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IPRs, cross-border (collaborative) innovation and development challenges: a commentary

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Abstract: In this commentary, I consider the chapters by Papageogiadis & McDonald, and Giuliani, and Jacqueminet & Nieri, and how their insights on cross-border, collaborative innovation and intellectual property rights (IPRs) shed light on some of the challenges of economic development. Effective collaboration for both innovation and development is often challenging to achieve, particularly between firms of different nationalities, structures and industries. Generating positive development outcomes requires appropriate institutions to govern the interactions between private firms, MNEs and non-firm actors, particularly those associated with IPRs. Well-defined IPRs are indispensable for development, and when used intelligently and strategically, IPR policies have the capacity to be an important complementary asset within the industrial policies of host governments. However, when legislated and enforced mechanically by utilising a generic template for more advanced economies, they have the capacity to impede development and growth. There are high costs in enforcement and monitoring of the IPRs of domestic actors and MNEs. Resource constraints in the public sector of developing countries, especially the skilled human capital to evaluate sophisticated IPRs, is a significant bottleneck, exaggerated even more because a majority of the economic actors are in the informal sector.

Keywords, IPRs, development, policy, innovation, cooperation, enforcement, MNEs

1. Introduction

My intervention in this volume can best be described as an 'intermezzo', a term that I borrow from the musical world. An intermezzo is a composition which fits between other entities, for instance, acts in an opera, or other larger musical work that has been divided into distinct segments. Most often an intermezzo is a movement between two others in such a larger work, but occasionally it may well stand on its own. My aim is the former; the reader can judge for herself if I achieve the latter.

My intermezzo serves as a modest attempt to complement, with some humility, two excellent chapters in a uniformly excellent volume, cleverly titled "Cross-border innovation in a Changing World: Players, Places and Policies." These are all non-trivial themes. By any standards, cross-border innovation has evolved rapidly in the last 20 years, becoming geographically more inclusive and to varying degrees involving a surprisingly diverse set of actors across the globe. Even veteran observers and academics have been taken aback by the extensive and intensive (and one might argue, even 'democratic') spread

and span of cross-border innovation. Cross-border innovation has gone from a niche phenomenon associated with large MNEs, to a much more broad-based activity, and even micro and small enterprises now deliberately engage in formal innovation activities across borders (Narula and Zanfei 2006, Castellani and Zanfei 2006, Papanastassiou et al 2020).

As one of these 'veterans', what has especially captured my interest has been the collaborative aspect of cross-border innovation across these 'new' players, and the richness of these collaborative networks in a variety of new locations. Innovation has always been, by its very nature, dependent on collaboration, despite the romantic appeal of lone genius inventors. It is all the more so now. One of the hallmarks of globalization is that firms and organizations are inextricably bound together, as the systems of innovation literature has highlighted, and innovation relies deeply on these formal and informal collaborations, but also a complex web of informal and formal institutions (Narula 2003). These innovation networks and systems have become systematically cross-border, shaped by a variety of national, supranational and multinational policy actions and imperatives, and sometimes, *despite* reliable or well-structured formal policies and institutions. Indeed, it has made the concept of 'national' innovation systems increasingly redundant.

The two chapters in the scope of this intermezzo draw attention to a key factor in the globalization of innovation: intellectual property rights (IPRs). The convergence of IPR policies, both as a response to bilateral and multilateral international agreements (in particular, the ground-breaking Trade-Related Aspects of Intellectual Property Rights [TRIPS] agreement as a core part of the WTO agreements), and as part of national efforts to create more MNE-friendly regulatory environments, has played a significant role in the globalization of innovation (Athreye et al 2020).

Both chapters within my remit look at IPRs and cross-border innovation from different angles. Papageogiadis & McDonald examine what makes IPRs and their enforcement effective (and in facilitating MNEs to carry out innovative activities in a given host country. In underlining effectiveness of IPR enforcement, this chapter also raises the spectre of *ineffectiveness* of enforcement, and highlights that this is not always intentional. Indeed, what is clear is that even where the spirit of the law is willing, it requires complementary resources to enforce IPRs. It is perhaps worth emphasising that there is need

for considerable complementary specialised resources, something that is often scarce in many developing countries.

The chapter by Giuliani, Jacqueminet & Nieri focuses on how IPRs in this new era of globalization are designed (albeit unintentionally) in a way that discriminates against local knowledge suppliers that have limited resources and capabilities to defend their property rights. The Giuliani et al chapter addresses 'the dark side' of MNEs and globalization. It raises valid questions about the appropriation of indigenous knowledge by MNEs in the absence of clearly established property rights, and the role of universities as somewhat more dependable partners in acting more 'fairly' in the matter of acknowledging the role of traditional rights in a modern world where formal IPRs such as patents are increasingly the only recognised currency in a world where formal institutions are supreme.

The Giuliani et al chapter suggests that MNEs – whether foreign or domestic – are prone to opportunistic behaviour. This insinuation is not novel, and is to an extent justified. Indeed, there is considerable evidence to suggest MNEs continue to contribute significantly to societal inequalities (Narula and van der Straaten 2021). History is littered with anecdotes of colonial and imperial actors that have disenfranchised local actors of their property rights, although this is by no means exclusively the purview only of private firms. Nation states and legitimate, democratically elected governments have played fast and loose with such rights (Most nations within the Americas are literally built upon such wanton disregard for property rights). Indeed, the battle for property rights in their modern sense and disputes over ownership have underlain the rise and fall of empires, colonial adventures and have arguably shaped today's political and economic world order (Landes 1998, Narula 2018).

Yet, I cannot help feeling that the development literature regards IPRs in themselves to be a possible impediment to development. IPRs are only part of the story and it is illusory to believe that local infrastructures and non-firm institutions can substitute for MNEs in injecting capital and knowledge as engines of development. The two chapters here complement each other nicely: Giuliani et al emphasise the disadvantages of IPRs to local actors (relative to MNEs) in the absence of a well-functioning institutional and regulatory setup. This is not a new dilemma, dating back at least to the industrial revolution (and possibly earlier), as I discuss in the next section. Perhaps unwittingly, Papageogiadis

and McDonald, in drawing our attention to the challenges of legislation versus challenges associated with enforcement of IPRs, offer a solution. Harmonizing legislation and enforcement creates a pragmatic mechanism to balance the development objectives of host economies without forsaking TRIPS and other key mechanisms essential to economic globalization.

2. The importance of intellectual property rights in development

Intellectual property and the rights associated with their exclusive use are not unrelated to development, particularly since the 16th century. Economic development and the rivalry of nations since that time have been linked to imitating and acquiring technological advances associated with one country by agents of another. The early seafaring nations of Europe competed in improving their merchant navies, through the acquisition of the skills and equipment to most effectively enrich their associated economic agents. In the absence of formally defined intellectual property rights, or the means to enforce these rights, the industrial revolution saw cutthroat competition by lagging nations to acquire the best production methods as well as the skills associated with key inventors through whatever means necessary. Indeed, It is no exaggeration to say that such violation of property right was sanctioned by the governments of lagging nations (such as the US), while leading nations (such as the United Kingdom) sought ways to protect their assets from what they regarded as technological piracy (Landes 1969). The idea of industrial espionage through actively acquiring foreign owned intellectual property formed what was arguably the first formal industrial policy by the United States (see Hamilton 1793). It was not just the US: Almost every western nation undertook industrial espionage at some level, and by encouraging 'immigration' of skilled artisans. Emigration of skilled workers from Britain (the undisputed technological leader during this epoch) was illegal for most of the 18th century, while exports of British machinery was prohibited until 1843. However, cross-border 'technology transfer' continued despite such restrictions. Sweden's metallurgical industries were transformed by Dutch immigrants such as Louis de Geer in the early 17th century. Further waves of (somewhat selective) immigration of entrepreneurs and artisans in the early 19th century led to the transfer of British manufacturing capabilities in mechanical engineering to several countries, including Sweden, Norway, US. IPRs – or

the wanton neglect of IPR – was a key feature of this period - the Netherlands refused to recognise international patenting laws during the period 1869-1910, which allowed domestic firms to develop ownership advantages through pirated technologies, perhaps most notably leading the rise of companies like Philips and the precursor to Unilever. Likewise, British power looms and the technology behind high-speed spinning were highly sought after. These are numerous other cases of such 'technology transfer' in the absence of enforced or enforceable IPRs, and of the development of domestic knowledge bases through arms-length 'loans' from foreign sources. During the first half of the twentieth century, borders became less porous and technology transfer became more formalised. This eventually extended to the developing world in the post second world war era, when almost every developing country attempted to nurture a domestic sector by excluding or limiting foreign involvement to arms-length transfers. Such ideas – building technological competitiveness through the explicit acquisition of the intellectual property rights of others through imitation - formed the bedrock of import substitution based industrialisation, and explicitly shaped the development of a number of catching up nations since the 19th century (from Spain and Japan, to Brazil, India, China and Korea), and became official dogma and accepted economic policy for development in the post WWII era in most of the developing world, and half a century earlier by European communist states.

Import-substitution based industrialisation and the building up of national champions through imitation and the disregard of intellectual property rights are now artefacts of the past. Some countries have voluntarily accepted the limitations of an isolationist industrial development model based on import-substitution and an inward-looking orientation, others more reluctantly, as part of World Bank instituted structural adjustment programmes. Policies are oriented towards export-led growth and increased cross-border specialisation and competition, and most countries are now trying to promote economic growth through FDI and international trade. One of the key developments of the last 30 years (and a key hallmark of globalization) has been the streamlining and adoption of standardised intellectual property rights, as part of multilateral agreements that are essential for membership of the World Trade Organization, as well as other multilateral and bilateral trade and investment accords.

The positive aspect of the standardised nature of formal IPRs in the form of patents, trademarks, geographical indications and so forth is that they form a universal and standardised 'currency' which are recognised through formal laws and regulations. The downside of this universality of IPRs is twofold.

First, infant industry protection has been the bedrock of industrial development since at least the industrial revolution. Traditional, explicit infant industry policies that date back to List (1844) and others are increasingly inapplicable to open economies. Strong and global IPR measures restrict development opportunities through the imitation of mature technologies by laggard countries. The lack of an alternative model to infant-industry protection presents a challenge for catching up through a MNE-assisted development strategy (Narula and Pineli 2019). Strong IPRs, according to Chang (2002, 2004) is a case of 'kicking away the ladder' by the rich countries. A return to the 'classic' import-substitution model is not feasible, because globalisation is largely irreversible. Catching up implies the absorption and mastery of existing technology, and this implies that there is knowledge *available* for imitation and that rules permit firms to imitate. Multilateral and bilateral agreements such as TRIPs, TRIMs and SCM severely limit the potential for developing countries to use traditional policy instruments to protect learning and promote reverse engineering, so reducing opportunities to build domestic industrial capacity (Narula and Dunning 2010).

Second, establishing universal IPRs using the template of developed and industrialised countries requires considerable institutional capacity in the form of competent ministries, IPR experts, and legal staff, not only to legislate such property rights, but also to implement and enforce them. For instance, there need to be skilled patent attorneys to gauge whether patents registered under the home jurisdictions of major MNEs (typically US, Europe and Japan) infringe local patents, and to be able to incorporate and develop prior art in domestic patent applications. Many developing countries have copied the appropriate IPR regulations required by these multilateral organizations and their bilateral partners, but few have the capacity to skilled manpower in sufficient numbers to properly interpret and judge patent applications, or to determine if they infringe other patents registered elsewhere. The absence of organizational slack or in-house expertise within government agencies means that such developing

countries are unable to determine if a patent infringes on domestic property rights, whether traditional or legally patented. Where foreign patents infringe upon unpatented intellectual property (as described for instance in the Giuliani et al chapter), this requires following due process in foreign courts. It is self-evident that this is costly, and out of the capacity of either the aggrieved parties, or the government organisations charged with protecting and enforcing IPRs. Even wealthier developing countries with greater resources and significant numbers of skilled bureaucrats such as China or India struggle with this, as pointed out in the chapter by Papageorgiadis & McDonald.

To some extent, this reflects the significant underinvestment in building up (or maintaining) key public organizations such as standards institutes, universities and research organizations. While the move towards reducing bloated state bureaucracies and inefficiencies in the public sector has helped correct many inefficiencies, and reduced the excessive role of the state in domestic industrial activity, it has also led to a rapid and overzealous reduction in the state's involvement in the provision of public and quasi-public goods which are also necessary conditions for industrial development (Narula and Pineli 2019).

The reduction in state capacity to evaluate and enforce property rights happened suddenly in many developing countries, as part of structural adjustment programmes mandated as a condition to access IMF/World Bank funding. A considerable brain drain of skilled workers from the public sector occurred during the 1980s and 1990s, from the public sectors of such countries to the developed economies. The sudden exposure of developing economies to the vagaries of international competition did not facilitate their institutional restructuring effectively, but simply reduced it. Liberalisation did not always take place gradually, but required rapidly changing to a multilateral view on hitherto-domestic issues. Inefficient institutions can retard the efficient accumulation and transfer of knowledge between industrial enterprises and other economic actors within their milieu, influencing growth in general. Firms in developing countries that had built up a level of technological competitiveness during the import-substituting era experienced a decline in this competitiveness in part because of the decline in the non-firm sectors due to the slimming down and reduction of these public goods. There is a self-reinforcing interaction between industrial enterprises, the infrastructure and politics which perpetuates

the use of specific technologies, production of specific products, and/or through specific processes, and specific customer-supplier associations. Institutional restructuring is not an instantaneous or costless process and results in inefficient outcomes, since actors are not always willing to alter their *raison d'etre*. Institutions developed for, or specialised around, a particular economic system are not always efficient in responding to the needs of another (Narula and Dunning 2010).

Firm-non-firm relations can be so closely interdependent that the boundaries and functions of firms and the various components of the (state-controlled) knowledge infrastructure are unclear, and *de facto* operate as one large unit (Grabher 1993). Rigidities due to inertia of institutions and the knowledge infrastructure can seriously affect the ability of an economy and its actors to adapt to new technologies, and/or the entry of new actors into the system, or a rapid change in the institutions that govern the interaction of firms and non-firms. If this inertia persists over a long period, domestic firms often do not survive, unless non-firm actors (typically government policy-determined organisations) or firms themselves seek to address these constraints and are able to overcome the deficiencies in the public good, and depleted assistance of state organizations. However, often the external agencies are themselves involved suffer from cognitive inertia, or are constrained by politics from radically modifying the system.

The non-firm sector is important as an agent of change when major exogenous shocks occur, because it has the potential to minimise the disturbances from the environment. By establishing standards, subsidising basic research, providing incentives to sunset industries to restructure, and improving the available human resources needed for new sectors, the non-firm sector can help overcome structural problems due to liberalisation. For instance, helping to retrain workers in new skills and sectors, changing the university curricula, etc. It can create incentives for the adoption of new technologies, or improve the access to these technologies by making them available more cheaply. However, government intervention is conditional on available resources. Developing country government and firms often do not have the resources to invest – or the expertise – to reduce the shock of exogenous changes. There is also the somewhat larger problem of an inefficient non-firm sector, and an unresponsive government (government failure being a widespread problem in developing countries)

As such, the knowledge infrastructure may be unable to overcome lock-in as rapidly as firms need. In the context of intellectual property rights and cross-border collaboration, government failure looms large, as Papageorgiadis & McDonald clearly emphasise.

The outcome of these challenges from a weak knowledge infrastructure is twofold. First, it affects the survival rate of smaller domestic firms in developing countries. Those that have the resources to create private alternatives to weak public goods tend to survive, or those with privileged access to the limited knowledge infrastructure (these become 'members-only' location advantages). Many of the large MNEs sponsor their own universities, and are able to pay for consultants to provide advice and guidance on IPR issues that might be available for free or at a subsidised rate in a country with a well-developed knowledge infrastructure. Second, foreign owned MNEs – whose very existence is based on exploiting structural market failures – are able to exploit this space, because they have access to superior location advantages in other countries in which they operate. They are also in the position to engage in regulatory capture. MNEs end up dominating the creation of knowledge, and are able to act as monopolists on several fronts. Whether intentionally or not, MNEs are able to limit spillovers and opportunities for domestic firms.

The significant reduction in state capacity considerably affects the ability for domestic enterprises to catch-up, and more generally reduces the opportunities for industrial development through learning and knowledge creation. In a globalising world there are multiple and parallel opportunities for knowledge generation, learning and technological accumulation. Learning can occur through a variety of organisational means (both intra-firm and inter-firm). However, learning and technological accumulation is not costless or instantaneous. Developing and sustaining a technological or a competitive advantage is slow, reversible and highly uncertain. Learning takes place at the firm level, but the success or failure of individual firms occurs in orchestration with an entire system of firm and non-firm actors. Thus, it is possible to speak of *national* technological or competitive advantages, which is not simply the sum of the innovators, but the synergistic effect of all these players within a given industry within boundaries of a *de facto* region or country (Narula 2003).

Learning and the acquisition of knowledge themselves require skills and abilities that are non-obvious. Countries in any given industry follow a trajectory of technological accumulation. Laggard economic units must possess the social capability to catch up and converge with economic units at the frontier. Abramovitz (1995) distinguished between two classes of elements. One class includes the "basic social attitudes and political institutions", the other consists of elements that determine the ability of countries to efficiently absorb and internalise knowledge potentially available at the frontier, i.e., from the lead countries. This latter group has been dubbed as 'absorptive capacity'. Dahlman and Nelson (1995) define national absorptive capacity as "the ability to learn and implement the technologies and associated practices of already developed countries". To put it simplistically, if the institutions and organisations are absent or underdeveloped, economic actors within the system will be unable to absorb and efficiently utilise knowledge that may potentially be made available to them. Too often, the literature considers institutional capacity building associated with IPRs is primarily associated with legislation, and assumes the existence of complementary (and essential) capacity to enforce formal IPRs. IPR enforcement is part of the institutional system that mediates the process of knowledge absorption and utilisation, and is a core (and neglected) aspect of absorptive capacity. Absorptive capacity includes the ability to internalise knowledge created by others and modifying it to fit their own specific applications, processes and routines. It is worth noting that absorptive capacity is a subset of technological capability, which in addition to absorptive capability includes the ability to generate new technologies through non-imitative means. This does not imply that absorption is purely about imitation. Firms cannot absorb outside knowledge unless they invest in their own R&D, because it can be highly specific to the originating firm, since it has a partly tacit nature. The extent to which a firm is able to exploit external sources of knowledge thus depends on its absorptive capacity which is assumed to be a function of its R&D efforts, and the degree to which outside knowledge corresponds to the firm's needs as well as the general complexity of the knowledge. An important component of absorptive capacity is the availability of appropriate supply of human capital, which in turn is not always specific to firms, but associated with the capabilities of the non-firm sector. Non-firms determine the knowledge infrastructure that supplements and supports firm-specific innovation. They account for a certain portion of the stock of knowledge at the national level which may be regarded as 'general knowledge'

in the sense that it has characteristics of a public good, and potentially available to all firms that seek to internalise it for rent generation.

There thus exists a relationship between absorptive capacity and the stock of knowledge within any system. However, that a cumulative and interactive process between these two variables commences only if a "threshold" minimum knowledge base is initially present. Furthermore, as Criscuolo and Narula (2008) argue, the accumulation process proceeds at a slower pace as the country approaches the technological frontier[1]. Thus, even where technological assets at the frontier are made available – either through licensing, or indirectly through spillovers from inward FDI – the domestic system may not be in a position to internalise these assets. FDI has a positive impact on economic growth only in those developing countries that have attained a certain minimum level of absorptive capacity. Knowledge accumulation is much more rapid once the initial threshold level of absorptive capacity exists. Simply put, technology absorption is easier, once they have 'learned-to-learn' (Criscuolo and Narula 2008).

3. The challenges of collaboration in innovation in a developing country context.

What the chapters by Giuliani et al and Papageorgiadis & McDonald implicitly emphasise are firstly that innovation is often conditional upon the collaboration of a number of actors, and that these collaborations are fraught with challenges. I have referred to opportunistic behaviour by MNEs and foreign capital here and elsewhere (Narula 2018) and the difficulties in collaboration between firms. Nonetheless, it surprises me how much the literature ignores that effective collaboration is often challenging to achieve, and collaboration in innovation, especially so, particularly between firms of different nationalities, structures and industries (see Martinez-Noya and Narula 2018 for a discussion). Collaboration between private firms and non-firms that are part of the public knowledge infrastructure are well known to be motivated by different objectives than inter-firm cooperation, as the considerable literature on university-industry collaboration attests. There is also a literature on the role of governments in innovation collaboration, either as a sponsor, match-maker, or (through state-owned

[1] The technological frontier is defined as the set of all production methods which at any given time are either the most economical or most productive in the world.

enterprises and organizations) as a participant (see e.g. Teece 1986, Kafouros et al 2015, Su et al 2018, Narula 2003, Fitjar and Rodríguez-Pose 2013). Actors engaged in the provision of quasi-public goods are driven by fundamentally different motives compared to for-profit firms and MNEs. It is no surprise, therefore, that universities are a superior alternative to foreign MNEs in achieving more equitable outcomes for developing countries in the area of bioprospecting.

The fact that actors in any collaboration struggle to trust each other is a recurring theme within a variety of social science disciplines, but there is an especially high level of apprehension about MNE- domestic actor interaction with development studies more generally. This reflects the capacity of the MNE to act as a monopolist and is reflected in its history of regulatory and state capture. A key insight in the international business literature that is worth noting in this context is the lens of bounded reliability. Collaboration between commercially minded firms with an eye to both profit optimisation and long-term strategic goals can be fundamentally different than between non-firms and for-profit organizations, because non-firms actors have fairly unwavering strategic objectives. Following the work of Verbeke and Greidanus (2009), I argue that while MNEs can indeed be motivated by strong-form self –interest, acting selfishly with guile does not always explain the failure of collaborations that involve MNEs relative to those with non-firm actors. Even where there is trust in an inter-firm collaboration, the priorities and preferences of actors may change, but this is especially true for those focused on maximising their returns. Firms with benevolent intentions have constantly evolving longer-term objectives, and may therefore frequently rearrange their priorities (for instance, because they lack internal resources and have overcommitted themselves), and thus choose to act selfishly (Narula et al 2019).

For instance, actors may engage in benevolent preference reversal, whereby they may have made initial promises in good faith, but their changing environmental conditions may result in changing preferences. Different from opportunism where agents intend to cheat, actors experiencing benevolent preference reversal do not mean to harm the associated party to which they made promises. Benevolent preference reversal often arises through ‘good faith re-prioritization’ or through scaling back on over-commitments (Narula et al 2021).

‘Good faith re-prioritization’ is when managers promise to act in good faith, but over time, their resource allocation decisions switch from the original preferences. For instance, a partnership may be agreed between a MNE affiliate to collaborate with a local actor in developing a specific project. However, headquarters may overrule the collaboration and associated knowledge sharing because a more promising, and less risky use of the same resources presents itself. MNEs may also ‘scale back on over-commitments’. The MNE may be overconfident in their capacity to deliver on open-ended promises in a planned collaboration. They may have made unrealistic projections based on the best-case scenarios and have discounted risks. This may lead to actors to scale back on their over-commitment.

I am trying to make two points. First, that it is not always the case that MNEs are more or less reliable partners than non-firm actors, despite the rhetoric in development studies and elsewhere. It is that MNEs are more likely to have complex changes in strategy, shaped not always at the host country level, but by wider resource allocation and rent-seeking and market share optimisation decisions at the corporate level.

Second, it is impractical to suggest development outcomes will be improved by reducing the engagement of MNEs. Non-firm actors such as universities may well be more reliable in terms of reliability, since their raison d’etre is embedded in the provision of public goods. However, the principle of effective MNE-assisted development assumes a threshold level of government engagement, and some semblance of governmental competence. Opportunism, government failure and institutional voids will always see the rise of informal institutions and economic actors who will act opportunistically, whether these are domestic entrepreneurs or foreign investors.

Despite the implications of Giuliani et al chapter, it is impractical to consider non-firm actors as alternatives to MNE investment within an industrial development strategy. Most developing countries explicitly rely on the presence and embeddedness of MNEs as engines for development and growth. The principles of MNE-assisted development depend on promoting linkages between domestic economic actors and MNEs, and just as importantly, on improving the competitiveness of domestic actors, through innovation. This happens through a combination of imitation, explicit supplier upgrading, and engagement with the knowledge infrastructure in that location. The failure of positive

development effects to materialise, or wishing to minimise unintended negative consequences from MNE investment has much to do with governments are unable to do, in terms of providing location-specific complementary resources, both in the form of an efficient knowledge infrastructure that offers universal access to public goods at marginal cost, and creating the incentives for MNEs and domestic firms to thrive through collaboration.

As Papageorgiadis & McDonald emphasise, policies for IPR are one thing; implementing and enforcing such policies is quite another. Passing legal statutes and mandating IPR regulations can be done fairly easily, but there are high costs for developing countries in enforcement and monitoring of the property rights of either domestic actors, or MNEs. Resource constraints in the public sector, in particular the absence of skilled human capital to evaluate sophisticated IPR, means that practically speaking there is no reason to believe that this will change. Developing countries face an even greater challenge given that a good majority of the economic actors are in the informal sector (Narula 2019). Enterprises with no legal basis or organizational structure are impossible to monitor, and even the most contentious regulator or MNE will find it hard to determine whose rights have been infringed if the actors do not 'exist' in a de jure sense. Likewise, where MNE property rights are infringed by informal actors, they have no legal recourse. It is tempting to argue that countries 'need to do more', but most governments are beset by a variety of pressing constraints and conflicting priorities In general, for governments, IPR issues are rarely a priority compared to attracting FDI and addressing key economic problems, such as endemic unemployment and poverty (Narula and van der Straaten 2021). Governments may actually 'soften' the implementation of IPR regulation for the purposes of attracting more FDI.

4. Underlining the importance of IPRs to cross-border innovation

The two chapters which metaphorically 'sandwich' this intermezzo provide a complementary discourse on the themes I address, albeit each does so from a different angle. The pervasiveness and ubiquity with which firms (and non-firms) engage in cross-border activity (both collaboratively, and within the hierarchies of the firm) does indeed underline the importance of IPRs. The globalization of innovation

has gone from being an aspiration to a reality in the last two decades, and arguably closely associated with the TRIPS accords that were first implemented in 1995, as well as the explicitly MNE-assisted development policies that have taken root in most market economies. Although I have been at pains to emphasise that in an innovation systems context, IPRs are only part of the reasons for the growth of cross-border innovation, it is nonetheless an important aspect that deserves even greater scrutiny.

These two chapters (and my intermezzo), when taken together, raise several issues that can guide further research.

First, they raise the importance of a nuanced IPR regime. There is a long history within the economics of innovation literature on the breadth and length of patents, and IPRs more generally (see e.g. Cimoli et al 2014, Gilbert and Shapiro 1990, Hall 2007, Acemoglu and Akcigit 2012) on the capacity to promote or retard innovation (and consequently, growth) within an economy. What the Giuliani et al chapter highlights well is that the current IPR regimes associated with TRIPS benefit large MNEs expanding to developing countries, and that there are important, (possibly unintended) consequences of strong IPR regimes for countries that are catching-up. Even more advanced economies have come to debate the necessity of IPRs that do not follow a one-size-fits-all approach, nor one that is constant over time. Different sectors and sub-sectors require variation in terms of how broad and long IPRs should be, and it should also reflect the industrial policy objectives of the host country.

Second, the two chapters jointly help illustrate that policy makers in developing countries face a fundamental challenge. Development has historically depended upon less stringent IPRs, because it permits weaker domestic firms and entrepreneurs to imitate more mature technologies, and in parallel build up their absorptive capabilities. Subsidiaries of MNEs and imports by these MNEs can act to crowd-out such weak domestic actors. Thus, while lax IPR regimes can be a valuable location advantage to attract FDI, it may hobble the capacity of domestic actors to benefit from possible linkages, and to build up their competitiveness. This represents a conundrum: when FDI policy contradicts the objectives of industrial and development policy, which takes precedence? While policy advisors often call for a synchronization of development, FDI and industrial policies, this presumes a planning and coordination capacity that far exceeds most governments in less developed economies. Diluting

commitments associated with TRIPS and other bilateral and multilateral commitments to deliberately weaken IPRs, or to differentiate between foreign and domestic actors is, pragmatically speaking, not an option. Yet, we see countries (including China and India) that have solved this conundrum by the selective, lax enforcement of IPRs.

Third, what becomes clear from these chapters is that IPRs are indispensable, but also incredibly complex. When used intelligently and strategically, they have the capacity to be an important complementary asset within development and industrial policies of developing country host governments. When implemented, legislated and enforced mechanically, by utilising a generic template for more advanced economies, however, they have the capacity to impede development and growth.

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