Escaping Dependency and Trade War: China and the US

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Abstract: *Marxist political economy provides a perspective for grasping the root cause of the China-US trade war. The international relations of production, which stem from the international division of labor, shape the distribution of international economic interests and the political status of countries. Traditionally, developing countries have been subjected to the "periphery" in the international division of labor. In the new global value chain, developing countries have remained in a subordinate position characterized by "technological-market" dependence. To achieve the goal of building a strong modern nation, China must escape the "technological-market" dependence. Yet China's efforts and achievements in escaping dependent development are deemed as a threat to US vested interests in the international markets. To preserve the economic foundation of its hegemony, the US has resorted to a trade war to contain China's development.*

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1. Introduction

The China-US trade war that began in 2018 remains unabated. This trade war, ostensibly triggered by the China-US trade imbalance, was launched by the US to contain China's development, especially in high-tech sector. In its "Special 301" Report, the US government blamed China for its "unfair practices" against US tech firms, including forced technology transfer and "theft" of intellectual property rights, which allegedly led to its trade imbalance with China. As a result, the US applied additional tariffs on imports from China, including those listed as priorities of *Made in China 2025*. In addition, the US government also included several Chinese tech firms, such as ZTE and HUAWEI, on its "entity list" of export control. Despite China's sincere response to US concerns, the US government insisted that China make further concessions in technology and intellectual property rights and took an aggressive stance in the negotiations, causing the trade war to escalate. These instances show that the US trade war with China is intended to contain China's development of high-tech industries.

This paper is a theoretical discussion of China's development and the root cause of China-US trade war. Marxist view of international economics offers a unique perspective and methodology for the explanation of this trade war, based on the international division of labor in the context of economic globalization, which can be traced back to the dependency theory. Based on the framework of this theory,

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this paper will investigate the international division of labor, the international relations of production, and the China-US trade war in the context of economic globalization.

2. Dependency Theory and Forms of Dependency

The dependency theory gained popularity between the late 1950s and 1970s among leftist Latin American scholars; it analyzes the root causes of backwardness in less developed countries and the development strategies that should be adopted. Dependency here is the core concept that explains why some countries are underdeveloped. Theotônio dos Santos offered a widely accepted definition of the dependency, which refers to a "situation in which the economy of certain countries is conditioned by the development and expansion of another economy to which the former is subjected." Forms of the dependency include the interdependence of two or more economies and their dependence on global trade. Economic underdevelopment in dependent countries merely reflects the expansion of dominant countries (Santos, 1970).

Based on the above definition, "dependency" describes the international relations of production between advanced capitalist countries and underdeveloped countries, whose backwardness stems from global capitalist expansion. Andre Gunder Frank compared the relationship between underdeveloped and developed countries to that between workers and capitalists. Like workers are exploited by capitalists, less developed countries are exploited by developed countries (Frank, 1969). By explaining the root cause of backwardness of underdeveloped countries in terms of the international division of labor, the dependency theory can be viewed as a theoretical achievement of applying historical materialism as a basic Marxist principle at the international level.

Another application of historical materialism in the dependency theory is the methodology of historical analysis. According to the dependency theory, the analysis of dependency is historical and specific rather than abstract. It reveals specific forms of dependency of countries in various stages of history. Scholars of the dependency theory followed different priorities of analysis and criteria of classification. A classical approach is Santos's identification of three types of dependency according to the basic patterns of the global economy in various stages of history, the types of economic relations and foreign expansion of capitalist centers, as well as the internal conditions of dependent peripheral countries (Santos, 1970).

First, colonial dependence, which was reflected in the economic relationship between Europe and its colonies through trade and colonial monopolies (Santos, 1970). The colonies formed a production structure oriented towards European and global markets under a "center-periphery" pattern of the international division of labor. Carl Marx and Friedrich Engels described the result of such economic dependence as follows: "Just as it subordinated the countryside to the cities, so it subordinated the uncivilized and semi-civilized nations to the civilized nations, the peasant nation to the bourgeois nation, and the East to the West." (Marx and Engels, 2012).

Second, financial-industrial dependence, established in the late 19th century, which was characterized by the predominance of monopolistic capital in hegemonic centers and its foreign expansion through capital export, forcing dependent countries to remain locked into a pattern of exporting primary goods (Santos, 1970). This type of dependence came along as a consequence of capitalist expansion. In the late 19th century, capitalism experienced a transition from free competition to monopoly and expanded overseas through capital export. Massive "surplus capital" was invested into the raw materials and agricultural sectors of dependent countries, subordinating them to the needs of the "center". When talking about the dependency relationship resulting from capital export, Vladimir Lenin wrote: "Financial capital and its associated international policies have led to the dependence of many transition countries, which are politically and formally independent but financially and diplomatically dependent" (Lenin, 2012).

Third, technological-industrial dependence, which surged after World War II, when multinational companies began to invest in the industrial sectors of less developed countries (Santos, 1970). After World War II, outbound direct investment (ODI) became a primary conduit for monopolistic capital to expand overseas. In this period, many developing countries imported foreign equipment, intermediate products and processed materials to promote industrial development. Despite paltry export revenues, dependent countries paid a heavy price for patent licenses and industrial imports, which worsened their international balance of payments. Instead of transferring patents, multinational companies chose to invest in those dependent countries to control the local economy and repatriate hefty profits from dependent countries, taking a toll on their capital accumulation (Santos, 2016).

Earlier versions of the dependency theory were pessimistic about how dependent countries could develop their industries. However, improved versions of the theory considered some dependent countries to be able to benefit from dependent development. Fernando Henrique Cardoso put forth the concept of associated-dependent development (Cardoso, 1973); he and Enzo Faletto considered industrial investments to be an additional link, other than trade, between the center and the periphery.

Compared with the dependency in underdeveloped conditions, a higher level of dependency is one in which foreign interests take hold in the industrial sectors of peripheral countries. This more advanced state of dependency is likely to promote sophistication of the production system and create a higher development index (Cardoso and Faletto, 2002). Peter Evans put forth the concept of dependent development, which he identified as a result of development for a few peripheral countries under particular conditions. The triple alliance of foreign capital, local capital, and countries is a critical factor for dependent development, which is still characterized by unequal international division of labor, unequal distribution, and the economic dominance and monopoly by central countries (Evans, 1979).

The dependency theory offers a theoretical framework to investigate the international division of labor and the international relations of production in today's economic globalization. We may use this theory to analyze the new forms of the dependency in economic globalization and reveal the deep-seated political and economic factors behind the China-US trade war.

3. "Technological-Market" Dependence: A New Form of Dependence under Economic Globalization

The dependency theory lost its appeal in the 1980s due to various reasons. However, it is still convincing and theoretically relevant in terms of its analysis of development dilemmas for developing countries concerning the international division of labor and the associated international relations of production. The framework of the dependency theory is, therefore, still applicable to the analysis of dependency in today's economic globalization.

After the 1970s, the dependency took on new traits as changes occurred in the three factors of the dependency identified by Santos. Those changes are reflected in the following three aspects:

First, the global economy started to shift from an industrial economy to a knowledge-based economy. In its report *Knowledge-based Economy* published in 1996, the OECD unveiled the concept of "knowledge economy". According to the report, OECD countries were more dependent than ever on the production, distribution, and use of knowledge. In the knowledge economy, knowledge has become the most important independent factor of production and a key driver of economic growth. In the knowledge economy era, enterprises and countries with intellectual strengths are more likely to lead the international division of labor and amass wealth.

Second, cross-border monopolistic capital is expanding aggressively through outbound direct investment and non-equity arrangements. According to UNCTAD, foreign direct investment (FDI) from advanced economies increased by about 11 times from 49.3 billion US dollars in 1980 to 558.4 billion

US dollars by 2018. Advanced economies account for the bulk of both FDI flow and stock. Between 1980 and 2011, advanced economies generated over 70% of FDI outflow and more than 80% of FDI stock. These figures suggest that advanced economies are dominant forces in outbound direct investment and manufacturing globalization.

Another important mode of cross-border monopolistic capital expansion is non-equity business arrangements. Under non-equity business arrangements, multinational companies acquire some sort of control over local companies in host countries through contractual agreements rather than equity. Non-equity business arrangements, which flourished after the 1960s, take various forms, such as contract manufacturing, service outsourcing, and franchising. Technological superiority and market monopoly are the key strengths for multinational companies to take control of host country enterprises through a contractual agreement. In non-equity cooperation, multinational companies derive their bargaining power from access to exclusive technology, internal markets, and brand influence. According to the *World Investment Report 2011*, non-equity contract manufacturing exceeded 2 trillion US dollars' worth of global sales volume in 2010. In the same year, exports from the overseas subsidiaries of multinational companies stood at roughly 6 trillion US dollars.

Third, some developing countries shifted their economic development strategy from import substitution to an export-led model. With the end of the national independence movement following World War II, developing countries experienced a development crisis under the import substitution strategy. This, coupled with the declining influence of the Soviet system and the prevalence of neoliberal economics in the 1980s, has led some developing countries to succumb to the seduction and coercion of developed countries and shift to a market-based and export-oriented development strategy (Li, 2017).

With profound changes in the global economy, a new form of the international division of labor and the dependency based on it took hold after the 1970s. The new form of the international division of labor, i.e. the division of labor based on global value chains (GVCs), is characterized by the global geographical dispersion and functional integration of manufacturing activities. As can be seen from Figure 1, the GVC participation of advanced, developing and transition economies all exceeded 50% in 2017. Even the least developed countries had a GVC participation rate above 40%. This demonstrates

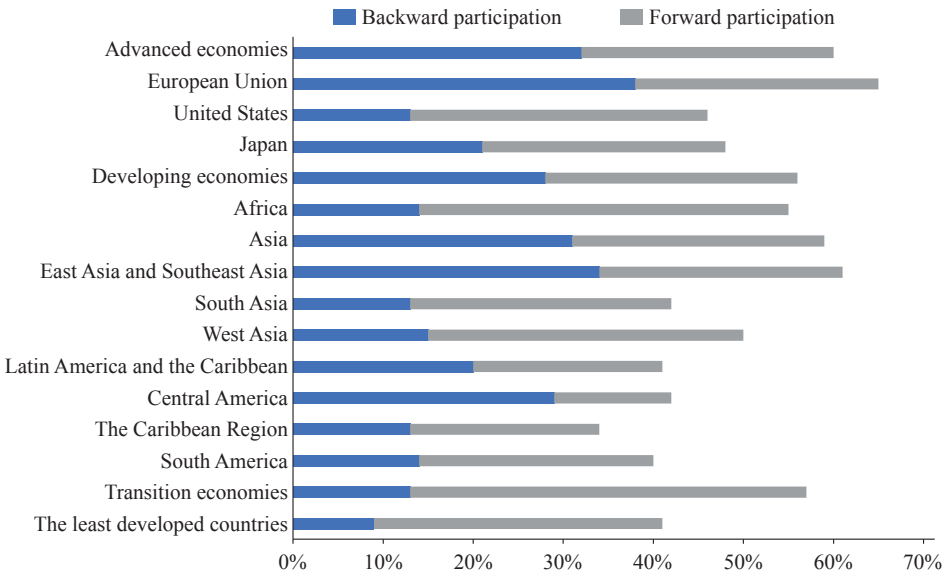

Figure 1: GVC Participation Rates of Major Global Economies in 2017

Source: UNCTAD, *World Investment Report 2018: Investment and New Industrial Policies*, 2018, pp.23-24, http://unctad.org/en/PublicationsLibrary/wir2018_en.pdf. (Accessed January 10, 2020).

that GVC participation is becoming a mainstream form of the international division of labor.

A new form of the dependence, which stems from the GVC division of labor, can be characterized as "technological-market" dependence. With their monopoly of core technologies and market access, multinational companies from developed countries dominate the high value-added links of GVCs, leaving developing countries heavily dependent on their core technologies and market channels. As a result, developing countries have to accept various unequal conditions of exchange imposed by multinational companies. In most cases, developing countries are locked into the low-value links of GVCs. Developing countries are far eclipsed by multinational companies in terms of return and wealth accumulation owing to the GVC division of labor; their development in absolute terms lacks autonomy and stability. Gereffi divided the GVCs into producer-driven and buyer-driven ones (Gereffi, 1994). The core competencies of producers and buyers are technological progress and market access, respectively. The two types of GVCs gave rise to different forms and characteristics of the dependence.

Technological dependence primarily exists in producer-driven GVCs, which are common in the capital/technology-intensive manufacturing industry. In GVCs led by multinational companies, developing countries are trapped in low-value links with a subordinate position.

The GVC for smartphones, for instance, is a typical producer-driven value chain. As can be seen from Figure 2, Apple and Samsung dominate R&D and design with their monopoly of core smartphone technologies, and source miscellaneous parts and components from suppliers in various technical domains. The *World Intellectual Property Right Report 2017* offers a statistical account of the GVC value distribution for smartphones. Apple and Samsung took almost half of the value with the rest mostly captured by their suppliers of parts and components. Only 1% of the GVC value went to the labor force at the assembly line in the Chinese mainland. Such a lopsided value distribution results from various harsh conditions of exchange forced upon developing countries by multinational companies, whose powerful bargaining power stems from technological monopoly. According to the *World Intellectual Property Right Report 2017*, Samsung and Apple topped the list of smartphone patent filings between 2000 and 2015 with 1,239 and 810 filings, respectively.

Based on their technological superiority, multinational companies have developed advantages for establishing (and even monopolizing) standards. As a result of increasingly decentralized manufacturing, compatibility requirements for parts and components highlight the importance of standardization. Through standardization, multinational companies extract hefty license fees and equipment sales revenues from developing countries. As noted in the *World Intellectual Property Right Report 2017*, Nokia, Ericsson, and Qualcomm earned 1 billion, 1.2 billion, and 7.6 billion US dollars, respectively, from technology license fees in 2016. With such technological superiority, multinational companies forced unequal conditions of exchange upon developing countries. In a study on Apple, Clelland referred to a part of Apple's revenues as "dark value" realized through underpayments for wage labor employed by original equipment manufacturers (OEM) (Clelland, 2014).

Market dependence primarily exists in buyer-driven GVCs. Multinational companies have used their market monopoly to establish and dominate GVCs. Due to their lack of market channels and marketing prowess, companies from developing countries find themselves in a subordinate position with meager value-added. Walmart, a global retailing giant, profiteered from its market monopoly and impressive bargaining power over upstream GVC manufacturers. According to the *Global Powers of Retailing 2018* released by Deloitte, Walmart raked in 485.87 billion US dollars of business revenue, ranking first in the world; 24.3% of this revenue came from its overseas operations.

Technological and market dependencies tend to coexist; it is difficult to distinguish between producer- and buyer-driven value chains, and market dominance is increasingly subject to technological innovation amid fierce global competition. The increasing cost of R&D has prompted multinational companies to recoup investment through marketing. Hence, many multinational companies have adopted a monopolistic business strategy, subjecting companies from developing countries to "technological-

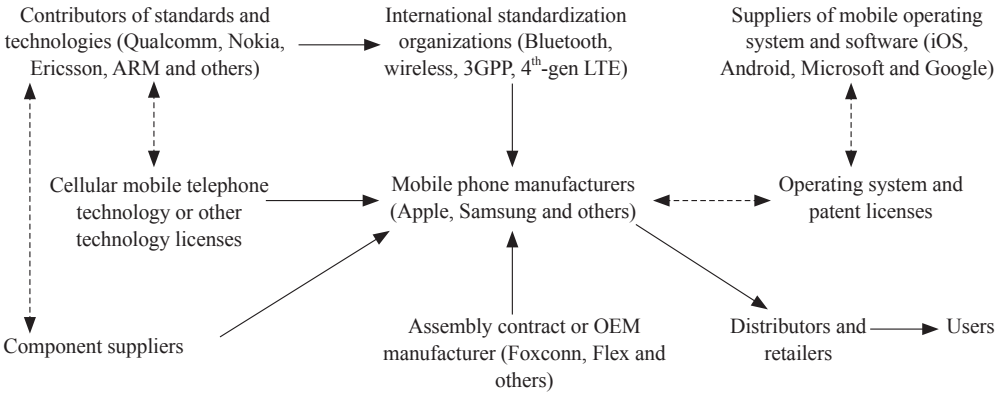

Figure 2: Global Division of Work for Smartphone Manufacturing

Source: WIPO, *World Intellectual Property Report 2017: Intangible Capital in Global Value Chains*,2017, p.96. https://www.wipo.int/edocs/pubdocs/en/wipo_pub_944_2017.pdf. (Accessed January 14, 2020).

Note: Solid lines denote the flow of parts and components, and dotted lines suggest the flow of technology and intellectual property rights.

market" dependence.

According to the *World Intellectual Property Right Report 2017*, income from intangible capital accounted for an average of 30.4% of the gross output value from 19 manufacturing GVCs across the world, which was twice the amount of income from physical capital. Actual total income from intangible assets grew by 75%, reaching 5.9 trillion US dollars by 2014. Most intangible capital such as technology and branding were controlled by multinational companies.

At the national level, the *World Investment Report 2018* suggests that foreign value-added in exports from developed countries averaged 31% in 2018 while this figure stood at 28% for developing countries. Yet data for developed countries are overestimated due to repetitive calculations of the EU's internal trade. Repetitive calculations are rarer for some developed countries such as Japan and the US, whose foreign value-added in exports were 21% and 13%, respectively, and far below those of East Asia and Southeast Asia (34%) and Central America (29%), which specialize in processing trade. In summary, developing countries have amassed much less wealth than developed countries. This indicates that the "center-periphery" pattern of the international division of labor still exists. In the words of Robert W. Cox, "Although the geographical and industrial sector implications of center and periphery are increasingly blurred, economic crises since the mid-1970s highlight the differences between the center and the periphery, proving the center-periphery concept to be a valid analytical tool" (Cox, 2006).

Most developing countries participating in the GVC division of labor, are trapped in a vicious cycle where the shortage of funds for development leads to technological and marketing inferiority, dependence in the GVC division of labor, and modest value-added. Some Western scholars found companies from developing countries to be captured by leading multinational companies in GVCs (Gereffi et al., 2005). Both "capture" and "dependence" are descriptions of the status of developing countries in GVCs. Under certain conditions, however, developing countries may achieve dependent development through GVC participation. Such dependent development, however, lacks stability and autonomy. Given the migratory nature of GVCs led by multinational companies, developing countries specializing in the lowest-value activities of GVCs are easier to be replaced by other countries and more vulnerable to external shocks, uncertainties, and volatility.

Moreover, the extent to which developing countries benefit from GVC participation in terms of value-added, jobs, technology, and knowledge transfer, as well as opportunities for an industrial upgrade, is largely subject to the decisions of multinational companies. For instance, transfer pricing

by multinational companies may affect value capture for developing countries. According to the *World Investment Report 2013*, about 40% of domestic value-added in developing countries could be affected by transfer price manipulation.

The "technological-market" dependence has also led to political dependence reflected in the fact that developing countries are forced to align their domestic and foreign policies to the trends of economic globalization. There is little choice for developing countries except to accept rules that reflect the interests of multinational companies and adjust policies to their expectations. Political dependence may increase economic dependence and trap developing countries in a vicious cycle. Political force is the primary element to break free from dependent development; an example of this are China's efforts and achievements over recent years.

4. China's Escape from Dependent Development and the Trade War with the US

The US launched the China-US trade war to contain China's development, especially in the tech sector, as can be evidenced in the US tech ban as the first step of its trade sanctions against China. The US motivation to contain China's development through a trade war can be explained by China's ascension in the international division of labor and the subsequent changes in the international relations of production.

China used to follow a path of dependent development, as reflected in its dependence on foreign technologies and markets. China's foreign technology dependence reached 75.4% in 1995 and stayed above 50% until 2002. These figures would be even higher if technology acquisitions from foreign companies in China are considered (Fan, 2015). Moreover, China's economic development relied heavily on the global market. According to the *China Statistical Yearbook 2019*, China's foreign trade dependence was about 38% in 1995 and spiked after its WTO accession to reach 64.4% by 2006. Such dependent development is contradictory to China's future development goals. Only by escaping dependent development will China be able to climb up the ladder of GVCs, improve its position in the international division of labor, and bring to fruition its dream of building a strong modern nation.

Thanks to its remarkable progress in science and technology, China has achieved technological autonomy in some high-tech industries, breaking free from Western technological monopoly. According to the *Evaluation Report on the Overall Technological Competitiveness of China and the US* published by the Institute for Global Innovation and Development at East China Normal University in 2019, China's overall technological competitiveness steadily increased from 2004 to 2016, and its technological gaps with the US narrowed briskly.

In some industrial sectors, China broke the Western technology monopoly and even became a global technology leader. For instance, China accounts for 28% of global 5G standard-essential patents (SEPs) in the communications industry, ranking first in the world and followed by South Korea (24%) and the US (22%). China's HUAWEI ranks first with 1,694 SEPs, which is higher than Qualcomm's 362 SEPs (Wang & Xue, 2019). This gives China a say in setting international 5G standards. Meanwhile, HUAWEI has become a value chain leader on par with Apple and Samsung. According to the International Data Corporation (IDC), HUAWEI's market share exceeded Apple's to reach 18.6% in the third quarter of 2019, ranking second in the world. In recent years, HUAWEI developed its in-house Kirin chips for smartphones to replace US chips. Chinese display maker BOE has built a new-generation flexible OLED production line, which broke Samsung's long-held technological monopoly in this segment. BOE now supplies most of the display screens for HUAWEI's mobile phones.

China has also made important progress in escaping market dominance by Western countries. China's domestic market has gained greater prominence as part of the global market. According to UNCTAD, China's total import volume reached 2,547.31 billion US dollars in 2018, up from 648.71 billion US dollars in 2005, and its share in the world total doubled from 5.1% to 10.4%. China has

become the world's second-largest consumer market following the US, whose total import volume made up 12.8% of the world total in 2018. China's broad market has allowed its companies to wean their dependence on overseas markets and expand their global market share. According to the *Global Powers of Retailing 2018* by Deloitte, 14 Chinese retailers including JD.com and Suning.com were ranked among the global top 250 in 2016. Leading Chinese e-commerce platforms VIP.com and JD.com ranked first and third in terms of growth rates between 2011 and 2016.

By reducing its technological-market dependence, China has improved its GVC position, as reflected in China's increasing export value-added. According to the *Research Report on the Value-Added Accounts of Global Value Chains and China's Trade* released by the Ministry of Commerce in 2019, China's domestic value-added per unit of total exports, goods export and service export increased by 93, 101, and 55 US dollars in 2018 from 2010, respectively. Thanks to its growing industrial might over recent years, China's export of goods boasts greater value-added growth potentials than its service export. In addition, China's GVC position index began to rise after 2006 to reach -0.08 in 2011, up from -0.11 (Liu, 2015). Such an increase stems from China's improving manufacturing position instead of reliance on export of natural resources. In 2014, China's manufacturing GVC position index hit a record high of 0.114 (Huang et al., 2018).

As a vivid reflection of its improving GVC and market positions, China resisted US pressures over trade issues without suffering a severe economic shock. For one thing, the US imposition of tariffs did little to dent China's global manufacturing position. According to the *Research Report on the Value-Added Accounts of Global Value Chains and China's Trade* released by the Ministry of Commerce in 2019, China's exports of goods subject to the first and second rounds of US tariff imposition worth 50 billion and 200 billion US dollars still reached 266 billion and 535.3 billion US dollars, up 4.3% and 0.01% year-on-year, respectively. Moreover, China did not suffer a capital flight following the trade war. Its market heft, industrial resiliency and infrastructure have proven to be attractive to multinational companies and kept GVCs from relocating elsewhere.

China's avoidance of dependent development is at odds with the US's vested interests in the global division of labor. Such a contradiction has culminated in the China-US trade war. By breaking free from Western technological and market monopolies, China tries to escape the "technological-market" dependence and elevate its position in the GVC division of labor. To some extent, China chipped away at the US leadership in the global division of labor by shaking its economic foundation. Naturally, the US government resorted to a trade war to contain China, especially its development in the tech sector. Over the years, China has narrowed its technological gaps with the US. What worries the US, however, is not just China's progress, but its development pattern and institutional strength underlying such progress.

5. Concluding Remarks

The international relations of production, which stem from the international division of labor, have shaped the distribution of economic interests among countries and the landscape of international politics. Marxist political economy provides a theoretical foundation for interpreting the China-US trade war.

Since the 1970s, developing countries have remained in a subordinate position under the new GVC division of labor, and such dependence is characterized by the "technological-market" dependence. The lion's share of value-added from the global division of labor was obtained by multinational companies from developed countries. Therefore, developing countries are subjected to dependent development owing to their insufficient capital accumulation. For China to achieve the goal of building a strong modern nation and promoting high-quality development, it must escape such dependent mode of development. The US deems China's ascension a challenge to its vested interests in the international division of labor. Consequently, the US resorted to a trade war to contain China's development and preserve the economic foundation of its political hegemony. In essence, the China-US trade war reflects the conflict between China's right to development and US hegemony.

References:

[1] Cardoso, Fernando H, and Enzo Faletto. 2002. *Dependency and Development in Latin America*. Translated by Shan Chu. Beijing: World Affairs Press.

[2] Cardoso, Fernando H. 1973. "Associated-Dependent Development: Theoretical and Practical Implications." In *Authoritarian Brazil, Origins, Policies, and Future*, edited by Alfred Stepan. New Haven: Yale University Press.

[3] Clelland, Donald A. 2014. "The Core of the Apple: Dark Value and Degrees of Monopoly in Global Commodity Chains." *Journal of World-System Research*, 20(1): 82-111.

[4] Cox, Robert W. 2006. *Production, Power, and World Order: Social Forces in the Making of History*. Beijing: Peking University Press.

[5] Deloitte. 2018. "Global Powers of Retailing 2018." https://qtxasset.com/cfoinnovation/field/field_p_files/white_paper/deloitte_cip-2018-global-powers-retailing.pdf. (Accessed January 14, 2020).

[6] Evans, Peter. 1979. *Dependent Development: The Alliance of Multinational, State, and Local Capital in Brazil.* Princeton: Princeton University Press.

[7] Fan, Jianting. 2015. "How to Understand and Measure Foreign Technology Dependence under Open Economy." *Forum on Science and Technology in China*, No.1: 45-50.

[8] Frank, Andre G. 1969. *Capitalism and Underdevelopment in Latin America: Historical Studies of Chile and Brazil.* New York: Monthly Review Press.

[9] Gereffi, Gary, John Humphrey, and Timothy J. Sturgeon. 2005. "The Governance of Global Value Chains." *Review of International Political Economy*, 12(1): 78-104.

[10] Gereffi, Gary. 1994. "The Organization of Buyer-driven Global Commodity Chains: How U.S. Retailers Shape Overseas Production Networks." In *Commodity Chains and Global Capitalism*, edited by Gary Gereffi and Miguel Korzeniewicz. Westport: Praeger.

[11] Huang, Guangcan et al. 2018. "Accounting Research on the Global Value Chain Division of China's Manufacturing Industry." *Statistics & Information Forum*, 33(12): 20-29.

[12] Institute for Global Innovation and Development. 2019. *China-U.S. Science and Technology Competitiveness Assessment Report.* Shanghai: East China Normal University.

[13] Internet Data Corporate. 2020. "Smartphone Market Share." https://www.idc.com/promo/smartphone-market-share/vendor. (Accessed January 14, 2020).

[14] Koopman, Robert, et al. 2010. "Give Credit Where Credit Is Due: Tracing Value Added in Global Production Chains." https://www.nber.org/papers/w16426.pdf. (Accessed January 16, 2020).

[15] V.I. Lenin. 2012. *Selections from Lenin*. Translated by Compilation Bureau of the CPC Central Committee. Beijing: People's Publishing House.

[16] Li, Bin. 2017. *International Political Economy: The Relationship Between Market and State from a Global Perspective*. Nanjing: Nanjing University Press.

[17] Liu, Lin. 2015. "Measurement and Analysis of China's Participation in the Global Value Chain-based on the Value-Added Trade." *World Economy Studies*, No.6: 71-83+128.

[18] Marx, Carl, and Friedrich Engels. 2012. *Selections from Marx and Engels*. Translated by Compilation Bureau of the CPC Central Committee. Beijing: People's Publishing House.

[19] Ministry of Commerce of the People's Republic of China. 2019. "Global Value Chains and China's Value-added Trade Accounting Report." http://gvc.mofcom.gov.cn/Tjbh/inforimages/201912/2018jzlbg.pdf. (Accessed January 15, 2020).

[20] Organization for Economic Cooperation and Development. 1996. "The Knowledge-Based Economy." http://www.oecd.org/officialdocuments/publiedis-playdocumentpdf/? cote=OCDE/GD%2896%29102&docLanguage=En. (Accessed January 5, 2019).

[21] Santos, Theotonio D. 1970. "The Structure of Dependence." *American Economic Review*, 60(2): 231-236.

[22] Santos, Theotonio D. 2016. *Imperialism and Dependence*. Translated by Yang Yanyong et al. Beijing: Social Sciences Academic Press.

[23] United Nations Conference on Trade and Development. 2011. "World Investment Report 2011: Non-Equity Modes of International Production and Development." https://unctad.org/en/PublicationsLibrary/wir2011_en.pdf. (Accessed January 10, 2020).

[24] United Nations Conference on Trade and Development. 2013. "World Investment Report 2013: Global Value Chains: Investment and Trade Development." https://unctad.org/en/PublicationsLibrary/wir2013_en.pdf. (Accessed January 10, 2020).

[25] United Nations Conference on Trade and Development. 2018. "World Investment Report 2018: Investment and New Industrial Policies." http://unctad.org/en/PublicationsLibrary/wir2018_en.pdf. (Accessed January 10, 2020).

[26] Wang, Yixuan, and Xue Yu. 2019. "Analysis of the Standard Essential Patents Layout of 5G." *China Invention & Patent*, 16(9): 27-31.

[27] World Intellectual Property Organization. 2017. "World Intellectual Property Report 2017: Intangible Capital in Global Value Chains." https://www.wipo.int/edocs/pubdocs/en/wipo_pub_944_2017.pdf. (Accessed January 14, 2020).