Innovation and International Business Policy

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1. Introduction

Two opposing forces are discernible in the current scenario: a drive for global protectionism, that is, the protection of geographical and commercial borders (Witt, 2019), and yet a continued drive for more extensive international links to boost innovation and economic performance. The former force, when applied to research-intensive, 'high tech' sectors, incorporates what has been described as a new techno-nationalism, which can be considered as a revitalization or extension of a longer standing techno-nationalism paradigm (Luo, 2022). This new conceptualization is, its advocates argue, grounded on a rising tension between two main categories of countries - those developing innovation capabilities while relying on intellectual property (IP) protection (rule of law countries), and those trying to build their innovation capacity through the acquisition of foreign intellectual property (which are claimed to be autocratic countries) (Petricevic & Teece, 2019). We will contend instead that this is mainly a tension over competing interests in intellectual property markets, and over the control of activities deemed to be critical to national security interests.

The present chapter therefore focuses instead on the growing, and more general tension across all countries between innovative, entrepreneurial interests and the associated open access

institutions on which they rely, and rent-seeking interests and their extractive institutions, both within countries and across the entire world. We contend that this is the conflict which in the current era lies at the heart of contemporary political polarization and consequent cross-border tensions. The prevailing paradigm of the information and digital age is one in which technological knowledge has become considerably more complex with many far-reaching interdependencies. This considerably more complex structure of knowledge building for innovation requires a much more extensive mutual exchange of knowledge across organizations and across borders in order to maintain effective, operational technological systems in each core innovative hub location (Cantwell & Salmon, 2019). Thus, we note the clear evidence of the vastly expanded extent of what we term IP markets (referred to as 'technology markets' by Arora et al., 2001), that is the markets for IP knowledge exchange, which in an international context consists of cross-border transactions for the use of IP through licensing. World Bank data on cross-border IP receipts (i.e., receipts for fees charged for use of IP), shows a steeply rising trend in this market (see Figure 1). This exponential upward trend has become even stronger since 2000.

We consider the lively debate among IB scholars on the extent and relevance of processes of de-globalization as a backdrop to a discussion of the key aspects characterising knowledge creation and innovation process in the globalised economy. We show that current debate on de-globalization tends to centre mostly on flows of goods or capital, and fails to consider knowledge flows, which are relevant in the digital and information age (Alcácer et al., 2016) when epistemic communities and knowledge networks are increasingly internationally connected. We try to shed light on this apparent tension between some decoupling processes and yet the increasing importance of international knowledge networks and global connectivity for innovation. The growth of international knowledge networks as enablers of innovation explains the increased presence of IP markets, which are one indicator of the volume of value creation,

but more importantly demonstrate the changed, internationally networked form now increasingly assumed by value creating activities. However, we argue that, since the IP market has therefore become highly dynamic in its own right, it has caused conflicts around it which are associated mostly with competing interests in the realm of value capture and the battle over the rents that can be earned from holding IP assets, rather than just providing a measure of the apparent growth in the knowledge-based outputs and inputs into new value creation. In our view, since value creation precedes the value capture process and is a necessary condition for it, any undermining of this creative activity will ultimately have a negative effect on value capture as well. The Schumpeterian tradition in innovation research (e.g. Merges and Nelson, 1990) has highlighted how patent protection (and IP protection, more generally) is a double-edged sword: on the one hand, it creates incentives for innovation, but, on the other hand, it allows patent-owners to potentially inhibit follow-on innovation, and to extract rents on the use of their invention in any further development or application. An appropriate patent policy should balance these two opposing forces, especially where the underlying knowledge is closer to science (Nelson, 2003, 2004). The increasing importance of international knowledge networks and open innovation implies widespread knowledge spillovers of the public elements of a technology, which ensures a positive sum game among the players, and the advocates of techno-nationalism often fail to understand that their policies are liable, therefore, to be counter-productive (Cantwell, 2006).

The notion of innovation assumed in this chapter is in line with work on innovation from an evolutionary perspective (Nelson & Winter, 1982; Kline & Rosenberg 1986, Fagerberg 2003, 2004). Innovation is about problem-solving and creating opportunities in and around production (defined as value-creating activity, and not necessarily entailing the manufacture of a physical artifact) and it depends upon a combinatorial process of technological accumulation or knowledge accumulation (Cantwell, 1989). Innovation is also regarded as systemic, being

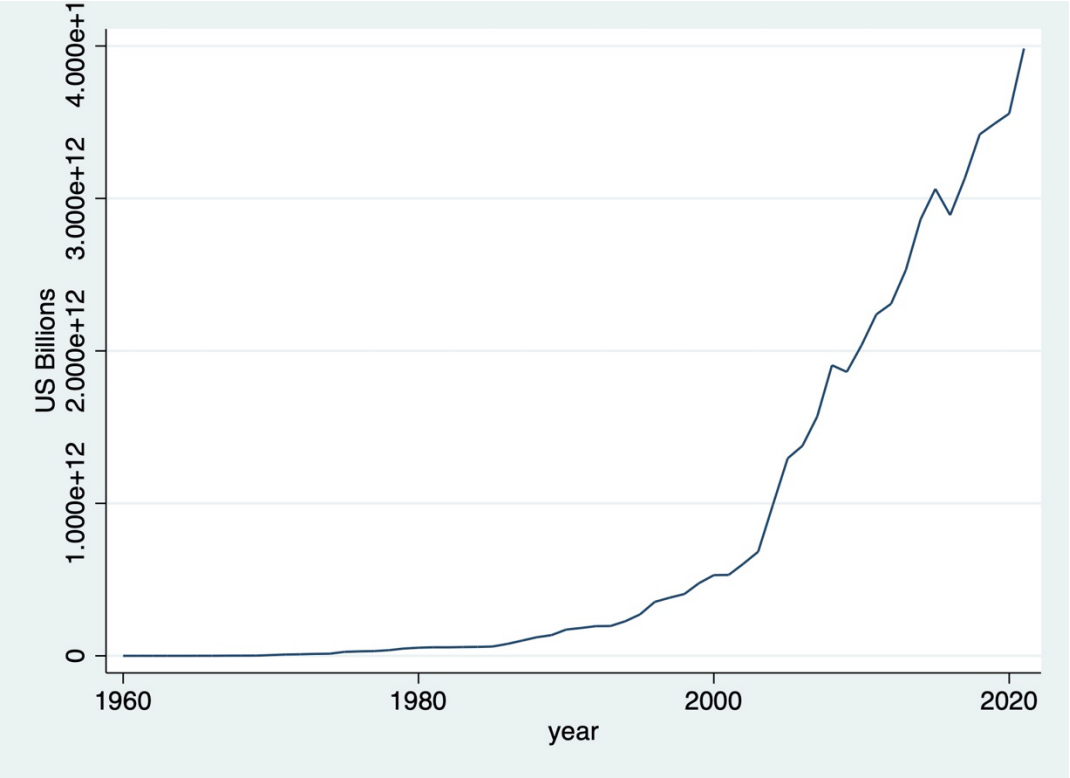
embedded in regional, national and global innovation systems (e.g. Nelson, 1993), which link together all of the factors that matter for innovation (including knowledge, skills, finance, institutions and local and national communities), providing the framework for their interconnections and accessibility to enable the value creation process. A holistic perspective on innovation requires attention to all factors affecting the adoption of innovation. Value creation and value capture are interdependent aspects of an innovation system (Chesbrough et al., 2018). The role played by government and policy-makers is crucial since, partly due to their influence on the availability of knowledge, skills and finance, they affect innovating firms. Hence, the systemic view of innovation policy goes well beyond the provision of incentives to invest in R&D within a country.

There is a large stream of work on how countries affect innovating firms and overall national innovation performance (Freeman 1987, 1995; Lundvall 1988, 1992, Nelson 1988, 1993). The IB literature recognizes the role of contextual factors and institutions, and the importance of a strong innovation system geared towards the support of locally specific features of a country's structure of industrial and technological specialization, as opposed to uniformly prioritizing one particular kind of industry or technology over others. This context-specific and incrementally adaptive approach is line with an evolutionary view of innovation that acknowledges the high level of uncertainty related to innovation as an open-ended process.[1] We propose an approach that takes proper account of the increasing significance of complementarities between various actors and activities in a holistic perspective, recognizing that while the barriers and constraints due to technological and geographical distance (including the effects of political and legal boundaries between countries) continue to matter despite globalization (Bathelt et al., 2018), the

[1] Recent history confirms this is the best way forward for innovation policy, for instance, the German renewable energy support-scheme from 2000 demonstrates that allowing for a wide range of possible solutions eventually allowed an unexpected technology - solar energy - to emerge as the best solution (Fagerberg, 2023).

current information and digital age still relies on global connectivity to increase the innovation capacity of firms and local geographical areas. Local places that are embedded in webs of global connectivity in the current era (such as in the case of global cities (Sassen, 1991)), experience greater co-dependence with other areas of the world. So the interaction between (i) the locational distinctiveness of local innovation systems in particular places, and (ii) their ever greater knowledge-based connections across space, implies that their respective effects on the innovation process cannot easily be disentangled. Therefore, it is essential to take account of both these considerations when framing of workable innovation and IB policies.

Figure 1. worldwide cross-border IP receipts (i.e. receipts of fees for the usage of IP).



Source: World Bank

2. De-globalization and measures of global economic connectivity and knowledge flows

The globalization of industrial processes, trade and activities has attracted much discussion in the IB and innovation studies literatures, with scholars examining the role of specific institutional differences throughout the global economy in fostering firm innovation patterns. The shift from

the mass production paradigm with its large scale plants and hierarchical firms to the information and digital age characterized by the development of international knowledge networks (Cantwell, 2019) has been reflected in a shift in IB research from analyzing the liabilities of foreignness (in a market abroad) to studying the liabilities of outsidership (in the IB networks that connect actors and places) (Johanson & Vahlne, 1977, 2009). In establishing the relevance of the specificity of local innovation systems (and their associated local knowledge networks), we can identify various contributions that consider institutional environment in different ways – ranging from being taken as a given to being treated as endogenous. For instance, the Varieties of Capitalism (VoC) perspective, which proposes a country and political economy classification that has been widely accepted (Casper et al., 1999; Hall & Soskice, 2001; Jackson & Deeg, 2008, 2019), assumes two dominant archetypes, Liberal Market Economies (LMEs) and Coordinated Market Economies (CMEs). Countries in the former category tend to specialize in more radical forms of innovation, while the latter focus more on incremental types of innovation. The underlying assumption is that firms within an archetype of a system will behave differently from firms in the other archetype because of the influence of their surrounding environment. Innovation studies have provided mixed reactions to this approach; some reject this framework (e.g. Taylor, 2004), while others provide partial support for this proposed classification (e.g. Akkermans et al., 2009). Alternatively, institutional theory stresses the role of isomorphism and normative, coercive and mimetic mechanisms, adopted by multinational enterprises (MNEs) to adapt to the host environment (DiMaggio and Powell, 1983), and yet as MNEs become insiders in local networks (if they do) they may be able to gradually influence the local institutional environment (Cantwell et al., 2010). IB scholars tend to agree about the essential role of nation states to affect the competitive IB landscape through increasing government-business interactions (Lundan & Cantwell, 2010).

Another strand of literature concerned with the characteristics of specific local context and regulations, has focused on the concept of techno-nationalism (Lundvall, 1992; Ostry & Nelson, 1995), a term coined originally to describe US efforts to protect American technological innovations from exploitation by foreigners (Reich, 1987), although commonly applied today to China-US-EU technology relationships. Thus, the emphasis has been on the state as an actor that creates formal institutions and serves as a technology policy authority. From this perspective, technology is considered a means to generate national industrial leadership and a strong national identity (Howitt, 2008; Montresor, 2001; Romer, 1990). Policy makers are responsible for shaping a nation's technological advancement and strengthening the competitiveness of their domestic firms, in part through commitments to support investment in R&D and the attraction of FDI to foster technological innovation and economic growth (Cantwell, et al., 2010; Edgerton, 2007; Evenett, 2019). The emergence of techno-nationalism in the post-war period was associated with national protectionism in high-tech and science-based industries, whereas the much longer established post-war techno-globalism has been related to continuous investment in firm internationalization of R&D and trade-based global production networks (Coe et al., 2015). Ostry & Nelson (1995) noted that techno-nationalist aspects of the innovation policy debate were affected by what they termed "high-tech fetishism", which refers to the desire of states for their enterprises to be the market leaders in high research-intensive, science-based or 'high-tech' sectors.

Techno-nationalism has had implications for innovation and IB policy and its recent revival seems to suggest a return to stronger protectionism of geographical and technological borders to enhance an individual country's innovative performance[2]. The new techno-nationalism seems,

[2] Despite this attention to policies aiming at protecting and fostering national economic performance, IB scholars point to the activity of MNEs operating across geographical and organizational borders that not only face adjustments to different national institutions, they can also react and influence them. In fact, MNEs can be seen as co-evolving with rather than being simply affected by institutions. In co-evolutionary institutional terms, under certain circumstances firms may affect change in local formal and informal institutions (Cantwell et al., 2010). Such co-evolution may occur when transfers of best practice from the home to the host country via MNE networks, then spread via spillovers to other local actors. For instance, MNEs entering emerging markets may introduce institutional elements not yet established in the host country (Meyer, 2004). We should consider, also, informal

also, to justify state actions aimed at leveraging opportunities within the international economic system to generate disproportionate gains from the system to serve domestic economic and security interests (Shim & Shin, 2016; Suttmeier et al., 2004).

A crucial distinction can be drawn between this view of techno-nationalism which aims at some form of protectionism, and the construct of technological sovereignty as conceptualized by Edler et al. (2020) and Edler et al. (2023) which instead of advocating for a self-sufficiency of domestic capacity in strategic areas, emphasizes the need for any country (1) to be strongly embedded in an international network of relationships, and (2) to be at the same time able to preserve access to key technologies and to obtain inputs through supply chains that are not overly dependent on a specific source. Technological sovereignty is described as "the ability of a state or a federation of states to provide the technologies it deems critical for its welfare, competitiveness, and ability to act, and to be able to develop these or source them from other economic areas without one-sided structural dependency" (Edler et al., 2020). It is inherently a cooperative and outward-oriented concept, which despite being often wrongly interpreted as a form of autarky or nationalism, refers instead to the increasing importance for any country to be internationally connected to global innovation systems through cooperative agreements and trade (March & Schieferdecker, 2023). The key consideration here is the vital role of combining internal (i.e. domestic) capacity and external (i.e. from other countries) capabilities. The web of international relations become channels through which to access the knowledge that most nurtures domestic innovation, from a combinatorial view of technological development. Thus, national and international, local and global are to be seen as mutually supportive for any

institutions which are particularly relevant in an interconnected, networked global economy. Indeed, the creation of new institutions serves both as a condition for and as a response to increasingly global economic connectedness. The rise of global connectedness and the associated complexity, require particular attention. By considering multinationals as actors that operate across national and organizational borders, through informal and contractual relationships (Dunning & Lundan, 2008), IB research has come to better understand how they organize themselves in a globalized economy and manage changes to institutional frameworks that either encourage or discourage international activity.

country's innovation policy, while national protectionism is inevitably inefficient. In this view, other countries or economic areas are seen primarily as potential collaboration partners rather than as threats (this latter view being more closely aligned with a techno-nationalist, protectionist perspective).

More recent debate has focused on the likely slow-down of globalization, as the result of the economic downturn and external shocks, such as the COVID19 pandemic, and the use of robotics to support a transition from offshoring to reshoring (Albertoni et al., 2017; Elia et al., 2021). IB scholars have examined decreasing rates of growth of international trade (Livesey, 2018; IMF, 2020; WIR, 2020), a widely used measure of globalization. For instance, the latest UN World Investment Report (WIR) predicted a decline in the share of FDI in developing compared to developed countries, due mostly to the difficulties they are experiencing in implementing recovery measures to counter the effects of the pandemic and the current economic downturn. There is evidence of decreases in flows of merchandise, capital and investment and, to a lesser extent, people-to-people before the COVID-19 pandemic (Garcia-Herrero, 2020; WIR, 2020). The disruption generated by the pandemic affected people moving across borders due to travel bans which were in place for a period.

However, this view of de-globalization is somewhat restrictive. Among IB scholars interested in understanding globalization trends, Kobrin (2017) noted that while trade and FDI experienced a short-term reaction to the 2008 recession, this was instead followed by increased levels of globalization. There is some evidence suggesting that globalization has not slowed in terms of cross-border flows of data (McKinsey, 2020). The DHL Global Connectedness Index 2021 Update (Altman & Bastian, 2021), analysed data on the effect of the COVID-19 pandemic on globalization based on four main categories: (i) trade, (ii) capital, (iii) information, including scientific research collaborations and trade in printed publications, and (iv) people including migrants, university students and tourists. This broader view of globalization, not based only on

international trade values, provides a more nuanced picture of global conditions that is worth considering for innovation and IB policy. The index shows that trade in goods soared to above pre-pandemic levels and that most other types of international flows have also recovered. International migration and scientific collaboration, though related, can be seen as two separate aspects of globalization. In the case of migration, that the European Commission considers to be a long-term driving force which currently is observable and will continue to have global impacts for years to come.[3] However, it should be noted that this is likely to have been affected, strongly, by the COVID-19 pandemic and the long period of disruption in global movements, which has affected patterns of work especially in knowledge-based fields (Baker et al., 2020), and may have shifted the balance between the use of virtual meetings and in-person meetings that require international travel. However, such transient migration for in-person collaboration for work has proved highly effective and is likely to remain vital (Shukla & Cantwell, 2018), especially for technological development purposes Relatedly, 2020 saw only a slight drop (2.4%) in international remittances from 2019 global levels[4]. DHL Index data consider only co-authorship of publications listed in the Web of Science database and do not analyse information on co-patenting, which international co-inventor teams have become considerably more important in IP development (Kerr & Kerr, 2018). Data on patenting collaborations suggest that international inventor teams account for a especially significant proportion of innovative activity in global cities (Belderbos et al., 2022). These inventor teams may not necessarily be co-located, but the advantages of maintaining team coherence would suggest that the temporary co-location of at least some team members is likely during the inventive process.

One aspect highlighted by these data, is that digital global connectivity supports international firms and allows them to cope better with disruptions to Global Value Chains (GVCs) such as those caused by the pandemic, or more recently by the war in Ukraine. Undoubtedly, the

[3] https://knowledge4policy.ec.europa.eu/increasing-significance-migration_en
[4] https://worldmigrationreport.iom.int/wmr-2022-interactive/

pandemic had a disruptive effect for a time on international movements of people and the organization of complex GVC activities, and may have accentuated the re-shoring and re-location of some activities closer to final customers, a trend that had started before the pandemic. More interestingly, international scientific collaboration and migration have continued to rise, being disrupted only temporarily by the pandemic. International scientific collaboration is highly relevant for IB studies since this is a proxy for international knowledge network exchanges that positively affect scientific and technological progress in society, and foster innovation and knowledge flows between scientists and engineers across countries and institutional contexts (Kerr et al., 2016; Bertoli, et al., 2012). IB research highlights the crucial role of global transactional and informal relationships in increasing know-how (Cano-Kollmann et al., 2016; Cantwell & Salmon, 2019)).

It should be remembered that the globalization that occurred in the earlier years after 1945 was related, primarily, to the financial and commercial sectors rather than to migration. However, there is a key difference in the migration flows that characterises the current globalization phase and this relates to the deeper multicultural aspect of these flows. More diverse flows of people moving across borders is a key aspect of the current phase of the globalization process (Fitzsimmons et al., 2020).

Thus, we need to consider that, in the current information and digital age, the earlier centrality (in the mass production age) of trade in goods and market-seeking FDI is being gradually subsumed by the rising importance of international knowledge networks and knowledge-seeking FDI or GVC components and, as this happens, the relevance of protectionist vs. liberal trade policies is losing at least some of its former significance. Economic nationalism and rising protectionism figured largely in the build up to both the First and Second World Wars, but in the current age we need to take a wider view of the constituents of global connectivity. Two distinctions are vital here, namely, firstly the distinction between the narrower range of

innovation policies motivated by the national security interests of the state in its relationships with other states, as opposed to the much broader range of innovation policies driven by indigenous civil society concerns and aimed at building domestic technological capabilities in local society. Obviously, the former (concerns over technology critical for national security) is influenced by increased nationalism and rising military tensions. However secondly, with respect to the wider set of innovation policies which respond to domestic economic and civil society goals, we need to consider the distinction between value creation and value capture. In the value creation sphere, we observe that the underlying epistemic communities that support knowledge accumulation are increasingly internationalized. The pursuit of a new techno-nationalism in this domain is likely to prove ever more counterproductive. Instead, in the sphere of value capture, driven more by financial and post-innovation rent-seeking interests than by innovative or entrepreneurial interests, we can find the roots of the latest techno-nationalist trend.

3. International Innovation Networks and Epistemic Communities

In the contemporary domain for global technological innovation, the development of innovative technologies is increasingly reliant on knowledge generated across borders (Porter, 1990) and, as a result, countries necessarily become more interdependent. Consequently, the creation of IP relies increasingly on international innovation networks, characterised by global and technological connectivity, augmented complexity, increasing informality and factors allowing knowledge sharing and development among geographically dispersed epistemic communities such as temporary co-location (Shukla & Cantwell, 2018). The growth of IP markets represent the building of the formal (cross-border) institutional structures that have facilitated the international exchange of knowledge in support of innovative activities, and yet the massive increase in the magnitude and value of these cross-border IP transactions has also itself naturally caught the attention of rent-seeking interests in pursuit of opportunities for post-innovation value capture.

The notion of international networks for innovation here includes different configurations and types of networks. Firms collaborating to develop new solutions within MNEs and across organizations (that is between, say, a focal MNE and external organizations, most notably universities, public and private research institutes, as well as other firms located in the same country or abroad) is an example of an innovation network. However, an international network for innovation can be detected by looking at MNEs knowledge sourcing via other channels that are not only collaborative partnerships. In the most recent historical paradigm, IB relies on knowledge search and innovation activity tends to be more grounded on informal knowledge-based networks rather than traditional formal alliances, and internally coordinated learning processes become increasingly interdependent with internal networks for innovation (Cantwell, 2019). Thus, MNEs may source knowledge by drawing on an existing epistemic community which generates both scientific publications and patents[5]. As a consequence of the increased informality that has characterised the information and digital age, organizations are embedded in the epistemic domains that may be generated and fostered by different types of knowledge flows. The combinatorial view of knowledge production assumed in the evolutionary studies of innovation, recognizes the crucial role of being selectively embedded in these epistemic communities, where knowledge-building relies on the contributions of several actors since existing knowledge elements must be continuously recombined to generate new ideas and products (Arthur, 2007). In this scenario, internationally connected epistemic communities have a crucial role to play. They include, but are not limited to, international scientific collaborations

[5] Empirical evidence suggests that international knowledge networks may be detected by looking across the four types of knowledge sources most used by MNEs (c.f. Almeida & Phene 2004; Cantwell et al., 2019), namely (i) internal knowledge building within the same country; (ii) international intra-MNEs; (iii) inter-organizational local, and (iv) international inter-organizational and global knowledge sources. MNEs in science-based sectors such as pharmaceuticals show a pattern of temporal substitution among knowledge sources over time. The average MNE subunit moved from reliance on internally (subunit) generated knowledge to increased use of international inter-unit and local inter-organizational knowledge sources. Furthermore, international intra-organizational knowledge replaced the use of international inter-organizational knowledge over time – this finding suggests a key role for the internalisation of externally sourced knowledge taken from disparate sources, which is distinct from a recombination of knowledge between more closely networked actors (Athreye et al., 2022).

and the movement of highly-skilled people that have been supported by and contribute to the spread of IP markets. International value creation is concentrated in urban areas and global cities, those areas of the globe that, increasingly, are internationally connected via highly skilled people collaborating to develop inventions and new solutions (Cantwell & Zaman, 2018). Technological efforts have been strongly concentrated in these metropolitan areas and the most internationally connected are growing faster than the weakly connected areas (Sassen, 1991; Belderbos et al., 2022). In this globally connected view of technological development and innovation, once again the construct of technology sovereignty helps us to better understand today how state level innovation systems are necessarily relationally embedded in global structures. Thus, the policy objective needs to be about sustaining the position of a national or local node for innovation in its ability to successfully access relevant knowledge from other sources where necessary to preserve and to foster its own internal dynamism.

4. Conclusions and Policy Implications

Research on IB, innovation and policy related issues has flourished in recent years with a great deal of work dedicated to the role of local institutions in fostering the innovative performance of countries and firms. Although it is not possible to provide an exhaustive view of the vast literature on this topic, this chapter has set out to highlight some of the key issues in explaining the overall features of the most prominent recent debates over current innovation and IB policy. We argue that the increasing importance of cross-border IP markets, which is the result of internationally connected epistemic communities, confirms the need for innovation policy to facilitate global connectivity among actors and places rather than focusing on the exclusive protection of national borders. The growth of IP markets is both the result and a facilitator of globally connected knowledge networks, which suggests that innovation policies should focus on fostering international knowledge-based connectivity rather than promoting national protectionism. We stress the need for a holistic and systemic view of innovation, which seeks to

overcoming the current tension between protection of national borders, impediments to migration and restrictions on IP transactions on the one hand, and internationally connected epistemic communities and innovation grounded on the discovery of new knowledge combinations on the other. National and local (metropolitan area) systems of innovation are increasingly globally connected, which reflects a positive sum interaction in which a rise in wealth creation in one nation or location tends to spillover to wealth creation in other nations or locations, through a continuous and cumulative process of positive feedback effects. This view is aligned with work on technology sovereignty which stresses the co-evolution of regional or national innovation policies in different locations in a global scenario. We point to the crucial role of international networks for innovation for individual countries to access resources and capabilities, and to avoid being cut off from global innovation systems.

Evidence on patterns of knowledge connectivity as reflected in patent citations suggests that the most internationally connected cities and countries are growing faster (Cantwell & Zaman, 2018) and local knowledge networks are becoming increasingly interdependent with international knowledge networks. Thus, techno-nationalist protection is likely to be ultimately counterproductive. Innovation policies should promote the networking of knowledge-based actors including inventors whose activities generate new value for countries, governments and firms. Following discussions in innovation studies and evolutionary economics (Mowery et al., 2010; Fagerberg, 2018), we advocate for an approach that considers all stakeholders involved in the innovation process to foster greater international connectivity. In our view, a successful innovation policy should be based on forms of governance that bring together all actors, in a collaborative and inclusive manner.

Specifically, this implies (1) reconfiguring globalization to strengthen national innovation systems across a broad range of supporting actors; (2) pursuing technological sovereignty, as described earlier; and (3) achieving an appropriate balance between value creation and value capture. This

last point is key in the way in which we conceptualize the workings of international epistemic communities for innovation. These international epistemic communities are characteristic of the networked information and digital age through their knowledge sharing and development of a shared discourse, with implications for their more decentralized governance. Having structures that are closer to those of loosely coordinated GVCs (in which there is a stronger tension between value creation and capture) than to traditional hierarchical MNEs (in which value creation and capture are more inherently aligned through central managerial control), such communities are now strongly embedded in global networks and global innovation systems, whose functioning requires sustained forms of collaboration which can be fostered by innovation policies. As in any network structure, a trade off exists and should be managed, between networks becoming relatively open and inclusive or closed and exclusive. In the context of innovation, closed networks are generally associated with the interests behind value capture, rather than those of value creation. We advocate here a better balance between these two elements of network structures and their associated governance, through policy instruments that aim to achieve a higher level of inclusivity, knowledge sharing and partnerships for value creation, to help offset a tendency towards the closure of networks to facilitate rent seeking by privileging post-innovation value capture. Such policies should constrain the attempts of actors to use network closure to capture ever increasing amounts of value through extracting inflated rents from monopolistic power. This is especially relevant in the context of 'tech' giant platform companies such as Amazon or Apple, whose network power as platform administrators has enhanced their value capture, but raises the question of whether policies may be needed to more effectively sustain the value creation of other (potential) network participants.

The recent COVID-19 pandemic have also brought this point home since it has been recognised as an accelerator of inequalities for many countries, triggering questions around global planetary health. The current pro-patent system evidenced by the IP markets we discussed in this chapter, has inevitably generated inequality in access to resources with some countries left out from the

production of vaccines. In particular, the COVID-19 vaccination programme that should have been globally pursued has seen different levels of implementation and an emphasis in Western societies on the supply side of the campaign, whereases the demand side has been mostly ignored. As a result, while the supply of Covid-19 vaccines has reached some countries such as South Africa, a large part of the population in continental Africa has not received the vaccine and other pre-existing vaccination programmes have been delayed. As Granstrand (2018) pointed out, a pro-patent regime of the kind that has emerged through the massive expansion of global IP markets should also be a pro-licensing regime, to stimulate value creation and better regulate value capture.

To conclude, any policy aimed at fostering innovation should draw upon globalization and cross-border collaboration for technology generation which in the current environment is central to enhancing contributions to industrial leadership, rather than target an ultimately infeasible and counterproductive domestic technological autarky. International business innovation policies aimed at promoting cross-border knowledge connectivity imply some elements of cross-country coordination and a co-evolution of policy with the changing features of the contemporary institutional environment rather than a simple adaptation of policy to that environment[6].

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[6] There are of course other aspects worth considering that have not been the focus of this chapter. For instance, policy making may focus on improving the protection of minority shareholders by giving them the legal right to call shareholder meetings and to limit dilution of their shareholdings, as existing work suggest that this is a relevant aspect affecting innovation driven firms' decision when entering a host country (c.f. Sena et al., 2021).

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