

Economic Development in Developing Countries: Some New Trends

By Prof. Minquan Liu, Professor of Economics, Honorary Director of Center for Human and Economic Development Studies, Peking University

I. Abstract

The rapid emergence and expansion of regional and global production chains, powered by increased deepening and intensification of production fragmentations, has fundamentally reshaped the conditions for industrialization and economic development for many developing countries and economies. No longer do they have to compete with one another, and with developed countries, by producing whole products; they now need only be good at producing some components, or sub-components, of them. This at once lowers the technological thresholds facing a country, and offers its small and medium sized enterprises (SMEs) great scope of integrating with the regional and global chains. Some of the most spectacular economic development successes in the world in recent decades (e.g. that of China) can, at least in part, be attributed to this fact. And the same should hold true for other developing countries and economies—those that, as it were, have not yet been able to benefit much from the change. This paper first explains what has been so fundamental that has had critical implications for the world regime of production, and for that reason for the conditions for and opportunities of industrialization and economic development for the vast reach of developing countries and economies. It then highlights the key changes in the conditions for and opportunities of industrialization for these countries. However, these improved conditions and opportunities also bring with them increased possibilities and levels of shocks and risks, which the paper then explores.

II. Introduction

This rapid emergence and outreach of regional and global production networks, powered as they have been by a rapid deepening and intensification of production fragmentation, has fundamentally reshaped the conditions for industrialization and economic development for many nations and economies. Some of the most spectacular economic development successes in recent decades in the world (e.g. that of China) can, at least in part, be attributed to this worldwide change. It is likely that the same will continue to shape the trend of economic and social change and development for other countries and economies—those that, as it were, have not yet been able to benefit as much from the change.

However, the new improved prospect of industrialization and economic development in many developing countries is not without threats of increased shocks and risks. If anything, these countries and their development processes may be subject to even greater shocks and risks than before. However, even if the effect of these possible shocks and risks may be felt disproportionately by different countries, it is unlikely to be limited to any one country. In a real sense, never before were the destinies of different countries and nations so deeply interwoven together than now.

In this e-Newsletter, I will first explain what is so fundamental that has been changed, with critical implications for the conditions for and opportunities of industrialization and economic development in many developing countries. I will then highlight the key changes in these conditions and opportunities. However, these improved conditions and opportunities also bring with them increased possibilities and levels of shocks and risks, which I will briefly explore at the end of the paper.

III. Regional and Global Production Networks and Production Fragmentation

While there are multiple definitions, most commonly supply and value chains refer to a system of organization, people, technology, activity, information and resources involved in producing and moving a product or service from supplier to customer (APEC, 2012, p.2). However, whereas a supply chain focuses on transforming natural resources and components into some finished product to be delivered to the end customer, covering the entire chain of activities from the initial production to final delivery, a value chain encompasses “the full spectrum of value-added activities required to bring a product from its conception, through design, sourcing raw materials and intermediate inputs, production, marketing, distribution and support to final consumers” (APEC, 2012, p.2). Another way of characterizing the difference between the two concepts is to say that while a supply chain concerns the production, distribution and marketing of an actual good and service, a value chain encompasses value creation at each stage of the same cycle.

Needless to say, any typical supply or value chain will involve production. That part of the same chain is known as a production chain or network. Specifically, a production chain refers to the linkages within a group of firms for producing a given product or service, within a given supply or value chain. Thus a production chain would detail how a lead firm or lead firms arrange the network of suppliers of raw materials, parts and components to produce a given final product, where a lead firm typically controls the key resources and carries out key activities such as product design, international branding, access to the final goods or service market, thereby being able to maintain its critical influence over the other suppliers in the production network.

Figure 1 depicts the key difference between a value chain, supply chain and production chain.

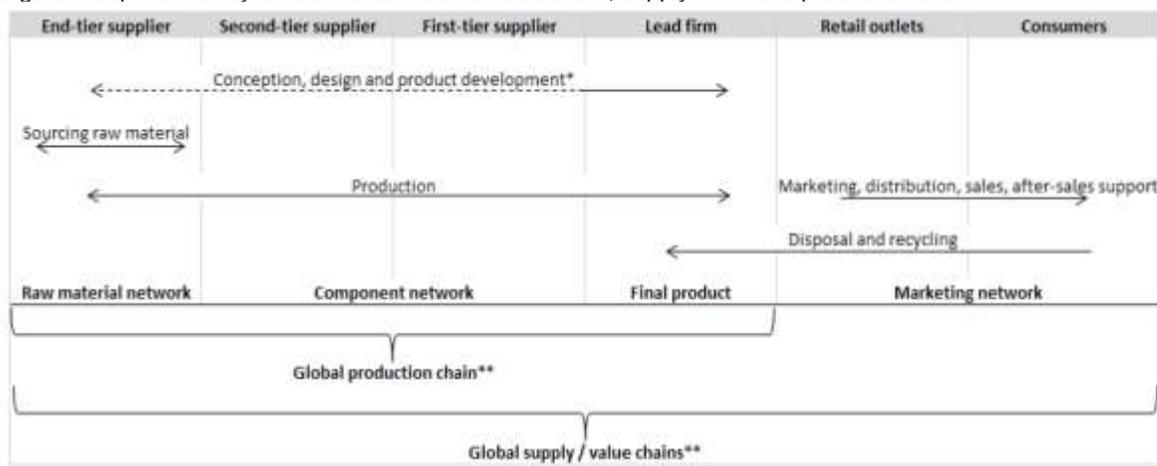


Figure 1: Global Value/Supply/Production Chains

Source: APEC (2012, p.4).

These recent developments are sometimes called production fragmentation, whereby an otherwise single production process is fragmented into many phases each producing only one part or one component that makes up the product formerly produced by the single production process (Jones and Kierzkowski, 1990; Fujita and Thisse 2006). Typically, the product in question is a “final” product, but with increased levels of

offshoring. Sometimes, they may also relocate some of their activities away from their home country to other countries. This is known as *outsourcing*. Today, dense crisscross regional and global production networks have formed in connection with a long range of products and services. Further, this trend is still gathering pace. However, compared with supply and value chains, these dense crisscross regional and global production

networks have been only a rather recent phenomenon, particularly only over the last few decades. During this time, trade and investment liberalization and global, regional and bilateral free trade agreements, accompanied by improved transportation facilities and new information and communication technologies (ICT), reduced transaction and other cross-border operation costs substantially (Fujita and Thisse 2006; Lim and Kimura 2009; Wu et. al, 2006). This intensified competition and exerted enormous pressure on firms to expand into new markets and production bases, reduce costs, and improve profit margins. In particular, firms began to subcontract more and more of their former activities to other firms. This is known as production fragmentation it could even be a part or component that goes into the production of a final product. The important point about production fragmentation is that each of these production phases (or sub-phases) could be performed or subcontracted to be performed by plants located far across national boundaries and, indeed, on different continents. Since these firms are each engaged at one node of the full production process, they are said to form a production chain or network. The consequences of these trends in reshaping the conditions for and opportunities of industrialization and economic development for developing countries are at once significant and far-reaching.

Figure 2: Role of SME in Global Production Chains

Source: UNIDO (2001); APEC (2013, p.8).

The reason why we emphasize SMEs is three-fold: First, when a whole production process is broken down into some rather fine phases, especially if this happens further and further upstream, these phases may well be tasks even an SME can accomplish. Secondly, in a typical developing country, especially one that has just embarked on the process of economic development or industrialization, or is still going through its early phases, most firms are likely to be SMEs. Thirdly, given their cost advantage and strong desire to expand by joining some regional and global production chains, these are likely to be exactly the firms that a lead firm from a chain will be seeking to partner with (Harvie, 2010; Harvie et al. 2010).

Note that competing models of global value/supply/production chain exist that have implications for the role of SMEs in these chains. APEC (2012) identifies three main types of value chain: producer-driven, buyer-driven, and multi-polar. These chains differ according to the position and the role of the lead firm (the transnational corporation that controls the chain) vis-à-vis those of the other players in the chain. It is, however, not possible to go into the full implications of these competing models for the opportunities they offer to a developing country SME.

IV. Lead Firms and SMEs

Production fragmentation through outsourcing has often meant that small and medium-sized firms (SMEs) may now become involved in production processes, in ways that were unimaginable before. Moreover, through offshoring, these SMEs need not be from the same country as the lead firm, which is likely to be from a developed country, but can come from a developing country as well (Fujita and Thisse, 2006). Formerly, a lead firm might have concentrated and managed the entire production process in only a few locations within its own home country borders, and sold its finished products across borders. With outsourcing and offshoring, it can now spread the disparate production activities (all necessary for producing the final product, or necessary for the production of some standard component to the final product) across a whole region or the entire globe. As before, a production chain is led by a large firm, but it now need not contain just the large firm. Rather, it can now be assisted by a whole hierarchy or tiers of SMEs, many of which can be from developing countries. Typically, in these cases, the lead firm is a multinational firm, which controls many of the activities across the borders.

Figure 2 provides one possible illustration of a global production chain. Note that in this depiction, SMEs are differentiated by their role and the added value they make within the global chain. End-tier suppliers are SMEs

that extract and process raw materials needed to make the components for the final product. Second- and third-tier suppliers are SMEs that use the processed raw materials from end-tier SMEs and turn them into various components (or components of components) for the final product. The first-tier firms are where the final-stage components are consolidated and assembled to create the final product. Note that the SMEs in each succeeding tier, in the downstream direction, are expected to be larger in scale than its immediate upstream partners.

V. Changed Opportunities of Industrialization for Developing Countries

These new global trends have critical implications for the opportunities of and conditions for industrialization and economic development in developing countries. As a result of these vast, dense, increasingly closely interwoven and interconnected networks of production that usually span a whole region or the entire globe, premised on principles of cost advantage, outsourcing and offshoring—in short production fragmentation, those developing countries that aspire to industrialize could now do so by simply joining and integrating with these production networks. No longer do they have to technologically master and duplicate the whole production processes in producing some given final products, and compete on that basis with other manufacturers or countries, whether through export-led (i.e. proactively reaching out to the international markets) or import-substitution (i.e. replacing imports with domestically produced ones) strategies. Rather, they need now only be good at producing some component, or sub-component, that goes into the production of the final products, and still be able to reach out to the international markets (i.e. by joining the regional and global production networks), and cater for their domestic markets. Admittedly, they now do so only on a component or sub-component basis, and not on a whole-product basis as before. However, overtime, they might well be able to compete internationally exactly on that basis (especially if their economies are sufficiently large), or at least technologically move up the ladder of the international production chains in question.

Clearly, this immediately opens up entire new spaces of technological possibilities for industrialization in developing countries, in several respects. First, the technological thresholds for large scale industrialization in these countries are thereby significantly lowered. Needless to say, one expects the technological capabilities required for producing some component of a final product would be significantly less than those required for producing the whole product (or at least most parts of it), as would be the case under the old regime.

Secondly, no longer do these countries have to build sufficiently large scale and technologically advanced industrial complexes or manufacturing bases in order to industrialize, which would typically be required if they needed to produce whole products. Instead, now even some suitably positioned and technologically equipped SMEs could join and, indeed, lead the industrialization processes in their country. This point is especially important since, as emphasized previously, typically firms from a developing country are SMEs. This is because, in general, SMEs only require much less financial resources and organizational and management skills to set up and run efficiently, compared with the large firms. As a result, they are much more ready to spring up in the economic environment of a typical developing country, where these resources and skills are usually lacking.

Thirdly, because international competition under the old regime typically takes place on a product basis, many small countries and economies are, in fact, denied much possibility of industrializing as their economies are simply not large enough to support the require scales of investment in many industries. They may be able to produce certain whole-products, but the list of these must be very short. True, these economies may form some regional common market or economic union, but the international political processes that may eventually yield such common markets or economic unions can be expected to be very long and often fraught with difficulty.

Fourthly, while in theory possibilities exist, in practice, because the technological thresholds for developing countries to industrialize under the old regime can be so high, these countries may not stand any real chance to cross them. In order to cross them, these countries would need first to engage in the process of industrialization, since only then, perhaps through learning by doing, may they be able to cross these thresholds. However, under the old regime, given their particular circumstances, they may be denied exactly such chances of learning by doing.

Viewed in the above light, the newly opened-up spaces of technological possibilities are nothing short of revolutionary in terms of improving the prospect of industrialization in a typical developing country. But the new regime of industrialization is revolutionary in other respects too. Under the old regime of international production, countries typically operate as closed economies and any industrialization effort in these countries by and large takes place on that basis. Being closed economies, such industrialization initiatives typically face two severe constraints, that of domestic savings and that of foreign exchanges, as these are usually in short supply in a developing country. Called the twin deficits, the problem is further accentuated by the sheer lumpiness that is associated with national industrialization initiatives under the old regime of production. Often, in order to reach the technological threshold associated with these initiatives, vast amounts of domestic investible resources and foreign exchanges (for buying any necessary foreign inputs) are needed, but the countries in question may not have these amounts. They are in the end forced to abandon these initiatives. Under the changed regime of international production, firstly, a lowered technological threshold means reduced scales of necessary investments for any one industrialization initiative to materialize, that is, a reduction in lumpiness. Secondly, with reduced barriers to and generally improved environments for inflows of foreign capital, both deficits—the domestic savings and foreign exchange deficits—are thereby significantly lessened. Countries may still face these deficits, but in much less acute forms than before.

An important case is foreign direct investment (FDI). Not only does it mean a reduction in the above mentioned twin deficits, often it also implies an inflow of foreign technologies (or technology spillovers, both hard and soft), management skills, and accesses to foreign markets, all of which tend to be in short supply in a developing country, be it at the beginning or in the middle of its industrialization processes. Moreover, FDI often takes the form of offshoring by a large multinational company. When this is so, it can even directly act as a hub for host-country firms (often SMEs) to become integrated with existing regional or global production networks. In doing so, and over time, these firms themselves may become a core part of these networks.

VI. New Challenges of Industrialization

The above mostly concerns changed technological possibilities and opportunity sets of industrialization for developing countries under the new regime of deepening production fragmentations and increasingly denser regional and global production networks. The same has, however, also implied a new set of conditions for industrialization, or a new set of challenges, facing developing countries. Below we highlight the two most important ones.

The first has to do with the transport and information and communication (ICT) infrastructures. As noted previously the rapid deepening of production fragmentations and rapid expansions of regional and global production networks have become possible only because they significantly reduced production costs. A number of factors have been responsible for this. The first is the strong worldwide trends in international trade and investment liberalizations, which have occurred in recent decades. Another is the end of the Cold-War and the breakdown of the East-West divide. However, while the effect of these factors should be by and large be common to all countries (as they should have impacted each country in more or less the same way), the effect of the third factor is not, which is related to the advent of new ICT technologies and radical improvements in transport infrastructures. Indeed, the countries that have benefited most from the new regime of regional and global production seem to be precisely those that have made greatest investments in these infrastructures. This only stands to reason, given the need for constant and even real time communications as are necessary in the case distant cross-board operations, and the much increased volumes of cargo and personnel traffic as are implied by the new regime of regional and global production. Without a sound transport and ICT infrastructure, the cost reductions promised under the new regime of production will fail to materialize. The challenge for new industrializing countries is, therefore, to radically and rapidly invest in these infrastructures such that they are in a position to support these countries in becoming truly integrated with existing (and new) regional and global productions networks that are most suited to the countries' circumstances.

The second challenge has to do with human capital. In his classic paper on the need for labour transfer, Arthur Lewis (1954) modeled the process of modern economic development as one whereby surplus labour is transferred from agriculture to industry, without stressing the need for human capital investment and accumulation necessary for such transfer to effectively take place. Liu (2013) placed such investment and accumulation at the center of his model of economic development, whereby labour transfer from a low-productivity to a high-productivity sector can take place only if a worker has received a certain level of education. In this model, economic development is assumed to proceed through transfers of labour from the former sector to the latter sector, which need not but usually does take the form of industrialization.

Under the new, changed regime of international production, even though developing countries now face much greater possibilities and scopes of industrialization, the need for necessary human capital accumulation is still there. Without its population being equipped with adequate levels of education and skills, it will be difficult for any country to take advantage of such increased possibilities and improved opportunities. In the final analysis, all things depend on having the right human capital. Indeed, since, under the new regime, all national initiatives of industrialization are almost necessarily subject to strong international competitions, the outcome of which often depends on human capital (and the above mentioned transport and ICT infrastructures), the need for any one country to invest in education and human capital formation more generally, and thereby to succeed in industrialization, is even greater than before.

VII. Vulnerability of the Production Chains

While the massive growth of regional and global production networks has brought about expanded opportunities of industrialization to developing countries, and technological spillovers, it has also brought about greater vulnerability to the supply chains. In a sense, the extension of a given production network or supply chain to regional and global scales is necessarily coupled with increased vulnerability of the whole supply chain (Wagner and Neshu, 2010). When firms are no longer restricted to their traditional local markets, they are then exposed to much greater risks of changing supply and demand conditions. For example, "...offshore suppliers may be less expensive, but require longer lead-time and may be more susceptible to disruptions in the transportation system" (Sheffi, 2001, pp.1-2). Indeed, firms are now "vulnerable not only to their own assets, but also to attacks on their suppliers, customers, transportation providers, communication lines, and other elements in their ecosystem."

Real world cases to this effect abound. For example, following the international terrorism on September 11, 2001, disruptions occurred widely to the flows of materials to the assembly plants, as well as to product demand. Also, certain natural catastrophes such as the Indian Ocean Tsunami in 2004, the earthquakes in Weichuan, China, in 2008, and in East Japan in March 2011, and political instabilities in many regions of the world, have added their shocks to the system.

These shocks might not have exacted as heavy tolls as they did if certain complex supply chain management practices and processes were not in place. However, as a result of increased international competitions brought about by extensions of otherwise local supply chains to regional and global scales, firms came under strong pressure to reduce prime costs of production and cycle times. Many, therefore, practiced what is known as "lean supply chains" with minimal inventories to cut costs. Practices like "Just-in-Time" and "Just-in-Sequence" inventory management were widely adopted. Many firms also chose to offer a broad range of products or product variants in order to satisfy customer-specific needs in different markets (Thun and Hoenig, 2009). Kroes et al. (2010) discussed how the congruence between drivers of outsourcing and firms' competitive priorities impacted the nature of supply chains using evidence from some manufacturing sector dataset of the US.

These supply chain management practices only tended to further increase the high level of vulnerability that was already embedded in the system, making a given supply chain even more vulnerable to unexpected events, and making *ex post* recovery even more difficult to undertake. *Ex ante*, of course, the chances that such events may occur also engender a great sense of uncertainty among the partners of a supply chain, influencing their decision

making and behavior in a significant way. Indeed, the uncertainty that is almost necessarily associated with a complex supply chain and a highly dynamic business environment can itself cause great disturbances to the supply chain.

The above analysis may be seen as primarily from the viewpoint of a large, lead firm, which is typically from a developed country. But SMEs from developing countries in these supply chains may be expected to be subjected to even greater vulnerabilities, for they “usually operate under weaker cash flow and less equity reserves”, which means that they usually “do not have capacity to compensate for occurring incidents or buffer themselves against supply chain risks” (Thun et al., 2011, p.5513).

Wagner and Bode (2008) classified supply chain shocks or risks into the following five categories: (1) demand side; (2) supply side; (3) regulatory, legal and bureaucratic; (4) infrastructure; and (5) catastrophic. Of these the first two are risks coming from within the supply chain, and the others are from outside the supply chain.

VIII.

Conclusion

In his classic paper, Arthur Lewis (1954) modeled modern economic development primarily as processes of transferring labour from the low-productivity sector of agriculture to the high-productivity sectors of industry and services. That remains the essence of modern economic development, and the principal challenge to most developing countries. However, the general circumstances for this development to take place have radically changed. Thanks to deepening production fragmentations and the emergence of vast dense regional and global production chains in the production of an extensive range of goods and services, firms and countries no longer have to compete with one another on the basis of producing whole products, but of being good at producing some component of them. This at once vastly lowers the barriers to industrialization and expands the opportunities for developing countries to do so. Countries can now industrialize by joining those regional and global supply chains most suited to them and, moreover, they may be able to do so by relying on SMEs, of which they may have abundance, rather than through building new huge industrial complexes and conglomerates.

The new regime of regional and global production has, however, also meant new challenges to developing countries. The two top ones are the need to invest in their transport and ICT infrastructures and in human capital. Without adequate transport and ICT infrastructures, and adequate stocks of human capital, the chances of a country successfully joining and integrating with existing or emerging regional and global production chains are remote. In the preceding few decades, countries that have industrialized and developed fastest in the world are also countries that have successfully met these two key challenges. One expects this correlation to remain valid in the forthcoming decades.

While the new regime of regional and global production has brought huge benefits to developed and developing countries alike, it has also meant greater vulnerabilities for firms and countries to unexpected events. To what extent might such vulnerabilities be successfully reduced remains to be established. But any reduction in them would be in the interest of each and every country.

Opportunities and Key Upcoming Events:

- Africa-China Sustainable Trade and Investment Conference 8th – 10th May 2018, Djibouti. Interested business men and companies may contact the organizers through Center of Excellence International Consult
- AU ECHO 2018 ‘Winning the Fight against Corruption: A Sustainable Path to Africa’s Transformation’, Call for papers. Send your manuscript to the Editor at MusabayanaW@africa-union.org with a copy to LeslieR@africa-union.org and Sehenemariamh@africa-union.org

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Physical Address

Dembel City Center (Bole Road and In front of
Ethiopian Investment Commission)
12th Floor, Office No. 1205
Addis Ababa, Ethiopia
P.O. Box 26581/1000
Tel: +251 11 864 15 84
Mobile: + 251 911 88 74 22/922 11 24 45
E.mail: centerofexcellenceinterconsult@gmail.com

Contact Persons

Gedion G. Jalata
Chief Executive Officer (CEO)
Addis Ababa, Ethiopia
Tel: +251 911 88 74 22/ 922 11 24 45
E.mail: centerofexcellenceinterconsult@gmail.com gediongam@yahoo.com /gediongam@gmail.com
Skype: gedion.jalata

Ms. Bersabeh Hailu,
Addis Ababa, Ethiopia
P. O. Box: 26582/1000,
Tel: +251 11 864 15 84 / +251 911 61 85 15
E.mail: centerofexcellenceinterconsult@gmail.com

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