Towards integrating country- and firm-level perspectives on intellectual property rights

Article

Accepted Version

Towards integrating country- and firm-level perspectives on Intellectual Property Rights

Victor Cui

Conrad School of Entrepreneurship and Business, University of Waterloo

victor.cui.work@gmail.com

Rajneesh Narula

Henley Business School, University of Reading

r.narula@henley.ac.uk

Dana Minbaeva

King's Business School, King's College London

&

Copenhagen Business School

dana.minbaeva@kcl.ac.uk

Ilan Vertinsky

Sauder School of Business, The University of British Columbia

ilan.vertinsky@ubc.ca

Acknowledgements: We would like to thank Davide Castellani for providing a friendly review.

Towards integrating country- and firm-level perspectives on Intellectual Property Rights

Intellectual property rights (IPRs) are of critical importance in International Business. The implications for firm strategy and for policy makers are rarely aligned because the optimal level of IPR protection can be quite different from the country- and the firm-level perspectives. There is considerable heterogeneity in firm strategies, the spatial distribution of their innovation activities, and their IPR portfolios. There is still greater variation between countries, their IPR legislation and enforcement efforts, as well as their industrial and development policies. For firms, sustaining FSAs depends on their ability to create and extract rent from its knowledge assets, and this involves deliberate interfirm cooperation, careful location choices, and talent recruitment and retention. At the country-level, the attractiveness of countries for MNEs is shaped by the provision of country-specific advantages such as IPR protection and its effective enforcement, but the kinds of IPR regimes that are optimal to attract inward investment can be disadvantageous for building domestic firm capacity, and vice-versa. Although firm IPR strategies and IPR regimes are clearly interlinked, the literature integrating across these two levels has been underdeveloped, and we propose a framework to guide future research.

Keywords: intellectual property rights, policies, cooperation, mobility, location, FSAs, innovation

1. Introduction

Intellectual property rights (IPRs) are one of the most critical building blocks of modern society. According to the World Trade Organization, they are 'the rights given to persons over the creations of their minds. They usually give the creator an exclusive right over the use of his/her creation for a certain period of time'[1]. Where individual creators are employed by an organization, these rights may belong (in part or in whole) to the organization with which these individuals are affiliated. IPRs are commonly divided into two areas: first, copyright and rights related to copyright, and second, industrial property, including distinctive signs, patents, industrial design, and trade secrets. It is this second category that has garnered the most interest for IB, strategy and policy-making.

[1] https://www.wto.org/english/tratop_e/trips_e/intel1_e.htm

The assignation and protection of IPRs plays a fundamental role in shaping both the political economy and competitiveness of countries, and the success and failure of firms. However, there is considerable conflict and variation in the extent to which intellectual property is protected, not only because the interests of the nation state and firms (whether multinational or otherwise) are rarely aligned. Even collocated firms in the same industry may have diverging attitudes to IPRs, and different countries often have heterogenous policy objectives, each viewing the implementation and enforcement of IPRs as a significant strategic tool to be wielded in disparate and distinctive ways. It is to be emphasized that MNEs are not simply passive users of IPR regimes: they are actively engaged in shaping and influencing these regimes, as active actors within the milieu, to align to their own interests. The conflict during the Covid-19 pandemic over the equitable distribution of vaccines illustrates this well (Guimon & Narula, 2020) . The advanced economies (and home to the major pharmaceutical MNEs) were unwilling to waive IPRs on the new vaccines, while much of the developing world sought to either partially or fully waive IP enforcement of Covid-19 technologies to allow universal access to IP, and more equitably located production capacity. Indeed, despite considerable negotiation, as of mid-2022, no consensus has been achieved, either amongst or between the MNEs, the home countries of these MNEs, or amongst the developing countries themselves, despite the active engagement of a variety of supranational institutions, NGOs and interest groups (Jecker & Atuire 2021; Jecker 2022). It is self-evident, therefore, that IPRs are a critical field of study in international business, strategy and economics, and that establishing and enforcing IPRs form a central aspect of the strategies and policies of MNEs and governments.

Despite the ubiquitous nature of IPRs, and their implications at the firm, sub-national, national, and supranational levels, much of the academic work in international business and related disciplines has tended to be single-leveled, in terms of the antecedents/determinants

and the outcomes of IPRs. For example, macro-level research has primarily paid attention to policy determinants of IPR protection such as political systems, formal and informal institutions, and the international rule of law (e.g., Brander, Cui, & Vertinsky, 2017; Ginarte & Park, 1997; Maskus, 2014; Mertha, 2007; Saggi, 2002; Peng et al., 2017). Likewise, many micro-level studies have focused on various firm-level strategies to protect intellectual property from misappropriation (Hamel, Doz, & Prahalad, 1989; Inkpen, Minbaeva & Tsang, 2019; Narula & Santangelo, 2009; Shaver & Flyer, 2000). Only a few studies have investigated IPR protection across levels. These have mainly focused on the influence of differing country-level IPR regimes on the strategies of firms, their effect on the optimal alliance governance structures, how internal knowledge linkages can be most effective, and the effectiveness of the modularization of innovation (see e.g., Alcácer and Zhao, 2012; Baldwin and Henkel, 2015; Shi, Sun, Pinkham, & Peng, 2014; Oxley, 1999; Zhao, 2006). Firm-level research has considered the macro aspects of IPR as exogenous, and vice versa, and rarely capture the complexity of macro- and micro-level interactions adequately.

The original call for papers for this special issue sought to build a more comprehensive framework that specifies the underlying mechanisms that integrates and connects multiple levels. For example, the "optimal" level of IPR protection that balances between attracting foreign direct investment (FDI) and developing indigenous innovative capacities differ between countries at different stages of technological development (Criscuolo & Narula, 2008). Discrepancies exist between the formalization and implementation of IPR institutions in home- and host-countries. MNEs actively seek to influence country policies, by engaging in various levels of regulatory capture. Such macro-level characteristics have challenged assumptions underlying micro-level IPR studies, which have presumed a homogenous IPR environment. We invited the papers that explicitly addressed and developed multi-level

explanations. We encouraged submissions that theoretically accommodated a nested, complex and adaptive system view on IPR in MNEs.

In the rest of the paper, we review studies on IPRs as a key source of firm-specific advantages (FSAs), based on the IB, strategy, and organizational behavior literatures. We focus on three interconnected aspects in creating and augmenting FSAs: interfirm cooperation, location choices, and talent mobility. We then turn our attention to IPRs as a critical component of location advantages, based on the IB and economics literatures. In particular, we highlight the development challenge of IPR policies that strongly protect FSAs. Such policies can be disadvantageous for developing countries interested in building domestic firm competitiveness, while being useful to attract inward MNE investment. Adapting and incorporating these findings and theories of single-level IPR research from various disciplines, we then develop a conceptual framework for IPR research across firm- and country-levels. We identify gaps in single-level research and suggest some plausible research avenues for multi-level analysis..

2. Overview of the articles in this special issue

What is imminently clear from this special issue is that these two perspectives - the firm- and the country-level – are inextricably linked. The papers in this special issue illustrate this well. The paper by *Genin, Tan & Song (this issue*) provides nuanced insights on host-country IPR regimes, state intervention and effectiveness of JVs in curbing opportunism. Specifically, they focus on the powerful role governments can play in the governance of an R&D collaboration in developing countries with an active policy to leverage MNEs in building up domestic capacity. Their focus is China's objective of developing a high-speed train industry, a sector where there is considerable state ownership. The Chinese government had hoped that setting up a JV with leading foreign firms in the sector would permit the rapid internalization of foreign advanced technologies by domestic actors. The Chinese state has used collaboration as a useful

mechanism to leapfrog in the past, providing strong support and resources to back domestic actors' efforts. However, in this case, there was considerable distrust by the foreign partners who were concerned about misappropriation, leading them to refrain from sharing tacit knowledge and thus significantly affecting the success of the collaboration. Genin et al. (this issue) highlight that the government as a partner can inadvertently become a liability, and government support to boost domestic innovation in host countries with weak IPR regimes can negatively affect international cooperation if the state acts opportunistically within the collaboration.

Yan, Li & Zhang (this issue) sheds light on how MNEs match internal IPR protection mechanisms and host-country IPR regimes in their location choices. Specifically, they examine how global pharmaceutical industry uses the small-world structure of internal social and knowledge networks to create IPR protection mechanisms, as a substitute for inadequate external IPR regimes in host-countries. They argue that the small-world structure of internal collaborative networks can result in social complexity in generating new technologies, which increases the difficulty for other firms to interpret and imitate technologies by means of inventor recruitment. In contrast, the 'small-world' aspect of internal knowledge networks increases the inter-relatedness among knowledge sets, making it easier for competitors to misappropriate a foreign firm's core knowledge asset by getting access to only fractions of its knowledge basis. These findings showcase important adaptive strategies when MNEs face weak IPR regimes.

The paper by *Bruno, Crescenzi, Estrin & Petralia (this issue)* highlights the role that location choices and institutional distance play in the important relationship between MNEs' inventive capabilities and innovation performance. They find that this relationship is contingent on the IPR regime distance between host and home countries. Overall, innovation performance decreases with IPR regime distance because the costs of coordination and administration of

R&D subsidiaries across different regimes increase with IPR distance. Such negative effect can be asymmetric, depending on the relative strength of IPR protection between host and home countries. The negative effect is stronger when MNEs locate their R&D activities in host countries with less strict IPR protection than their home countries. This is because the cost of setting up internal defense mechanisms to protect MNE knowledge from being misappropriated in a weak IPR environment outweighs the potential benefits from institutional arbitrage in such a host environment. In contrast, when MNEs establish R&D subsidiaries in countries with stronger IPR protection, the negative effect is reduced. This is because the MNEs rely less on internal mechanisms, than on the host-country legal system to protect its core knowledge. and such an environment offers more opportunities for knowledge acquisition and learning.

Overall, from an IB perspective, that there is an interaction between FSAs and location advantages is unsurprising, given what we know from the various strands of IB theory (Asmussen et al, 2022; Forsgren & Holm 2021; Narula et al., 2019). However, one of the objectives of the special issue was to demonstrate that by explicitly bringing together firm-level and country-level research, we can deepen our understanding about how the creation, acquisition, and protection of IPRs affects international business. In the rest of this introductory paper, we aim at explicating the benefits of intentionally introducing the multi-level theorising around the antecedents/determinants and outcomes of IPR, instead of discussing those for the purposes of post hoc contextualization. Specifically, we focus on the multi-level impact of IPR regimes and MNEs' IPR strategies on key IB decisions and outcomes, by integrating firm- and country-level IPR perspectives. While the scope of multi-level analysis can range across supernational, nation, sub-national, industry, firm, and individual levels, our objective in this paper is not to exhaust all multi-level possibilities, but to showcase a few plausible approaches. We explore opportunities to build an IB-specific IPR-related research agenda, based on both multi-level analysis and an interdisciplinary approach.

3. Firm-level IPR strategies – optimizing MNE FSA portfolios

Intellectual property lies at the heart of the competitiveness of firms, and the absence or presence of the associated rights plays a critical role in defining the capacity of MNEs to invest in asset creation and augmentation, both through formal and informal R&D. Where MNEs are unable to ensure exclusive use of their IP so as to (at least) recover the costs of R&D and the associated risks of such investment, they lose a key incentive to innovate. Indeed, a technological asset becomes a firm-specific advantage only if the firm can impede the appropriation of its IP by its competitors. It is therefore in the interests of the MNE to reduce unintended leakages of firm-specific IP. Firms may choose to protect their IPRs through a number of means. Although much of the literature emphasizes patents, copyrights, and brands, by far the simplest and most common way is secrecy (for a discussion, see Arundel, 2001; Arundel & Kabla, 1998; Cohen, Goto, Nagata, Nelson & Walsh, 2002). In the absence of legally enforceable IPR protection, MNEs can mitigate the risk of IPR violation through secrecy, and appropriate value from their R&D by resorting to internal organizations that enable them to efficiently transfer, integrate, and build on technologies developed in other IPR regimes (Zhao, 2006).

A growing share of FSA creation and augmentation takes place through formal and informal collaboration, either with suppliers and customers, or with competitors, in a variety of quasi-internal governance arrangements. Indeed, many firms manage their internal and external activities as indivisible aspects of an open innovation portfolio (e.g., Narula 2001, Van de Vrande, Vanhaverbeke & Gassmann. 2010). Such portfolios rely on intentional knowledge exchanges and are on balance mutually beneficial, providing both cost-economizing and strategic benefits (Narula & Martinez-Noya, 2015).

Nonetheless, optimal levels of innovation depend on both deliberate and unintentional knowledge flows. While all firms seek to maximize the return on their own FSAs, they are

also dependent on knowledge that resides outside the boundaries of their own organization to develop new FSAs. Thus, strongly enforced and protected IPRs can act as a retardant to firm-level innovation. As we will discuss later, the optimal IPR regime for firms interested in FSA creation is one that permits informal and formal knowledge exchanges, and not one that necessarily offers strong, excessively broad or long property rights. Indeed, overly strong IPR regimes can deter innovation by firms in that location (Acemoglu & Akcigit, 2012; Dasgupta & Stiglitz, 1980).

The early IB literature was focused on exploitation of FSAs, and the original thesis underlying most of the early work was that the raison d'etre of the MNEs derived from choosing between internalizing the use of its FSAs within its own organization, versus licensing or selling its IP-related assets to other firms (see Narula et al., 2019 for a review). The literature of the last few decades has come to recognize that MNEs also go abroad to seek and augment their FSAs, and in order to do so have developed a variety of hybrid governance mechanisms (beyond arms-length sales, licensing or exchanges) to engage in *interfirm cooperation* because of the need for cutting-edge competencies in a large number of fields, and the associated cost of maintaining a high level of competence in multiple technological areas (for a review see Martinez-Noya & Narula, 2018). Furthermore, building up FSAs depends on choosing the 'right' location, not (only) in the sense of location advantages (which we will discuss at length in our discussion of country-level issues) but in the sense of choosing the appropriate location relative to other locations with similar location advantages, known as determining *location choice*. Finally, FSAs ultimately depend on individuals as the key vector in knowledge creation, and how knowledge exchanges between MNEs are shaped by *inventor mobility and talent recruitment*. We discuss these three aspects next.

Interfirm cooperation

Interfirm R&D alliances have become a key mechanism through which firms cooperate to create and protect knowledge (Martinez-Noya & Narula, 2018). While firms cooperate to create value, they often simultaneously appropriate proprietary knowledge from each other (Hamel, 1991). Alliances create unique challenges for jointly creating IP, due to the risks of opportunism (see Hoffmann, Lavie, Reuer, & Shipilov, 2018 for a review).

Opportunism in interfirm cooperation depends on a variety of factors, such as the interplay of private and common benefits of partners (Khanna, Gulati & Nohria, 1998), bilateral and multilateral rivalry in alliances (Lavie, 2007), asymmetrical power and learning capacity of partners (Wang, Wang, Jiang, Yang & Cui, 2016; Yang, Zheng, & Zaheer, 2017), and cooperation structure (Cui, Yang, & Vertinsky, 2018; Gulati, 1995a, 1995b; Polidoro, Ahuja & Mitchell, 2011). R&D alliances typically demand intensive knowledge sharing, frequent interpersonal interactions, and long-term commitment to projects, which normally would involve high risk of misappropriation (Gulati, 1995a). However, recent research suggests that the level of opportunism may not be necessarily high in R&D alliances (Cui, et al., 2018). In fact, it is highest when the cooperation portfolio between partners is balanced between exploratory (e.g., R&D alliances to create new knowledge) and exploitative alliances. In contrast, when the cooperation portfolio is dominated by exploratory alliances, partners are more likely to adopt a long-term outlook that cultivates relationship building, which minimizes the level of opportunism (Cui, et al., 2018).

To prevent opportunism, firms tend to show a preference for selecting familiar partners because trust lowers transaction costs and increases information sharing (Dyer & Chu, 2003; Gulati, 1995a; Li, Eden, Hitt & Ireland, 2008; Zaheer, McEvily & Perrone, 1998). Hoetker (2005) showed that as technological uncertainty increases, prior relationships take on greater positive significance relative to the importance of potential learning opportunities from unfamiliar partners. To curb opportunism, equity agreements such as joint ventures (JVs) were the

conventional governance form employed in early R&D collaboration to better align partners' interests, by setting up a separate jointly-owned legal entity (e.g., Gulati, 1995a; Ryu, McCann, & Reuer, 2018, Hagedoorn & Narula, 1995)

It is noteworthy, however, that the need for equity-based agreements varied (and continues to vary) considerably across sectors, reflecting the extent of technological uncertainty, the IPR environment of the firms, and the rapidity of technological change in the sector. For instance, the adoption of JVs has been declining in fast-moving sectors where firms do not have the luxury to engage in long-term equity partnerships (Hagedoorn, 2002, Martinez-Noya & Narula, 2018). In fast-moving industries and sectors, there is a strong preference for non-equity agreements, although there is some variation when dealing with MNEs from home countries with weak IPR protection. When operating in locations offering low protection of IPRs, MNEs tend to fragment the operations entrusted to foreign units, assigning activities with a less strategic content as a way to reduce misappropriation problems (Gooris & Peeters, 2016; Belderbos et al., 2021). Overall, however, there has been a shift towards use of contractual and non-equity agreements, especially as firms increasingly adopt open innovation strategies (Santamaria, Nieto & Barge-Gil, 2010; Kranenburg, Hagedoorn & Lorenz-Orlean, 2014). The development of a systemic and explicit set of firm strategies needed for an optimal open innovation strategy requires understanding how firms orchestrate multiple agreements. Careful contract design of each agreement is critical, given the complex overlapping nature of such agreements and the various IPR regimes involved because the cross-border nature of the activities they cover (Bogers et al., 2017, Contractor & Reuer, 2014).

Balancing between intentional and unintended knowledge transfers within the confines of a formal collaborative agreement is an area of considerable interest in IB, strategy and innovation studies, and indeed it is well acknowledged that firms may utilize alliances as a mechanism to control knowledge leakages, rather than (or, as well) as a mechanism to promote them (Narula

& Santangelo, 2009). Researchers have found that the structure of cooperative agreements makes a difference in the effectiveness in managing knowledge transfers and curbing opportunism in interfirm cooperation (Hagedoorn, 2002; Narula & Martinez-Noya, 2015; Martinez-Noya & Garcia-Canal 2018).

Location choices

In addition to accessing 'traditional' location-specific advantages, collocation of key suppliers, competitors and customers matters in enhancing the FSAs of firms (Anand, McDermott, Mudambi & Narula, 2021; Castellani, 2018; Castellani & Lavoratori, 2020, Papanastassiou, Pearce , & Zanfei, 2020). Knowledge transfers are highly sensitive to geographic proximity, and this is especially so where the knowledge being exchanged is tacit in nature (Cantwell & Santangelo, 1999). Firms seek to locate their R&D activities in spatial proximity to competitors, because knowledge spillovers tend to be geographically localized (Jaffe, Trajtenberg & Henderson, 1993). Prior studies have found that technology-intensive firms tend to locate in regions with high R&D intensity, and that industry followers actively seek to locate close to the industry leaders (Chung & Alcácer, 2002). As knowledge leakage is a two-way process, scholars have suggested that an optimal location should balance between the gains from inward knowledge flows, and the costs of outward flows to competitors (Alcácer & Chung, 2007; Shaver & Flyer, 2000).

Knowledge leakage from, to, and between firms in the same location is often unintentional and unavoidable due to highly embedded interfirm relationships and frequent employee mobility. Inkpen, Minbaeva and Tsang (2019) also suggest that knowledge leakages can be beneficial when there is a reciprocal exchange. Whether the net flow is negative or positive depends on a number of conditions. The optimal level of exchange is a function of the mix of intellectual property in the knowledge portfolio of the firms concerned, their absorptive capacity in specific

technologies, and the extent to which the product or service can be fine-sliced without compromising the integrity of the final product or service. Indeed, lead firms in any given sector are keen to avoid collocation with follower firms to minimize unintended knowledge flows, and engage in interfirm cooperation as a defensive means to minimize leakages when collocation is unavoidable (Narula & Santangelo, 2009). Conversely, follower firms actively seek collocation with leader firms. Given that the production of most products and services involves multiple technologies, and it is exceedingly rare for a single firm to be a technological leader in all the constituent technological fields, collocation and knowledge flows are a practical reality.

The decision of whom to partner with can be connected with the location of the alliance partner, and while firms should, in principle, seek partners with the most appropriate FSA portfolio, researchers have consistently found a preference for geographically proximate partners, because it offers the advantage of facilitating control when misappropriation hazards are high (Reuer & Lahiri, 2014). Collocation of a firm's partners and rivals can also introduce potential indirect paths of knowledge leakage to rivals, and as such, further increase the risk that the firm's knowledge may be misappropriated (Ryu et al., 2018).

Inventor mobility and talent recruitment

The very basic inputs for innovation are individual 'inventors' (e.g., scientists and engineers), who work individually or in teams, in a formal setting within an R&D facility of a firm, or innovate 'informally' as part of other functions. Building up FSAs is to an extent dependent on the mobility of inventors (Andersson, Brewster, Minbaeva, Narula & Wood, 2019). The literature on inventor mobility forms a rich body of firm-level research related to IPRs in MNEs. Researchers have argued that inventor mobility is a major source of knowledge flows between firms and locations (Agarwal, Echambadi, Franco, & Sarkar, 2004; Almeida & Kogut, 1999;

Mawdsley & Somaya, 2016; Schaefer, 2020; Singh, 2007). In broad brush strokes, this line of literature can be categorized into two sub-streams. The first sub-stream investigates the antecedents to inventor mobility, at various levels, e.g., individual, job, firm, and job market. For example, at the individual level, inventor mobility is influenced by such attributes as demographics, personalities, motivation, and portable assets (e.g., abilities, skills, and social capital). At the job level, inventor mobility could be influenced by instrumental communication, job security, conflict, task complexity, etc. At the firm level, inventor mobility is affected by such factors as centralization, culture, reputation, support, and compensation. At the job market level, inventor mobility is determined by the availability of alternatives (for a thorough review, see Rubenstein, Eberly, Lee, & Mitchell, 2015; Mawdsley & Somaya, 2016).

The second sub-stream of this literature focuses on the impact of inventor mobility on knowledge transfer, i.e., the "learning-by-hiring" effect (see Mawdsley & Somaya, 2016 for a review). Hiring firms enjoy access to new technological knowledge because newly hired inventors retain their prior social and knowledge networks, resulting in post-movement knowledge transfer. Scholars have found that the amount of knowledge acquired from the recruited talents is influenced by characteristics of the hiring firms, such as knowledge diversification (Slavova, Fosfuri & De Castro, 2016), positioning of the recruits (Song, Almeida & Wu, 2003), tenure of incumbent scientists (Slavova et al., 2016), as well as the relationship between the current and previous employers (Almeida & Kogut, 1999).

Researchers have also studied a number of mechanisms to curb knowledge outflows via inventor turnover, such as compensation, litigations and non-compete covenants (Agarwal, Ganco, & Ziedonis, 2009; Ganco, Ziedonis, & Agarwal, 2015; Wang, et al., 2009; Younge, Tong, & Fleming, 2015). As employee mobility is an important reason for localized knowledge spillover (Almeida & Kogut, 1999), by curbing inventor turnover, firms can control, to some extent, knowledge outflows to geographically proximate firms by careful use of alliances, and

the associated use of complex contracts and non-disclosure agreements. However, the restrictive covenants in such agreements may limit the possibilities of knowledge leakage for a certain time after the inventors leave a job, firms can never completely eliminate leakages.

4. Country-level IPR regimes: location advantages and duality for policy

The attractiveness of countries for MNEs is shaped by their provision of location-specific advantages. Legislations and policies relating to IPRs are critical sources of location advantages (Narula & Santangelo, 2012). IPR legislation and enforcement provide the formal and informal institutions to govern (and bolster) domestic economic activity. They also send an important 'signal' for foreign investors, because they indicate the openness of a market and the nature of its institutions, even for investors that are not necessarily affected by IPR policies (Javorcik, 2004; Lall, 1997). IPRs matter more for MNEs in 'IPR sensitive' sectors, such as in knowledge-intensive industries, and less for more mature sectors and resource-intensive ones. Similarly, IPR matter more for R&D-related investments, but less so for market- and resource-seeking investments (Narula, 2022; Nunnenkamp & Spatz, 2004).

The duality of IPRs for policy: conflicting interests

The role of the nation state is crucial in IPR, as it is responsible for mandating the legal basis for IPR, as well as being responsible for enforcing the rights of individuals, firms, and other actors. Governments seek ideally to balance possible conflicts of influence from both domestic interest groups (e.g., political parties, industry associations, workers unions, and large firms) and foreign stakeholders (e.g., geopolitical allies, bilateral and multilateral agreements, and MNEs) (Athreye, Piscitello & Shadlen, 2020).

IPR policy and its enforcement forms an invaluable tool to shape the competitiveness of firms within its borders, and the state has considerable leeway in utilizing IPR law to strengthen or

weaken the FSAs of specific groups of actors. It can do so by legislating or omitting to legislate legally binding IPRs (for instance, software patents are not similarly protected in all countries) or by only selectively enforcing IPRs (either for strategic reasons, or where there is an absence of effective regulatory capacity). Both mechanisms can used by countries with active industrial and FDI policies as a means to strengthen the FSAs of domestic firms relative to those of foreign MNEs operating in its domain. In some circumstances, where the domestic sector is weak, the capacity to enforce IPRs may serve as a tool to attract inward MNE activity.

However, not all development policy regimes rely on MNE investment, and there is considerable heterogeneity in MNE-assisted development regimes. The 'optimal' level of protection that balances between attracting MNE investment and developing domestic firms' innovation capacities differs between countries at different stages of technological development, and within sectors over time (Narula & Dunning, 2010; Narula & Pineli, 2019). While stricter IPR enforcement tends to be more common among advanced economies with strong innovation capabilities, strong IPR can hinder the development of technological capacity and FDI inflows for developing countries seeking to catch up (Chen & Puttitanun, 2005; Kim, Lee, Park & Choo, 2012; May & Sell, 2006; Wu, Ma & Zhuo, 2017).

Not surprisingly, while nation states establish IPR legislation as part of international IPR protection agreements (e.g., TRIPS), they differ significantly with respect to the actual implementation and enforcement of these laws (Papageorgiadis & McDonald, 2022). States may selectively comply with their obligations to protect foreign IPRs to maximize strategic goals for technological leapfrogging (Brander et al, 2017). IPRs may be waived or strengthened in a specific sector, or only for a specific group of firms in an effort to build up national champions to create and strengthen a cluster of national competitiveness. States may intentionally weaken the competitiveness of foreign-owned firms, by making their technological assets easier to imitate for domestic actors, as part of an industrial or development

policy. Alternatively, policies may strengthen the IPRs of domestic firms by giving them IP protection of unusual length and breadth. While some scholars argue that IPR protection eventually becomes stronger as the domestic technological capacity grows (Sweet & Eterovic, 2019; Sweet & Maggio, 2015; Kalaycı & Pamukcu, 2014; Acemoglu, Aghion, & Zilibotti, 2006, Narula, 2022), other scholars suggest that without strong external coercion, poor or selective IPR enforcement will continue in developing countries (Brander et al., 2017).

Developing countries may also encounter resource constraints to enforcing international IPR regulations. Few developing countries have the legal manpower to properly interpret and judge patent applications by MNEs, or to determine infringements. Where foreign patents infringe upon unpatented intellectual property such as local traditional medicines or extracts from plants, local actors cannot afford to protect and enforce these IPRs (Giuliani, Jacqueminet & Nieri, 2022). Even wealthier developing countries with greater resources and significant numbers of skilled bureaucrats such as China or India find it challenging (Papageorgiadis & McDonald, 2022). Resource constraints in the public sector, and in particular the absence of skilled and expert IPR legal experts to evaluate sophisticated IP in most developing countries will continue to impede enforcement. In general, for governments, MNE-related IPR issues are rarely a priority compared to addressing key economic problems, such as endemic unemployment and poverty (Narula & van der Straaten, 2021).

International institutions that affect IPR protection are constantly evolving as the international business contexts change over time. As various forms of digital trade (e.g., e-commerce, digitalization of physical products, and cloud computing) play an increasingly critical role in international trade, it has become critical to effectively govern digital trade globally (Athreye, Piscitello, & Shadlen, 2020). Crucial conditions for the functioning of the digital economy—such as maintaining free flow of data, maintaining security within digital ecosystems, and protection of source code—inevitably have consequences for IPR violation and protection.

There has been a growing divide within the WTO between the advanced countries (led by the U.S. and Europe) and the developing countries (led by India, South Africa and Brazil) on issues associated with the right to establish IPRs for biologics. Other considerable disagreements proliferate around such issues as data localization, filtering and privacy, strategic limits to IPRs for development purposes, and the use of geographical indications (Azmeh, Foster, & Echavarri, 2020).

5. Linking country-and firm-level perspectives: a framework for future research

The leitmotif of this paper is that prior research investigating IPR at country and firm levels have not yet been fully integrated. From the firm perspective, their IP strategies are not developed and implemented in a vacuum, but are necessarily adapted to the context provided by the IPR regimes in the home and various host countries. Firms, both individually and part of various formally and informally organized interest groups, therefore, strive to influence-country-level (and occasionally, sub-national) IPR policy formation, and implementation. From the perspective of policymakers, the establishment, implementation, and reformation of IPR regimes are influenced by the interests of both domestic firms and MNEs, with respect to their IPR strategies and practices. In addition, IPR policies of nation states are rarely static, and ideally evolve with the competitiveness and economic structure of the country, in tandem with the development path and strategic objectives of other policies that address the competitiveness of the location, and its locally embedded economic actors. As a variety of commentators have noted, IPRs have been a key aspect of development policy, since at least the first industrial revolution (Chang 2002, Malerba & Lee 2021, Narula, 2022).

A research framework depicted in Figure 1 integrates these two levels of IPR research. In this framework, we take an IB perspective, placing MNEs at the heart of the analysis. We therefore also take an MNE-centric view of the interactions between firm-level IPR strategies

(inter-firm cooperation, location choices, inventor mobility) and country-level IPR institutions (home, host, and home-host distance). We suggest that macro and micro level factors interact with each other through two processes: a top-down process, i.e., country IPR institutions cascading down to the firm-level, influencing MNE decisions and performance, and a bottom-up effect, i.e., firm-level IPR practices driving country-level IPR regime evolution. Below we describe the research agenda contained in this framework with a few examples to showcase plausible research areas to be fully explored.

--Insert Figure 1 about here--

The top-down process

IPR regimes and inter-firm cooperation

A key area that deserves further attention is the interaction between country IPR regimes (host and home) and inter-firm cooperation. Despite ample research on interfirm cooperation, we have not fully understood how IPR regimes might influence core issues in inter-firm cooperation such as MNE alliance formation, alliance portfolio management, governance structure and partner selection, and the interplay between cooperation and competition.

One area of opportunity is to examine the effect of host-country IPR regimes on international cooperation. For instance, weak IPR regimes in host countries could influence local firms and MNEs from strong IPR regimes asymmetrically, with respect to private versus common interests dynamics (Arslan, 2018; Khanna et al., 1998), bilateral and multilateral rivalry (Lavie, 2007), and the transition from cooperative to competitive relationships (Cui, et al., 2018).

Earlier work on cooperation and collaboration focused on equity joint ventures, which are no longer the predominant form of governance structure in international cooperation. In a

rapidly evolving global milieu that is increasingly dominated by global value chains, we now need to ask which governance structures best limit opportunism, and to what extent are specific structures relevant in host countries with poor IPR enforcement and weak institutions? Anecdotal evidence at the micro-level would suggest that equity agreements matter more where weak institutions prevail, although the global rise of global value chains and the associated tendency towards quasi-internalization across industries and regions does not suggest that there is a great variation in the use of non-equity cooperative structures (Asmussen, Chi & Narula 2022). However, this remains a conjecture, in need of empirical confirmation.

Another research avenue is to investigate the effect of *home-country* IPR regimes on interfirm cooperation, rather than the effects of host-country regimes. Earlier studies noted that home-country IPR regimes imprint on MNEs (Meyer & Zucker, 1989; Meyer & Rowan, 1977; Rosenzweig & Singh, 1991; Zucker, 1987). Although at least one study noted that this might influence how MNEs behave in international alliances (Oxley, 1999), this has remained an unexplored theme. Indeed, evidence on the location of R&D activities by MNEs suggests that more knowledge-intensive R&D continues to be biased towards the home country (and region), and by extension, towards the corporate HQ's strategic objectives (Castellani, 2018). Alliances remain a key means to overcome the threats to the MNE's intellectual property when engaging with partners from weak IPR regimes. International cooperation may also involve state-owned (or -controlled) enterprises (SOEs), which in some cases are a deliberate and direct tool of industrial policy. In such cases, the interaction between IPR policies and firm-level cooperation takes on a more immediate and deliberate character, and brings to the forefront a variety of political economy related issues (Malerba & Lee 2021, Mazzucato, 2018, Andreoni & Chang 2019, Genin, Tan & Song *this issue*).

IPR regimes and location choices

There is yet much to be discovered about how IPR regimes (home and host countries) and firm-level IPR protection and enforcement (of both MNEs and local firms) may interactively affect MNE location-related strategies.

It is apparent that the IPR regulation matters more as a location advantage for certain kinds of industries than others. Despite some clear indications that more mature, low tech industries do not consider IPR regimes as an important issue when making location choices, current research does not make a strong differentiation between *legislation* and effective *enforcement* of IPRs. Indeed, neither is dichotomous in nature, because there is considerable nuance in the kinds of legislation enacted, and the extent to which IPRs are enforced, and this can vary by sector, and even between firms. This means that simply classifying countries as 'strong' or 'weak' in IPR protection can be an oversimplification, and future research needs to explore IPR enforcement and legislation separately, both as continua. This matters when considering the use of GVCs and the fine-slicing of activities and their spatial distribution.

Although there is considerable discussion on institutional distance in the recent IB literature (e.g., Kostova, Beugelsdijk, Scott, Kunst, Chua & van Essen, 2020), we know less about IPR-associated institutional distance, and its influence on MNE location choices. In other words, distance may matter differently for IPR-related institutions, as the paper by Bruno et al., (this issue) illustrates. How does IPR-related distance and IPR enforcement in practice influence transaction costs, knowledge flows, and consequently, MNE location choices? How are location strategies affected by IPR in 'new' technological domains where IPRs are still unclear (Chen, Li, Wei & Yang, 2022)? How can institutional changes in different countries influence location-specific advantages, and consequently MNE geographic diversification of their subsidiaries?

IPR regimes and inventor mobility

The third area for further development is the effect of IPR regimes on the antecedents and consequences of inventor mobility in an international context. A multi-level perspective that contextualizes talent management within heterogeneous IPR regimes could challenge existing assumptions and open new research avenues for the literatures on talent recruitment and 'learning-by-hiring'.

One promising research avenue is to investigate the effect of *home*- or *host-country* IPR regimes on talent recruitment. For example, in host countries with weak IPR enforcement, is litigation still an effective measure to prevent inventors from moving to competitors (Agarwal, et al., 2009; Ganco, et al., 2015)?How do home-country IPR regimes influence the reputation of MNEs in host countries (Zaheer, 1995; Zaheer & Mosakowski, 1997; Tung, 2007), which consequently influences talent recruitment. Another promising research direction is to contextualize the outcome of 'learning-by-hiring'. The literature on 'learning-by-hiring' has focused mainly on strong IPR regimes, overlooking the influence of various IPR environments in which former and current employers of the recruits are embedded. For example, one may study whether institutional distance between host- and home-country IPR regimes may influence how recruits adjust, cooperate, and contribute to MNEs' innovation, which might be different from what they do in a homogeneous IPR environment.

The bottom-up process

The bottom-up route to studying IPR protection has been largely unexplored in the IB-related IPR literature, although there has been an active engagement with the influences of MNEs on institutional evolution (e.g., Cantwell, Dunning, & Lundan, 2010; Brandl, Darendeli, & Mudambi, 2019; Hillman & Hitt, 1999). This bottom-up perspective can be applied to study how MNE IPR strategies can influence the implementation, enforcement, and evolution of

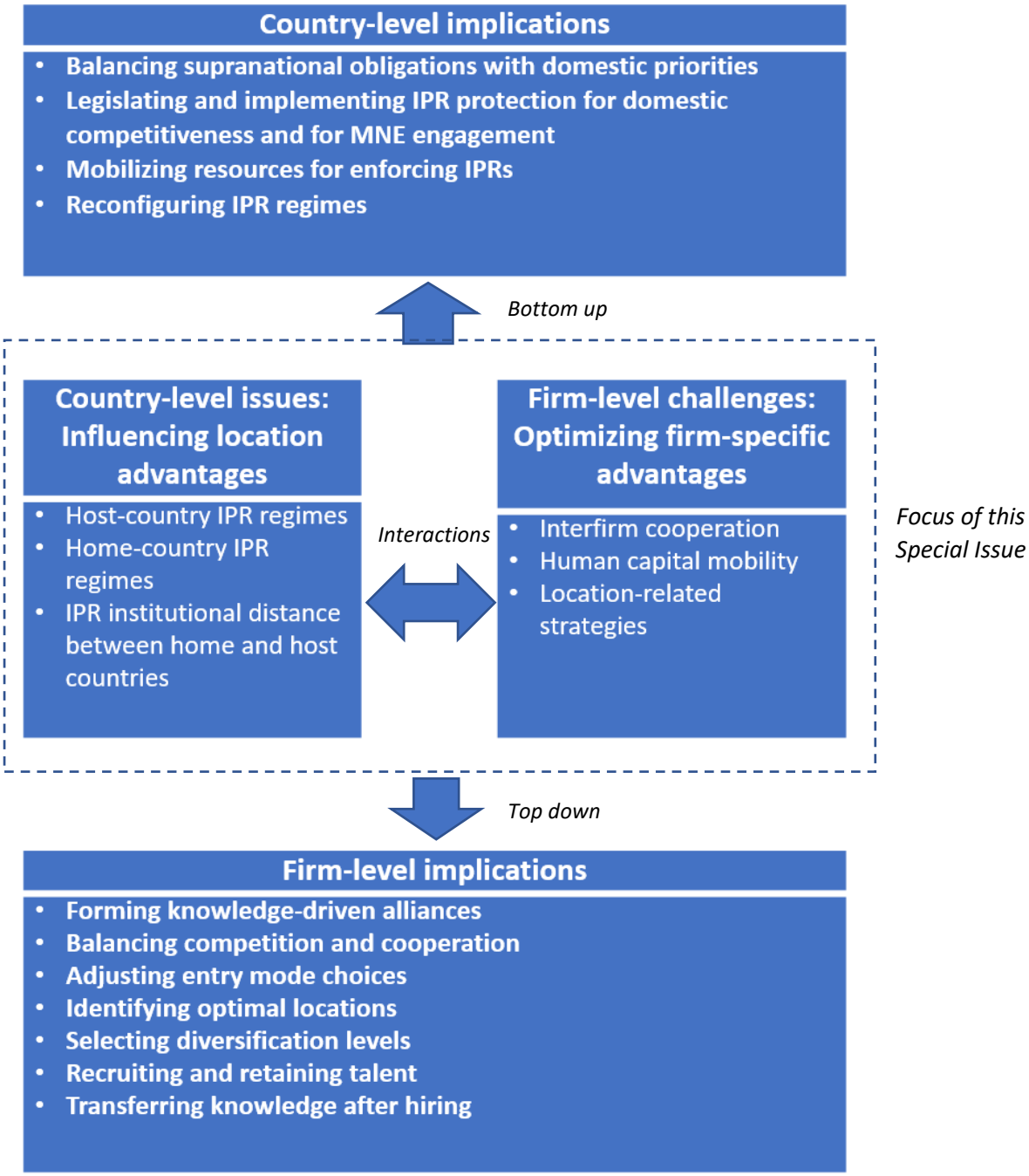
IPR institutions in home countries. For example, as MNEs from weak IPR regimes adapt to stronger IPR environments, they gain first-hand experience, which may consequently influence IPR regime changes in their home countries. Alternatively, it is interesting to see how home-country IPR regimes of MNEs influence the IPR systems of host countries, and the degree to which certain MNEs are able to utilize regulatory capture to optimize their IPR portfolio. Similarly, it is worth examining how MNEs can serve as advocates for certain types of IPR protection, in their interactions with local governments, firms, and inventors, and how such activities influence IPR institutions in host countries, in a negative or positive way.

6 Conclusions

The objective of this special issue is to encourage a multi-level view in studying IPRs in IB. Intellectual property plays a critical role in conferring MNEs with firm-specific advantages and this has received ample attention in the IB literature. So too have the location advantages associated with the protection of IPRs, advantages that determine country-level attractiveness as destinations for MNE investment. Integrating these single-level research findings, this paper has proposed a multi-level IPR research agenda that takes an interdisciplinary approach. The papers in this special issue revealed some previously unexplored facets of IPR protection in IB. All of them have taken a top-down approach, focusing on the effect of host-country IPR regimes or institutional distance. As illustrated in Figure 1, abundant opportunities are left unexplored, which are embedded in the interactions between firm-level strategies to optimize FSAs and country-level challenges over location advantages, and how such interactions influence both firm-level decisions and performance, and country-level regimes and policies. Opportunities for multi-level IPR research also exist beyond the firm- and country-levels. An area that has been greatly neglected is the individual-level, and unfortunately, this special issue has been unable to rectify this shortcoming. Neither has this

special issue seen IPR studies across other levels (e.g., supernational, sub-national, and industry), or indeed from political economy, law and sociology. Finally, we note that there is considerable merit in pursuing bottom-up research in IP related research, as the recent work on micro-foundations has emphasised (Felin, Foss, & Ployhart, 2015).

Figure 1. A Research Framework for Studying IPRs in IB



References

Acemoglu, D., & Akcigit, U. 2012. Intellectual property rights policy, competition and innovation. *Journal of the European Economic Association*, 10(1): 1-42.

Agarwal, R., Echambadi, R., Franco, A. M., & Sarkar, M. B. 2004. Knowledge transfer through inheritance: Spin-out generation, development, and survival. *Academy of Management Journal*, 47(4): 501-522.

Alcácer, J., & Chung, W. 2007. Location strategies and knowledge spillovers. *Management Science*, 53(5): 760-776.

Alcácer, J., & Zhao, M., 2012. Local R&D strategies and multilocation firms: The role of internal linkages. *Management Science*, 58(4): 734-753.

Almeida, P., & Kogut, B. 1999. Localization of knowledge and the mobility of engineers in regional networks. *Management Science*, 45(7): 905-917.

Anand, J., McDermott, G., Mudambi, R., & Narula, R. 2021. Innovation in and from emerging economies: New insights and lessons for international business research. *Journal of International Business Studies*, 52(4): 545-559.

Andersson, U. R., Brewster, C. J., Minbaeva, D. B., Narula, R., & Wood, G. T. 2019. The IB/IHRM interface: Exploring the potential of intersectional theorizing. *Journal of World Business*, 54(5): 100998.

Andreoni, A., & Chang, H. J. (2019). The political economy of industrial policy: Structural interdependencies, policy alignment and conflict management. *Structural change and economic dynamics*, *48*, 136-150.

Arundel, A., 2001. The relative effectiveness of patents and secrecy for appropriation. *Research Policy*, 30(4): 611-624.

Arundel, A., & Kabla, I. 1998. What percentage of innovations are patented? Empirical estimates for European firms. *Research Policy*, 27(2): 127-141.

Asmussen, C., Chi, T., & Narula, R. 2022. Quasi-Internalization, Recombination Advantages and Global Value Chains: Clarifying the Role of Ownership and Control. *JIBS*, forthcoming.

Athreye, S., Piscitello, L., & Shadlen, K. C., 2020. Twenty-five years since TRIPS: Patent policy and international business. *Journal of International Business Policy*, 3(4): 315-328.

Belderbos, R., Park, J. and Carree, M., 2021. Do R&D investments in weak IPR countries destroy market value? The role of internal linkages. *Strategic Management Journal*, 42(8): 1401-1431.

Bogers, M., Zobel, A. K., Afuah, A., Almirall, E., Brunswicker, S., Dahlander, L., Frederiksen, L., Gawer, A., Gruber, M., Haefliger, S., & Hagedoorn, J. 2017. The open innovation research landscape: Established perspectives and emerging themes across different levels of analysis. *Industry and Innovation*, 24(1): 8-40.

Brander, J. A., Cui, V., & Vertinsky, I. 2017. China and intellectual property rights: A challenge to the rule of law. *Journal of International Business Studies*, 48(7): 908-921.

Bruno, R. L., Crescenzi, R., Estrin, S., & Petralia, S. *this issue.* Multinationals, innovation, and institutional context: IPR protection and distance effects. *Journal of International Business Studies*, forthcoming.

Cantwell, J., & Santangelo, G. D. 1999. The frontier of international technology networks: sourcing abroad the most highly tacit capabilities. *Information Economics and Policy*, 11(1): 101-123.

Carnahan, S., Agarwal, R., & Campbell, B. A. 2012. Heterogeneity in turnover: The effect of relative compensation dispersion of firms on the mobility and entrepreneurship of extreme performers. *Strategic Management Journal*, 33(12): 1411-1430.

Castellani, D. 2018. The changing geography of innovation and the multinational enterprise. In *The Routledge Companion to the Geography of International Business*. Routledge.

Castellani, D., & Lavoratori, K. 2020. The lab and the plant: Offshore R&D and co-location with production activities. *Journal of International Business Studies*, 51(1): 121-137.

Chen, Y., & Puttitanun, T. 2005. Intellectual property rights and innovation in developing countries. *Journal of Development Economics*, 78(2): 474-493.

Chen, L., Li, S., Wei, J., & Yang, Y. 2022. Externalization in the platform economy: Social platforms and institutions. *Journal of International Business Studies*, 53: 1-12.

Chang, H. J. (2002). *Kicking away the ladder: development strategy in historical perspective*. Anthem Press.

Chung, W., & Alcácer, J. 2002. Knowledge seeking and location choice of foreign direct investment in the United States. *Management Science*, 48(12): 1534-1554.

Cohen, W. M., Goto, A., Nagata, A., Nelson, R. R., & Walsh, J. P., 2002. R&D spillovers, patents and the incentives to innovate in Japan and the United States. *Research Policy*, 31(8-9): 1349-1367.

Contractor, F. J. 2019. Can a firm find the balance between openness and secrecy? Towards a theory of an optimum level of disclosure. *Journal of International Business Studies*, 50(2): 261-274.

Contractor, F. J., & Reuer, J. J. 2014. Structuring and Governing Alliances: New Directions for Research. *Global Strategy Journal*, 4(4): 241-256.

Criscuolo, P., & Narula, R. 2008. A novel approach to national technological accumulation and absorptive capacity: aggregating Cohen and Levinthal. *The European Journal of Development Research*, *20*(1), 56-73.

Cui, V., Yang, H., & Vertinsky, I. 2018. Attacking your partners: Strategic alliances and competition between partners in product markets. *Strategic Management Journal*, 39(12): 3116-3139.

Dasgupta, P., & Stiglitz, J. 1980. Industrial structure and the nature of innovative activity. *The Economic Journal*, 90(358): 266-293.

Dosi, G., Marengo, L., & Pasquali, C. 2006. How much should society fuel the greed of innovators?: On the relations between appropriability, opportunities and rates of innovation. *Research Policy*, 35(8): 1110-1121.

Dyer, J. H., & Chu, W. 2003. The role of trustworthiness in reducing transaction costs and improving performance: Empirical evidence from the United States, Japan, and Korea. *Organization science*, 14(1): 57-68.

Felin, T., Foss, N. J., & Ployhart, R. E., 2015. The microfoundations movement in strategy and organization theory. *Academy of Management Annals*, 9(1): 575-632.

Forsgren, M., & Holm, U. 2021. Controlling without owning–owning without controlling: A critical note on two extensions of internalization theory. *Journal of International Business Studies*, 52: 1-13.

Genin, A. L., Tan, J., & Song, J. *this issue*. State governance and technological innovation in emerging economies: State-owned enterprise restructuration and institutional logic dissonance in China's high-speed train sector. *Journal of International Business Studies, forthcoming*.

Giuliani, E., Jacqueminet, A., and Nieri, F., 2022. 'Bringing light to dark spots: The case of cross-border bioprospecting.' In Cross-border Innovation in a Changing World: Players, Places, and Policies, edited by D. Castellani, A. Perri, V. G. Scalera, and A. Zanfei. Oxford: Oxford University Press.

Gooderham, P.N., Elter, F., Pedersen, T., & Sandvik, A.M. 2022. The digital challenge for multinational mobile network operators. More marginalization or rejuvenation?. *Journal of International Management*, 28(4): 100946.

Gooris, J., & Peeters, C. 2016. Fragmenting global business processes: A protection for proprietary information. *Journal of International Business Studies*, 47(5): 535-562.

Griffith, M. K., Steinberg, R. H., & Zysman, J. 2017. From great power politics to a strategic vacuum: Origins and consequences of the TPP and TTIP. Business and Politics, 19(4): 573-592.

Guimón, J., & Narula, R. (2020). Ending the COVID-19 pandemic requires more international collaboration. *Research-Technology Management*, *63*(5), 38-41.

Gulati, R. 1995a. Does familiarity breed trust? The implications of repeated ties for contractual choice in alliances. *Academy of Management Journal*, 38(1): 85-112.

Gulati, R. 1995b. Social structure and alliance formation patterns: A longitudinal analysis. *Administrative Science Quarterly*, 619-652.

Hagedoorn, J., 2002. Inter-firm R&D partnerships: an overview of major trends and patterns since 1960. *Research policy*, 31(4): 477-492.

Hagedoorn, J., & Narula, R. (1996). Choosing organizational modes of strategic technology partnering: international and sectoral differences. *Journal of international business studies*, *27*(2), 265-284.

Hamel, G. 1991. Competition for competence and interpartner learning within international strategic alliances. *Strategic Management Journal*, 12(S1): 83-103.

Heiman, B., & Nickerson, J. A. 2004. Empirical evidence regarding the tension between knowledge sharing and knowledge expropriation in collaborations. *Management Decision Economics*, 25(6-7): 401-420.

Hoetker, G. 2005. How much you know versus how well I know you: Selecting a supplier for a technically innovative component. *Strategic Management Journal*, 26(1): 75-96.

Hoffmann, W., Lavie, D., Reuer, J. J., & Shipilov, A. 2018. The interplay of competition and cooperation. *Strategic Management Journal*, 39(12): 3033-3052.

Inkpen, A., Minbaeva, D., & Tsang, E. W. 2019. Unintentional, unavoidable, and beneficial knowledge leakage from the multinational enterprise. *Journal of International Business Studies*, 50(2): 250-260.

Jaffe, A. B., Trajtenberg, M., & Henderson, R. 1993. Geographic localization of knowledge spillovers as evidenced by patent citations. *The Quarterly Journal of Economics*, 108(3): 577-598.

Javorcik, B. S. 2004. The composition of foreign direct investment and protection of intellectual property rights: Evidence from transition economies. *European economic review*, 48(1): 39-62.

Jecker, N. S. (2022). Achieving Global Vaccine Equity: The Case for an International Pandemic Treaty. *The Yale Journal of Biology and Medicine*, *95*(2), 271.

Jecker, N. S., & Atuire, C. A. (2021). What's yours is ours: waiving intellectual property protections for COVID-19 vaccines. *Journal of Medical Ethics*, *47*(9), 595-598.

Khanna, T., Gulati, R., & Nohria, N. 1998. The dynamics of learning alliances: Competition, cooperation, and relative scope. *Strategic Management Journal*, 19(3): 193-210.

Kim, Y. K., Lee, K., Park, W. G., & Choo, K. 2012. Appropriate intellectual property protection and economic growth in countries at different levels of development. *Research policy*, 41(2): 358-375.

Kostova, T., Beugelsdijk, S., Scott, W. R., Kunst, V. E., Chua, C. H., & van Essen, M. (2020). The construct of institutional distance through the lens of different institutional perspectives: Review, analysis, and recommendations. *Journal of International Business Studies*, *51*(4), 467-497.

Kranenburg, H., Hagedoorn, J., & Lorenz-Orlean, S. 2014. Distance Costs and The Degree of Inter-Partner Involvement in International Relational-Based Technology Alliances. *Global Strategy Journal*, 4(4): 280-291

Lall, S. 1997. Investment, technology and international competitiveness. In J.H. Dunning and K.A. Hamdani (Eds.), *The New Globalism and Developing Countries*: 232-259. New York: United Nations University Press.

Lavie, D. 2007. Alliance portfolios and firm performance: A study of value creation and appropriation in the US software industry. *Strategic Management Journal*, 28(12): 1187-1212.

Li, D., Eden, L., Hitt, M., & Ireland, R. D. 2008. Friends, Acquaintances, or Strangers? Partner selection in R&D alliances. *Academy of Management*, 51(2): 315-334.

Malerba, F., & Lee, K. (2021). An evolutionary perspective on economic catch-up by latecomers. *Industrial and Corporate Change*, *30*(4), 986-1010.

Mariotti, S., Piscitello, L., & Elia, S. 2010. Spatial agglomeration of multinational enterprises: the role of information externalities and knowledge spillovers. *Journal of Economic Geography*, 10(4): 519-538.

Martinez-Noya, A., & Garcia-Canal. 2018. Location, Shared R&D Suppliers and the Performance of R&D Outsourcing Agreements. *Industry and Innovation*. 25(3): 308-332.

Martinez-Noya, A., & Narula, R. 2018. What more can we learn from R&D alliances? A review and research agenda. *BRQ Business Research Quarterly*, 21(3): 195-21

Mazzucato, M. (2018). Mission-oriented innovation policies: challenges and opportunities. *Industrial and Corporate Change*, *27*(5), 803-815.

Mawdsley, J. K., & Somaya, D. 2016. Employee mobility and organizational outcomes: An integrative conceptual framework and research agenda. *Journal of Management*, 42(1): 85-113.

May, C., & Sell, S. K. 2006. *Intellectual property rights: A critical history*. Boulder: Lynne Rienner Publishers.

Nandkumar, A., & Srikanth, K. 2016. Right person in the right place: How the host country IPR influences the distribution of inventors in offshore R&D projects of multinational enterprises. *Strategic Management Journal*, 37(8): 1715-1733.

Narula, R., 2001. Choosing between internal and non-internal R&D activities: some technological and economic factors. *Technology Analysis & Strategic Management*, 13(3): 365-387.

Narula, R. 2022, IPRs, cross-border (collaborative) innovation and development challenges: a comment In D. Castellani, A. Perri, V. G. Scalera & A. Zanfei (Eds), *Cross-border Innovation in a Changing World: Players, Places, and Policies*. Oxford: Oxford University Press.

Narula, R., Asmussen, C. G., Chi, T., & Kundu, S. K. 2019. Applying and Advancing Internalization Theory: The Multinational Enterprise in the Twenty-First Century. *Journal of International Business Studies*, 50(9): 1231-1252.

Narula, R., & Dunning, J. H. 2010. Multinational enterprises, development and globalization: Some clarifications and a research agenda. *Oxford Development Studies*, 38(3): 263-287.

Narula, R., & Hagedoorn, J. 1999. Innovating through strategic alliances: moving towards international partnerships and contractual agreements. *Technovation*, 19(5): 283-294.

Narula, R., & Martinez-Noya A. 2015. International R&D alliances by firms: Origins and development, in D. Archibugi & A. Filippetti (Ed.) *The Handbook of Global Science, Technology, and Innovation*. Wiley-Blackwell.

Narula, R., & Pineli, A. 2019. Improving the developmental impact of multinational enterprises: policy and research challenges. *Journal of Industrial and Business Economics*, 46(1): 1-24.

Narula, R., & Santangelo, G. D. 2009. Location, collocation and R&D alliances in the European ICT industry. *Research Policy*, 38(2): 393-403.

Narula, R., & Santangelo, G. D. 2012. Location and collocation advantages in international innovation. *Multinational Business Review*, 20(1): 6-25.

Narula, R., & Van der Straaten, K. 2021. A comment on the multifaceted relationship between multinational enterprises and within-country inequality. *Critical Perspectives on International Business*, 17(1): 33-52.

Noon, P., De Vita, G., & Appleyard, L., 2019. What do we know about the impact of intellectual property rights on the foreign direct investment location (country) choice? A review and research agenda. *Journal of Economic Surveys*, 33(2): 665-688.

Nunnenkamp, P., & Spatz, J. 2004. Intellectual property rights and foreign direct investment: a disaggregated analysis. *Review of World Economics* 140(3): 393-414.

Oxley, J. E. 1999. Institutional environment and the mechanisms of governance: the impact of intellectual property protection on the structure of inter-firm alliances. *Journal of Economic Behavior & Organization*, 38(3), 283-309.

Oxley, J. E., & Sampson, R. C. 2004. The scope and governance of international R&D alliances. *Strategic Management Journal*, 25(8-9): 723-749.

Papageorgiadis, N., & McDonald, F. 2022. Cross-border innovation and knowledge protection policies. In D. Castellani, A. Perri, V. G. Scalera & A. Zanfei (Eds), *Cross-border Innovation in a Changing World: Players, Places, and Policies*. Oxford: Oxford University Press.

Papanastassiou, M., Pearce, R., & Zanfei, A. 2020. Changing perspectives on the internationalization of R&D and innovation by multinational enterprises: A review of the literature. *Journal of International Business Studies*, 51(4): 623-664.

Polidoro Jr, F., Ahuja, G., & Mitchell, W. 2011. When the social structure overshadows competitive incentives: The effects of network embeddedness on joint venture dissolution. *Academy of Management Journal*, 54(1): 203-223.

Reuer, J., & Lahiri, N. 2014. Searching for Alliance Partners: Effects of Geographic Distance on the Formation of R&D Collaborations. *Organization Science*, 25(1): 283-298.

Ritala, P., Olander H., Michailova, S., & Husted K. 2015. Knowledge sharing, knowledge leaking and relative innovation performance: An empirical study. *Technovation*, 35: 22-31.

Rubenstein, A. L., Eberly, M. B., Lee, T. W., & Mitchell, T. R. 2018. Surveying the forest: A meta-analysis, moderator investigation, and future-oriented discussion of the antecedents of voluntary employee turnover. *Personnel Psychology*, *71*(1), 23-65.

Ryu, W., McCann, B. T., & Reuer, J. J. 2018. Geographic co-location of partners and rivals: Implications for the design of R&D alliances. *Academy of Management Journal*, 61(3): 945-965.

Santamaria, L., Nieto, M. J., Barge-Gil, A. 2010. The relevance of different open innovation strategies for R&D performers. *Cuadernos de Economía y Dirección de la Empresa*, 13(45): 93-114.

Schaefer, K. 2020. Catching up by hiring: The case of Huawei. *Journal of International Business Studies*, 51(9): 1500-1515.

Shaver, J., & Flyer, F. 2000. Agglomeration economies, firm heterogeneity, and foreign direct investment in the United States. *Strategic Management Journal*, 21(12): 1175-1193.

Singh, J. 2007. Asymmetry of knowledge spillovers between MNCs and host country firms. *Journal of International Business Studies*, 38(5): 764-786.

Slavova, K., Fosfuri, A., & De Castro, O. 2016. Learning by hiring: The effects of scientists' inbound mobility on research performance in academia. *Organization Science*, 27(1): 72-89.

Song, J., Almeida, P., & Wu, G. 2003. Learning–by–hiring: When is mobility more likely to facilitate interfirm knowledge transfer?. *Management Science*, *49*(4), 351-365.

Sweet, C. M., & Maggio, D. S. E. 2015. Do stronger intellectual property rights increase innovation?. *World Development*, 66: 665-677.

Van De Vrande, V., Vanhaverbeke, W., & Gassmann, O. 2010. Broadening the scope of open innovation: past research, current state and future directions. *International Journal of Technology Management*, 52(3/4): 221-235.

Wang, X., Dolfsma, W., & Van der Bij, H. 2019. Individual performance in a coopetitive R&D alliance: motivation, opportunity and ability. *R&D Management*, 49(5): 762-774.

Wang, Y., Wang, N., Jiang, L., Yang, Z., & Cui, V. 2016. Managing relationships with power advantage buyers: The role of supplier initiated bonding tactics in long-term buyer–supplier collaborations. *Journal of Business Research*, 69(12): 5587-5596.

Wu, J., Ma, Z., & Zhuo, S. 2017. Enhancing national innovative capacity: The impact of high-tech international trade and inward foreign direct investment. *International Business Review*, 26(3): 502-514.

Yan, Y., Li, J., & Zhang, J. *this issue*. Protecting intellectual property in foreign subsidiaries: An internal network defense perspective. *Journal of International Business Studies*, forthcoming.

Yang, H., Zheng, Y., & Zaheer, A. 2015. Asymmetric learning capabilities and stock market returns. *Academy of Management Journal*, 58(2): 356-374.

Zaheer, A., McEvily, B., & Perrone, V. 1998. Does trust matter? Exploring the effects of interorganizational and interpersonal trust on performance. *Organization* Science, 9(2): 123-141.

Zhao, M. 2006. Conducting R&D in countries with weak intellectual property rights protection. *Management Science*, 52(8): 1185-1199.

Victor Cui is Conrad Research Excellence Chair and Associate Professor (Entrepreneurship, Innovation, Global Strategy) at the Conrad School of Entrepreneurship and Business, University of Waterloo, Canada. His current research focuses on business strategy, technological innovation, and IPR protection. His research has been published in leading journals such as *Journal of International Business Studies*, *Strategic Management Journal*, and *Research Policy*.

Dana Minbaeva is a Professor of Human Resource Management at King's College of London, UK. She also has a part-time appointment at Copenhagen Business School, Denmark. Her research area is strategic international HRM. Professor Minbaeva received several national and international awards for research achievements, including the prestigious JIBS Decade Award 2013.

Rajneesh Narula is the John H. Dunning Chair of International Business Regulation at the Henley Business School, University of Reading, UK. His research and consulting have focused on the role of firms in development, inequality, innovation and industrial policy, R&D alliances, outsourcing and the informal economy . He is also Director of the Dunning Africa Centre.

Ilan Vertinsky is Vinod Sood Professor of International Business Studies, Strategy and Business Economics in the Sauder School of Business at UBC. His current research foci are:1) The relationships between inter- firm collaboration, competition, IPR litigation and innovation; 2) the US-China technology innovation rivalry; and 3) Climate change resilience