Technological Advancement as a Major Determinant of the North/South Divide

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Abstract

Technological advancement has been a major determinate of North - South divide where the North is regarded as the principal source of technical knowledge to the South. Nevertheless, as new economic powers emerge in the South, the scene of international technology advancement is changing rapidly. Many South-South endeavors on Technological advancement are on the rise. Thus, a new model technological advancement is gaining momentum, in particular the South-South Model of transfer of technology. How did South-South cooperation in the field of Technological advancement evolve? How did the rise of the South affect the North-South conflict in the context of transfer of technology? What is the impact of the South-South cooperation in the field of technological advancement on the North.

Keywords: North-South Divide, Technological advancement

Introduction

At the present time many developing countries look at technological advancement as a major driving force to achieve sustainable development. This trend is commensurate with the fact that technology has played a paramount role in economic development. In fact, Robert Solow observed that economic growth cannot only be attributed to increases of capital and labor, technological innovation also plays a major role in achieving economic growth.

Historically, developing countries have looked North as a source of technology. Indeed, many international instruments tackle the issue of technology transfer as

a North-South issue. These instruments often impose obligations on developed countries towards developing countries. Examples of this trend include a number of WTO agreements (eg the General Agreement on Trade in Services (GATS), the Agreement on Trade-Related Aspects of Intellectual Property Rights (TRIPS), the Technical Barriersto Trade (TBT) Agreement, the Agreement on the Applicationof Sanitary and Phytosanitary Measures (the SPS Agreement)).

Nevertheless, as countries of the South start to gain extensive shares in world trade, new windows for South-South Cooperation (SSC) begin to open. To illustrate, the output of the three leading world economies, Brazil, China and India, is about to equal the combined output of traditional leading industrialNorth countries (Canada, France, Germany, Italy, the United Kingdom and the United States). South investments in other South countries have increased dramatically. Multinational companies from India, Brazil and South Africa are investing heavily in Africa, Asia and Latin America. The second largest investor in Sub-Saharan Africa is the Indian conglomerate Tata. Furthermore, an UNCTAD report provides that South-South trade has overstepped North-South trade in respect of capital goods in many developing countries.

Meaning of South- South Cooperation

What is meant by South-South Cooperation? The UN suggested that South-South Cooperation is: a process whereby two or more developing countries pursue their individual and/or shared national capacity development objectives through exchanges of knowledge, skills, resources and technical know-how, and through regional and interregional collective actions, including partnerships involving Governments, regional organizations, civil society, academia and the private sector, for their individual and/or mutual benefit within and across regions.

But, it is important to note that SSC is not a new endeavor. As we shall see, SSC dates back to the 1950s, with China and India leading the way. Also, a number of OPEC countries joined the South-South development trend. For instance, The Kuwait Fund for Arab Economic Development (KFAED), which was set up in 1961, was the first fund of its kind established by a developing country. While the Islamic Development Bank (ISDB) and the Arab Bank for Economic Development in Africa (BADEA) have been active since the mid-1970s. of developed country

Members towards least-developed-country Members in respect of transfer of technology; see also, World Trade Organization, Ministerial Declaration of 14 November 2001, WTO Doc. WT/MIN(01)/DEC/1, 41 ILM 746 (2002) (Doha Declaration) paragraph 37 which addresses Technological advancement to developing countries and calls for recommendations and steps to increase Technological advancement to developing countries.

At the multilateral level, in 1964 many countries of the South (known as the G77 referring to the number of the countries that in itiated the movementat that time) putpressureon the UN in order to accommodate their aspirations of promoting SSC for development. The creation of the G77 was closely connected to the UN Conference on Trade and Development (UNCTAD). Thus, it can be fairly said that SSC finds its roots in the Bandung Conference, the Non-Aligned Movement, the creation of the G77 and the UNCTAD.

Ultimately, the UN has established the United Nations Office for South-South Cooperation (UNOSSC) to, inter alia, promote cooperation among the countriesof the South including Technological advancement as well as triangular cooperation. In addition, several international fora have made initiatives in respect of SSC including the
UNDP, UNIDO and the UNEP.

As SSC flourishes, many fields of cooperation begin to emerge, including technology transfer. Many emerging economies have achieved a high degree of progress in the field of technology and therefore have the capacity to transfer this knowledge to other countries of the South. In fact, a study has estimated that about 40 percent of the world researchers are in Asia.

Currently, there are many endeavors involving technology transfer between developing countries. The Marrakech Declaration, issued under the auspices of the G77 in 2003, recognized that 'South-South cooperation is not an option but an imperative to complement North-South cooperation'. The Marrakech Declaration further recognizes that:

> … South-South cooperation has experienced successes and failures which are linked, in a broad sense, to the external international

> environment which influenced development policies and strategies. In the fifties and sixties, South-South cooperation has evolved and been developed in the context of the common struggle of developing countries to reach development and growth. The institutions for South-South cooperation were developed in this period, including G77 and NAM. These and other multilateral organizations, including UNCTAD, UNDP and other institutions of the UN system, helped formulate and articulate southern needs and concerns, and provided a framework for fruitful North-South dialogue and mutually beneficial relationships …

In addition, the Dubai Declaration for the Promotion of Science and Technology in the South (Dubai, 2002), passed in the realm of the Group of 77 South-South High-Level Conference on Science and Technology, called for:

> the promotion and development of knowledge and technology in the South; to encourage the institutions of the South to launch further initiatives to promote knowledge and technology in developing countries; to harness the potential of human resources, including expatriates, from the South for the benefit of developing countries; to address the challenges associated with brain drain; to create an enduring international environment to ensure the South's access to knowledge and technology; and to promote the central role of the United Nations in removing different barriers faced by the South in the acquisition of knowledge and technology.

The Dubai Declaration indicated several sources for funding: development banks, collaborative programmes and networking. The Dubai Declaration solicited support from several 'international institutions such as FAO, UNCTAD, UNDP, UNESCO and others' to inter alia overcome the digital divide. In addition, several entities lent support to SSC through, inter alia, triangular cooperation. These entities include: the International Conference on Financing for Development, held in Monterrey in March 2002 and the World Summit on Sustainable Development, held in Johannesburg in August 2002.

Thus, it is important to look at the South-South Model of technology transfer since this area is not well covered in the academic literature. According to an UNCTAD report, there is scarce literature on South-South technological cooperation. In addition, much of the available literature focuses on certain issues such as public health and climate change. However, recently there has been a growing interest in addressing South-South development cooperation, including the transfer of technology. In particular, the role of China in Africa has received an immense amount of attention in the academic literature. Much of the emerging research addresses Technological advancement issues in the context of Chinese investments in Africa. Yet, Chinese involvement in Africa is viewed by skepticism by some commentators as a form of neo-colonialism. In any event, the assessment of the Chinese involvement in Africa merits another research endeavor. We shall confine our study here to a more generalized outlook of the rising South-South Model of Technological advancement.

The term 'South' emerged in the 1970s, and was to a great extent equivalent, but not identical, to other terms used to describe societies that encountered difficulties in achieving their economic and political goals. The Brandt Commission reports published in 1980 and 1983 popularized the term 'South'. It is not clear when the word 'Global' was attached to the term 'South'. Yet, it seems the use of the term 'Global South' was related to the rise of globalization. The UNDP initiative of 2003, 'Forging a Global South', further brought attention to the term 'Global South'.

In addition, it has been observed that economies of the South exhibit different degrees of development, thus, the term 'emerging market economies', or 'emerging markets', for simplicity, was introduced by Antoine van Agtmael in 1981 during his tenure as an economist with the International Finance Corporation (IFC). When the IFC was establishing the first-ever mutual development fund in developing economies, it was suggested that the term 'emerging market fund' be used instead of 'third world equity fund', being less offensive.

'Technology' and 'transfer of technology

Before discussing the evolution of the international legal regime governing transfer of technology, it is important to determine what is meant by 'technology' and 'transfer of technology'. Indeed, there is no precise definition of 'technology'

or 'technology transfer'. The definition of these terms often varies according to the discipline or perspective of the authors of these definitions. Economists, sociologists, anthropologists and management researchers have different accounts regarding technology and technology transfer.

As for 'transfer of technology', there is no consensus on a definition of transfer of technology. There are different definitions of Technological advancement which often differ from one scientific field to another. In developed countries Technological advancement is mainly understood as the process of Technological advancement between universities and research institutions to the relevant industry. The UNCTAD Code defines this term as 'the transfer of systematic knowledge for the manufacture of a product, for the application of a process or for the rendering of a service and [it] does not extend to the mere sale or lease of goods'.

These processes often include, according to the UNCTAD Code:

> (a) The assignment, sale and licensing of all forms of industrial property, except for trade marks, service marks and trade names when they are not part of Technological advancement transactions; (b) The provision of know-how and technical expertise in the form of feasibility studies, plans, diagrams, models, instructions, guides, formulae, basic or detailed engineering designs, specifications and equipment for training, services involving technical advisory and managerial personnel, and personnel training; (c) The provision of technological knowledge necessary for the installation, operation and functioning of plant and equipment, and turnkey projects; (d) The provision of technological knowledge necessary to acquire, install and use machinery, equipment, intermediate goods and/or raw materials which have been acquired by purchase, lease or other means; and (e) The provision of technological contents of industrial and technical co-operation arrangements.

It is commonly observed in the academic literature that the main channels of Technological advancement are: trade, foreign direct investment (FDI), licensing and movement of people.

The UNCTAD Code definitions of 'technology' and 'transfer of technology' are considered one of the most precise and comprehensive definitions in that respect. However, the said definitions are not all inclusive as they were mainly contemplated to apply to cases of Technological advancement between private parties rather than other channels such as intergovernmental technical cooperation. The reason for that lacuna might lie in the fact that the UNCTAD Code was mainly a result of a developing countries' initiative to counteract restrictive clauses employed by firms from the North operating in the field of technology transfer.

Moreover, it has been recognized that mere possession of technology is not enough to secure development. Instead, building an infrastructure in the host country that is capable of absorbing and developing technology is the key factor in achieving technological development.

Furthermore, one must distinguish between Technological advancement and technology diffusion. One must also differentiate between importing technology and developing technology. Technology transfer is different from technology diffusion. Technology diffusion can be generally described as 'the progressive adoption of a particular kind of technology among a given population'. Technology diffusion includes 'spill-over' effects to other sectors of the economy of a host state. Technology spillover can be defined as the 'unintentional technological benefits to firms that come from the research and development efforts of other firms without the costs being shared'. It is also important to note that Technological advancement occurs through agreement between at least two parties, while technology diffusion is not a bilateral transaction.

Another important point to make is the distinction between importing technology and developing technology. Indeed, it has been recognized that mere possession of technology is not enough to secure development. Instead, building an infrastructure in the host country that is capable of absorbing and developing technology is the key factor in achieving technological development. It is observed that Technological advancement involves an open choice by the host state regarding whether to import or produce technology. However, for a host state to opt to develop technology it needs to develop a sound absorptive capacity.

Nevertheless, it is important to note that the North-South Technological advancement usually involves state-of-the-art technology. However, if the host country lacks the absorptive capacity to capture the imported technology then a meaningful Technological advancement might not occur. By contrast, South-South Technological advancement involves technology that is often adapted to the needs of developing countries. Host countries are more likely to have the necessary infrastructure to absorb this kind of technology. Yet, South-South Technological advancement has a major drawback as it usually involves outdated technology (technology which is not state of the art).

The North-South Debate on Technological Advancement: Past and Present

In this section, we trace the origins of the North-South conflict on the transfer of technology. We start by looking at the struggle of the South to establish balanced international norms on the transfer of technology. And then we take an initial look at the evolving South-South endeavors on Technological advancement and how these endeavors compare to the North-South Model of transfer of technology.

The evolution of the issue of Technological advancement on the international level

At the present time, there is no holistic legal framework governing international transfer of technology. Technological advancement is usually regulated by various international instruments, such as multilateral agreements, regional trade agreements and bilateral agreements.

There have been many attempts to regulate Technological advancement at the international level. The UN supported numerous international initiatives to facilitate technology transfer to developing countries[76] with UNCTAD and WIPO further expanding these initiatives. It was clear that the most contentious issue impeding North-South Technological advancement was restrictive business practices. There were many unsuccessful attempts to resolve this conflict at the international level such as the 'Set of Multilaterally Equitable Agreed Principles and Rules for the Control of Restrictive Business Practices' promoted by the UN and the UNCTAD Code. As a result, in the 1970s and 1980s developing countries tried to regulate these restrictive practices by prohibiting the inclusion of certain terms in Technological advancement contracts and regulating excessive royalties.

Nevertheless, the UNCTAD Code is considered to be the most important endeavor in respect of the transfer of technology. Negotiations on the Code took place, on the initiative of developing countries, under UNCTAD auspices between 1976 and 1985. The most significant complaints regarding restrictive business practices related to grant-back provisions, export prohibitions and non-suitability of the imported technology to local needs. In our view, the restrictive business practices of developed country firms seems to render the process of Technological advancement a process of commercialization of technology rather than a genuine transfer of technology.

Although the UNCTAD Code was not adopted, it had a great influence on international law and policy regarding Technological advancement until our present time. The influence of the UNCTAD Code is evident in respect of many international instruments.

In the context of the TRIPS Agreement, the UNCTAD Code had an impact on articles 8.2, 31(k), and 40 of TRIPS. Yet, these provisions, particularly Article 40, are generally permissive rather than prescriptive in nature except for the right to consultations under Article 40.3.

In particular, Article 40.1 of TRIPS recognizes that licensing practices may have adverse effects on trade or may impede technology transfer/diffusion. Article 40.2 allows Members to prescribe anticompetitive practices which represent abuses of intellectual property rights (IPRs) and take measures to curb these practices provided that such measures are consistent with the other provisions of the TRIPS Agreement. Article 40.2 further provides a non-exhaustive list of such practices, including exclusive grantbacks, clauses preventing validity challenges and coercive package licensing. We shall not further elaborate on this issue since it is well covered in the academic literature.

Looking at the evolution of the discourse on transfer of technology, it is clear that the North-South divide continues to shape the international scene of transfer of technology. The North is pushing for a 'competition-based approach' to the Technological advancement and an enhanced IPR protection regime, while the South takes a 'development-based approach' to the Technological advancement

and a balanced IPR legal-framework. In fact, the initiation of the international discourse on Technological advancement by developing countries has been a reaction to the strict protection of IPRs by developed countries.

To sum up, the South is disappointed by the North's stance on Technological advancement at the multilateral level, especially in respect of IPRs. The North persists in expanding the WTO agenda with little involvement of the South and offers little in the way of assistance to catch up. Indeed, it has been asserted that technical assistance by the North is donor-driven, is hardly sufficient to secure 'capacity building' and is not politically neutral.

However, the UNCTAD Code was envisaged to apply equally to international transfer transactions whether the transfer takes place between developed and developing countries or between two developing countries. Yet, since the North has been the primary source of innovation and FDI to the developing world, South-South Technological advancement did not receive much attention at that time.

The emerging South-South Model of transfer of technology

The increasing role played by the South in the technology transfer market, particularly with other countries of the South, raises two questions: How is the South-South Model on Technological advancement different from the North-South Model? Is South-South Technological advancement more beneficial to developing countries than North-South technology transfer?

Before answering these questions, we would like to note at the outset that, when looking at the South-South Model of transfer of technology, it is important to bear in mind that the South-South Model is still developing and therefore it is too early to point to a concrete model.

Another point to take into consideration is that despite the fact that the sentiment that underlies South-South cooperation is the common heritage of the countriesof the South in their struggle towards political independence and economic development, this does not mean that the South is a homogeneous group. As indicated above, the South encompasses countries at different stages of

development. Even emerging economies exhibit different models of development cooperation. Thus, we cannot, at this stage, designate a distinctive South-South Model of transfer of technology. Yet, we can look at one of the major South-led development initiatives, namely the Belt and Road Initiative (BRI), to draw some inferences on what a South-South Model might look like.

First, the BRI calls for creating a win-win situation by creating 'prosperous and peaceful community with shared future'. Accordingly, while China adopts a 'noninterventionist approach' by keeping a low profile in its development cooperation policy, this has not been the policy of the North. The North's policies usually interfere with the domestic legal system of a given country and tie aid to the fulfillment of certain predetermined conditions.

Second, the North does not leave enough room for the South to participate in setting the development agenda. It has been contended that when the countries of the North provide technical assistance '[they] do so on their own terms; that is, they help implement highly protectionist regimes, without regard for the actual needs of developing nations'.

This one-sided approach is particularly evident in the TRIPS Agreement, which requires harmonization of IP-related laws across WTO Members. Yet, in contrast to the practice of many developed countries, China, in the context of the BRI in particular, does not seek harmonization among BRI countries. Specifically, the Joint Communique of the Leaders' Roundtable of the 2nd Belt and Road Forum for International

Cooperation states that:

> All states are equal partners for cooperation that respects openness, transparency, inclusiveness and [a] level playing field. We respect [the] sovereignty and territorial integrity of each other and affirm that each country has the right and primary responsibility to define its development strategies in accordance with its national priorities and legislation.

Third, as for dispute settlement, North countries seek to resolve the international Technological advancement trade-related issues through the WTO Dispute Settlement Body (DSB), while China has assumed a pacifist approach regarding dispute settlement in the context of the BRI, which emphasized resort to amicable diplomatic means of dispute settlement. However, recently China started to explore developing its own dispute settlement fora, such as the China International Commercial Court (CICC).

Turning to question two, is the South-South Model on Technological advancement more beneficial for the South than the North-South Model? Again, it is too early to provide a comprehensive assessment of the issue and we believe that the answer will be different in each case. However, we can make some initial remarks.

It has been noticed that there is a divide between countries of the South, namely, the divide between the 'emerging South' and the 'rest of the South'. It is suggested that the benefits of SSC are chiefly harnessed by the 'emerging South' to the detriment of the 'rest of the South'. Research has produced mixed results in respect of the beneficial results of South-South transfer of technology. In fact, it has been asserted that:

> … just being South–South does not ensure that such exchanges will not be subject to the same types of limitations present in [the] North–South dimension. Conflicting priorities, differing development narratives, and problems in the suitability of local technologies to other Southern countries' needs remain as problematic in South–South exchanges as in North–South.

To sum up, it has been claimed that:

> South-South co-operation (SSC) and North-South co-operation (NSC) arise from different historical backgrounds and have their own distinctive features. Over the past 60 years, they developed in parallel without much contact as two separate traditions of development co-operation. However, SSC and NSC share a common goal: to increase the well-being of people in developing countries. Despite differences in the terms they use, actors of NSC and SSC also share a set of principles for development co-operation.

Furthermore, Scoones et al. point out that one cannot adopt a simplistic view of SSC by viewing it as a utopic model of development or as a form of neo-imperialism. Accordingly, it remains to be seen whether a South-South Model of Technological advancement will materialize as a model distinct from the North-South Model or will it play a complementary role to the traditional North-South Model. The next section will attempt to inform this discussion.

The Impact of the South's Renaissance on the North: Domination or Cooperation?

With the rise of the 'emerging South' new players entered the Technological advancement field. Countries of the 'emerging South' started to invest and transfer technology to other countries of the South. It is widely held that the rise of SSC is likely to have a great impact on the development cooperation scene. These changes to the traditional North-South Model of Technological advancement have alarmed the North. It is suggested that the reaction of the North to these changes has evolved in the following sequence: 'from fear to cooperation and attempted capture'. We observe this trend in the context of the impact of South-South technology transfer on the North.

The Rise of the 'South' as a technology exporter

In this section, we will follow up on the North-South debate on technology transfer. In particular, the increased growth of the role of many South countries as technology exporters has evoked a sharp reaction from the North. Specifically, developed countries countered by raising a new concept to challenge South policies in respect of trade in technology, namely the concept of 'forced technology transfer'. The North is worried about the rise of South-South technology transfer since it may have the effect of creating rivals not only in the market of a Southern country exporting technology but also in the global market, especially in South markets where South technology is deemed to be more appropriate to the needs of these markets.

The concept of 'forced technology transfer' is employed, in our view, to preserve the North's dominance in the technology market, in other words, to defend the North South Model of technology transfer. This raises important questions: What

is meant by forced technology transfer? Why was this issue raised in this particular time?

In May 2018, a high-level meeting between Ambassador Robert E Lighthizer, United States Trade Representative, Mr Hiroshige Seko, Minister of Economy, Trade and Industry of Japan, and Mrs Cecilia Malmström, European Commissioner for Trade, was held. The parties issued a 'Joint Statement on Technology Transfer Policies and Practices'. The representatives condemned what they referred to as 'unfair', 'non-market based' laws and policies regarding the transfer of technology. In particular, the Joint Statement provides that: 'The Ministers confirmed their shared view that no country should require or pressure technology transfer from foreign companies to domestic companies, including, for example, through the use of joint venture requirements, foreign equity limitations, administrative review and licensing processes, or other means'.

The Ministers voiced their concern that these laws and policies will cause distortion to international trade, present unfair competitive disadvantages to their citizens and industries and have a negative effect on innovation. The Ministers further pledged their intentions to work together as well as with other like-minded partners in order to combat the alleged unfair trade practices in respect of technology transfer, including recourse to the WTO Dispute Settlement Body to resolve such disputes.

In our opinion, the issue of 'forced technology transfer' is a very vague concept. First, it is hard to provide a clear definition of the term 'forced technology transfer'. After all, the TRIPS Agreement has clearly stated that IPRs are an important vehicle for technology transfer, usually through IP licensing. Article 7 of TRIPS provides that the 'protection and enforcement of intellectual property rights should contribute to the promotion of technological innovation and to the transfer and dissemination of technology'.[112] Furthermore, Article 8 of the TRIPS Agreement states that:

1. Members may, in formulating or amending their laws and regulations, adopt measures necessary to protect public health and nutrition, and to promote the public interest in sectors of vital importance to their socio-economic and

technological development, provided that such measures are consistent with the provisions of this Agreement.

2. Appropriate measures, provided that they are consistent with the provisions of this Agreement, may be needed to prevent the abuse of intellectual property rights by right holders or the resort to practices which unreasonably restrain trade or adversely affect the international transfer of technology.

It is clear from Article 8 that WTO Members are free to adopt measures to remedy situations of the abuse of IPRs as well as to prevent anticompetitive practices or practices that have an adverse effect on transfer of technology. While this provision is binding on both developed and developing countries, the exact modalities for transfer of technology, especially through IPRs, is subject to aheated controversy. Indeed, what the rights and obligations of both technology donors (usually from the North) and technology importers (usually South countries) are is far from clear.

The answer to this question differs from jurisdiction to jurisdiction. North countries demand stronger protection of IPRs and are vocal about any regulatory measures that could, in their view, negatively impact these rights. South countries want to put in place a regulatory system to ensure that a real process of technology transfer shall occur and not just a process of commercial sale of technological products. Thus, the use of many regulatory measures by South countries such as performance requirements, control of restrictive clauses in technology transfer transactions and administrative review of contracts involving Technological advancement are rules which are usually imposed by Technological advancement laws in many countries of the South.

The position of the North on regulatory measures used by the South countries is puzzling. Is a patent law requiring disclosure of an invention as a ground for granting patent protection 'forced technology transfer'? Are 'local working requirements' in some patent laws forced technology transfer? Is imposing measures such as performance requirements as a condition to enter a market in the South considered a restriction on trade? In the same vein, is the reverse true? In particular, can one consider restrictive conditions imposed by technology exporters (usually private firms from the North) concerning the prohibition of the

modification of technology to suit local conditions or giving a degree of control of the facility of the technology importer to the technology exporter, impediments to trade by forcing technology importers to accept terms that are not conducive to the transfer of technology?

In respect of the disclosure of the invention as a ground for patent registration, Article 29 of the TRIPS Agreement provides that WTO Members must require patent applicants to disclose the invention in a sufficiently clear and complete manner so as to enable a person skilled in the art to carry out the invention. WTO Members may also require patent applicants to declare the best mode to carry out the invention — the 'best mode' requirement. Is disclosure of an invention forced technology transfer?

Do compulsory licenses, which are allowed by Article 31 of the TRIPS Agreement, constitute forced technology transfer? Is a state exercising its rights under Article 31 to issue a compulsory license to remedy anticompetitive practices by a patent holder considered forced technology transfer?

Moreover, the North tends to seek to resolve North-South conflict in respect of Technological advancement through the multilateral trading system, specifically through the WTO Dispute Settlement Body, while South countries resort to other international organizations and bodies which they perceive to be more accommodative of their concerns such as the UNCTAD. This double-track regulation of international Technological advancement issues was present from the early days of the inclusion of the Technological advancement debate in the international agenda. We believe that this 'double-track' approach in shaping the international Technological advancement legal regime will lead to a fragmented and incoherent result.

In addition, we note that North countries usually use the market as a benchmark to determine whether a technology transfer transaction is fair. However, this approach is problematic for a number of reasons: it is well established that there is a difference between government intervention to create a market where no market will exist absent government intervention and government intervention to influence the competition conditions in an established market. This issue has been

recognized in the case of measures employed to promote green energy. This observation can be generalized to the Technological advancement in other fields. Furthermore, North countries provide support for private firms in their attempts to acquire technology from universities and research institutions. To illustrate, the US government allows universities and other non-profit institutions that are supported by Federal Funds to hold IPRs to their inventions (private ownership of publicly funded research). Thus, Technological advancement in the North isnot entirely governed by the market.

To sum up, 'forced technology transfer' is a vague term that might go against the objectives of IPRs and FDI, as recognized in international instruments, of facilitating technology transfer. In addition, there are many success stories of cooperation in the form of North-South joint ventures, which means that the North-South technology transfer can be a ground of cooperation rather than confrontation. Indeed, it has been contended that 'the greater openness today of both developed and developing economies to foreign trade and investment means that the best opportunities for growth in sales and profits are increasingly available to companies of all origins'. We shall elaborate on this point in the next section.

Conclusion

The South-South Cooperation renaissance has presented a challenge to the North-dominated development model, including the North-South Model of technological advancement. Southern economic to enhance and coordinateSouth-South Cooperation as well as Triangular Cooperation. The United Nations Office for South-South Cooperation (UNOSSC) powers are increasingly replacing the North in the field of international transfer of technology. The North was initially alarmed by the new developments and then it changed course by attempting to capture the new trend of South-South Cooperation through promoting an alternative cooperation model, namely, TrC. Nevertheless, it remains to be seen whether the South-South Development Model will develop into a distinctive model or remain complementary to the North-South Model. To conclude, what can be deduced so far is that South-South Cooperation has the potential for dramatically changing international aid and technical assistance relations in the near future.

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