitive, what they should be focusing on is not to gain monopoly based on lower labour standards or subsidies, but to nourish a fair competitive environment and build trust among both suppliers and consumers both in China and abroad.

When the Chinese economy grows further, its resistance to external shocks will be further strengthened, so it can maintain a more stable development path. As the world's second-largest and fastest-growing large market, China's adaptation of the dualcirculation development paradigm has big potential impact on the global economy. As the founding father of the Republic of China, Sun Yat-Sen, argued in 1922, 'the natural resources of China are great and their proper development could create an unlimited market for the whole world'. China's development will not only increase the income level of its own people, but can also benefit trading partners, expand their markets, create jobs for them, and promote world prosperity and stability.

#### Notes

- 1. China's official poverty line, used to define absolute poverty, is RMB 2,300 per person per year at 2010 prices. By purchasing power parity (PPP), it is equivalent to US\$2.3 per person per day, about 20% higher than the international extreme poverty line of US\$1.9 per person per day defined by the World Bank in 2015.
- 2. Unless otherwise specified, all the statistics for China are from National Bureau of Statistics (NBS various years), and all the statistics for the world are from the World Bank. The exchange rates used for comparisons are the average market exchange rate in the specific year.
- 3. The BRI is China's international development strategy, aiming at stimulating economic development in a vast region covering sub regions in Asia, Europe and Africa. In addition to infrastructure development, BRI also includes policy dialogue, unimpeded trade, financial support and people-to-people exchange (See Huang 2016).
- 4. Dual Circulation was mentioned by president Xi Jinping in his speeches in early 2020 and was formally proposed at the Fifth Plenary Session of the 19th Central Committee of the Communist Party of China in October 2020.
- 5. A comprehensive understanding of economic circulation should also consider international finance such as capital flows and activities of multi-national corporations.

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  - 6. It should be noted that John Stuart Mill argues in his "Principles of Political Economy" that the 'vent for surplus' approach is 'in truth a surviving relic of the Mercantile Theory, according to which, money being the only wealth, selling, or in other words, exchanging goods for money, was (to countries without mines of their own) the only way of growing rich ... '
  - 7. However, overtime there might be a tendency for important parts of this sector to become tradable with advancement of transport and communication technology and costs reductions.
  - 8. The main aim of this federal law is to prohibit US citizens and companies from bribing foreign government officials to benefit their business interests. It covers foreign natural and legal persons if they are in the US at the time of the corrupt conduct but this is subject to varied interpretations, which makes FCPA the most wide-reaching law.
  - 9. There are many baseless accusations, one of which is the accusation of Huawei's connection to the Chinse military because its founder is an ex-military personal. If that can be an excuse, people in countries that have compulsory military services such as South Korea and Israel, can all be accused of military connection.
  - The Entity List is a trade blacklist published by the United States Department of Commerce's Bureau of Industry and Security, consisting of certain foreign persons, entities, or governments. Entities on this list are subject to US license requirements for the export or transfer of specified technologies.
  - 11. It is worth noting that the Chinese word for 'crisis', *weiji*, is composed of two Chinese characters signifying 'danger' and 'opportunity'. This interpretation gained momentum in Western popular culture after it was used by John F. Kennedy in his presidential campaign speeches in 1959 and 1960.

## **Acknowledgments**

We would like to thank Wenxuan Hou, Nick Weaver and participants of various forums for their comments and suggestions.

## **Disclosure statement**

No potential conflict of interest was reported by the author(s).

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