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The Impact of Actors and the Aspect of Time in Institutional Change Processes in a Developing Country Context

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Introduction

The rise of developing countries is undeniably evident in the global business arena. There is increasing evidence of innovative and highly intellectual business activities from these countries, for example in the form of new drug developments from India and technological innovation from China. These innovations often require searching for and utilising tacit knowledge (Asheim and Coenen, 2005) which is prone to asymmetric information problems and intellectual property (IP) abuse. Thus, a firm that operates in these environments emphasises either loose or stringent IP protection standards which then influences the firm's decision regarding the nature and location of innovative activities, in addition to capability endowments and cost calculations (Buckley and Casson, 1976; Dunning, 1988; Teece, 2006). As a result, governments are in continuous search for optimal levels of IP protection standards (varying from high to low levels) to ensure that there is a conducive environment for the advancement of local innovation systems (Chaminade et al., 2012; Jaffe et al., 1993). This is especially true in developing countries.

While high IP protection standards long have been introduced and enforced by institutions in developed countries, many developing countries transitioned to higher IP standards only after they became signatories to the World Trade Organization (WTO) and its Trade-Related Intellectual Property Standards (TRIPS) agreement in 1995 (Li, 2008; Waguespack et al., 2005). The TRIPS agreement set a minimum level of rules and regulations in order to secure consistent IP protection levels among WTO member states. Many developing countries were required to pass certain IP laws and implement innovation policies to reach these standards. In order to allow this transition, developing countries were given transition options such as a ten-year grace period or the possibility

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of amending the original TRIPS text, which either led to a fast or a slow change process. We are interested in these change processes of IP protection standards and why some developing countries adapted fast while others adapted slow changes to these processes.

Institutional theory suggests that IP protection standards are driven by government policies which are decided collectively through political strategies, actions, lobbying and connectedness of actors inside and outside of a country (Boddewyn and Brewer, 1994; Dolowitz and Marsh, 1996, 2002; Suchman, 1995; Bonardi et al., 2005). More specifically, change processes of institutional regulations are influenced by pressures inflicted through actors and time (North, 1990). Thus, our main argument is that different actors, such as domestic firms or foreign MNEs, differently impact local policy decisions of developing countries, which result in varying TRIPS implementation choices by local governments.

The existence of variation among ratification of TRIPS in developing countries and their rate of compliance to TRIPS suggest these changes do not always comply with national interests (Scholte, 2001). National interests can be based on various indicators or pressured by different actors that operate in the countries. The data on developing countries' TRIPS compliance process suggests that if foreign MNEs have a high presence in the local innovation system in a developing country, such countries comply to TRIPS faster and, conversely, developing countries with a high composition[1] of domestic firms transition into full compliance with TRIPS slowly. We will continue to elaborate on this statement with some empirical support in the following sections of this book chapter. We first elaborate on the background of TRIPS and this empirical support, then use the data to support our theoretically derived arguments. We discuss and conclude the chapter with implications for policy and practice as well as future research directions.

Trade-related intellectual property standards and developing countries

When the World Trade Organization designed the Trade-Related Intellectual Property Standards, the aim was to establish a minimum level of rules and regulations to secure consistent IP protection levels among member states. While these regulations were easy to meet for developed countries, developing countries commonly applied significantly lower levels of IP standards and were required to reach TRIPS standards through new IP laws and innovation policies. In order to ease this process, 60 developing countries were given various transition options at the time of signing the WTO agreement in 1995.

First, countries could use a ten-year grace period to decide when and how fast to ratify TRIPS in their domestic national assemblies and make the international treaty part of local jurisdiction (Kale, 2010; Li, 2008). Thus, some countries

ratified TRIPS without delay while others gradually changed or delayed ratification to the end of the ten-year period (Hamdan-Livramente, 2009).

Second, beside the transition period, developing countries were given the flexibility to propose and introduce amendments to the original TRIPS text, designed by the WTO, during the enforcement of the protection laws in their domestic legal system (Li, 2008; WTO, 2012). Similar to the ten-year grace period, some developing countries made amendments (in a few cases even applied changes beyond TRIPS regulation minimum levels) or did not capitalise on this option at all (Yang and Sonmez, 2013). Accordingly, countries had four options: adopt or not adopt a ten-year grace period, and/or amend or not amend the original TRIPS text.

The impact of TRIPS is most significant in the development of a country's innovation system, especially for IP-intensive industries such as pharmaceutical, electronics, as well as computer and software industries. We use these IP-intensive industries as empirical support in this chapter (similar to Delgado et al., 2013), and combine data from the WTO (to outline TRIPS decisions) and the Harvard Patent Data Verse with its United States Patent and Trademark Office (USPTO) data (to outline a country's innovation system). Table 4.1

Table 4.1 TRIPS decisions and developing countries

TRIPS decision	**# of countries**	**Country name**
(1) no transition period and no amendment(s)	14	Argentina, Barbados, Belize, Botswana, Brazil, Colombia, Cyprus, Indonesia, South Korea, Malaysia, Mexico, Nicaragua, Trinidad and Tobago, Turkey
(2) use of transition period with early* ratification and no amendment(s)	10	Bahrain, Bolivia, Cameroon, Côte d'Ivoire, Dominica, El Salvador, Gabon, Grenada, Pakistan, Tunisia
(3) use of amendment(s) only	6	Estonia, Philippines, Poland, Singapore, Uruguay, Venezuela
(4) use of transition period with late* ratification and no amendment(s)	27	Brunei, Chile, Costa Rica, Egypt, Ghana, Guatemala, Guyana, Honduras, Israel, Jamaica, Kenya, Kuwait, Macau, Malta, Mauritius, Morocco, Namibia, Nigeria, Papua New Guinea, Paraguay, Peru, Saint Lucia, Sri Lanka, Surinam, Thailand, United Arab Emirates, Zimbabwe
(5) use of transition period and amendment(s)	3	China, Hong Kong, India
Total	60	

Note: * ratifications between 1995 and 1998 are early ratifications, from 1999 to 2005 are late ratifications.

Source: WTO (2012).

provides an outline of all 60 developing countries in the sample and their TRIPS decision.

Most of the 60 developing countries in the sample used either the ten-year grace period and/or amendments as intended by the WTO. Thus, these countries ratified the TRIPS agreement late in their national assemblies so the jurisdiction of the international agreement came into force later than in developed countries (TRIPS decision 2 and 4). To the contrary, 30 per cent of the developing countries did not use the ten-year grace period and did not introduce any amendments ratifying TRIPS immediately (TRIPS decision 1). Introducing amendments (TRIPS decision 3) and using the ten-year grace period and amendments (TRIPS decision 4) were less observed cases among the countries.

Actors within innovation systems and institutional change

Institutions are a collection of formal and informal rules that shape behaviour and human interaction. These rules are reflected in legal systems, regulations, habits and customs (Coriat and Weinstein, 2002; Scott, 2001). While there is an established literature on institutions, less attention was placed on the aspect of institutional change processes. We focus on the institutional change process which transforms established norms impacting the operations or conditions that provide legitimacy to organisations within the institutional environment (North, 1990). Dacin et al. (2002) argue that institutional change processes imply various indicators such as levels of change, approach and periods/time and different levels within organisations, macro-societal and even global, can impact these institutional changes. Transformations can be caused by functional, political and social sources (Oliver, 1992), that is, through internal or exogenous change; for example, external pressures are caused by professional associations or non-governmental international organisations such as the WTO which is promulgating new standards, conceptions and practices (Boli and Thomas, 1999). Moreover, change can be both incremental in an evolutionary way or dramatic with sudden and abrupt changes with actors that often cannot predict the development and outcome of institutional transformations (Darendeli and Hill, forthcoming).

The existing literature has connected institutional changes with variations in either internal factors such as the development level of countries (Park, 1995), changing income levels (Jacobson and Weiss, 1998) and changing governments (Li and Resnick, 2003) or external factors such as trade activity and becoming a member of the WTO (Yang and Sonmez, 2013). However, as Waguespack et al. (2005) point out, we still have a limited understanding of how a country's innovation-related institutions develop.

What we know is that institutions impact economic change (North, 1990; Williamson, 1985) and that a country's government establishes these formal

institutions that determine the domestic borders of the legal and regulatory environment (Peng et al., 2008), based on sole decision-making power and complete information, such as in the case of national innovation systems (Nill and Kemp, 2009). However, studies show that governments often have only limited and imperfect information (Coriat and Weinstein, 2002), and often lack an understanding of innovation (Paraskevopoulou, 2012).

We question if a single actor, such as the government, has complete information on creating institutions and policies and argue that additional actors such as firms influence institutions as much as institutions influence decisions of firms. For example, firms try to increase performance by shaping institutional contexts (Feinberg et al., 2015). Moreover, incentives and power dynamics of *different* actors within the institutional environment shape institutions (Greenwood and Suddaby, 2006).

Thus, the relationship between regulation and organisational innovation should not be considered as unidirectional and static, but rather is bi-directional and dynamic. Organisations seek to influence the direction of institutional change towards their motives and incentives, and in-turn the newly emerged institutional environment changes other organisations. Based on different selection processes in institutional environments, this change process can take different trajectories which then lead to institutions changing at different paces in different contexts (Carney and Gedajlovic, 2002). Along those lines, we argue that the level and complexity of interaction of different actors within the institutional environment is central in deciding the change trajectory in terms of pace of institutional change (see, similarly, Cantwell et al., 2010). Firms are among the most influential actors in the emergence of institutions (North, 1990), domestic or foreign.

The potential for institutional volatility in developing countries makes the relationship between institutions and organisations more salient (Makino et al., 2004). For developing countries, institutional change processes and implications of actors, as well as path dependency, is important as the countries imply more institutional complexity (Li et al., 2000). Next, we investigate TRIPS compliance processes from the perspective of foreign and domestic firms considering the pace of institutional change in developing countries.

Foreign firms' pressures

The literature on institutional voids argues that MNEs are often active in law-making processes in developing countries and thus also influence IP standards (Khanna et al., 2005). Since lower levels of IP protection in developing countries hinder firms engaging in competence-creating activities in such locations, multinational firms are often very protective of their IP and competitive assets (Cantwell and Mudambi, 2005). Moreover, the literature has argued that MNEs have the capabilities to develop organisational connections with

leading figures and entities in the government as well as personal connections (Cuervo-Cazurra, 2006; Sun et al., 2010).

Especially in developing countries, relational political behaviour has been found to shape institutional change decisions (Hillman and Hitt, 1999). As a result of increasing pressures from foreign MNEs, developing-country governments raise IP standards to attract MNEs especially if they are seeking new innovation and R&D (Dunning and Lundan, 2008). For example, in the case of the pharmaceutical industry, MNEs and governments from mature market economies extensively lobbied towards a fast ratification of TRIPS during TRIPS talks (Kale and Wield, 2008). Thus, a high composition of foreign MNEs in an innovation system of developing countries results in no usage of a 10-year grace period. Moreover, amendments to original IP regulations are also implemented faster, as is the adaptation of a ten-year grace period, resulting in a faster transition to full TRIPS compliance.

Figure 4.1 supports this argument and shows assignee compositions of the 60 developing countries that did not use a ten-year grace period or introduced amendments. As seen in the figure, eight out of 13 of these developing countries reflect a national innovation system that is dominated by foreign MNEs. Out of these eight countries, six countries have a significantly higher composition of foreign MNEs than local firms. Moreover, the five remaining countries with no innovative activity showed no innovation policies prior to TRIPS and simply did not take advantage of the grace period or amendments, probably because there was no lobbying activity of any kind.

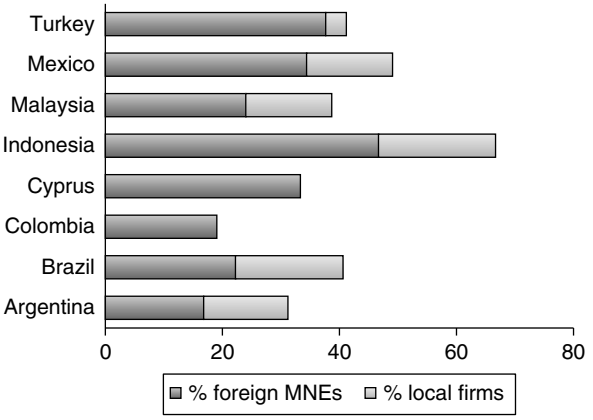

Figure 4.1 TRIPS decision 1 – composition of innovation systems in 1996

Note: Barbados, Belize, Botswana, Nicaragua, and Trinidad and Tobago had no active innovation system in 1996.

Similarly, Figure 4.2 shows the compositions of the national innovation system of developing countries that used the ten-year grace period but ratified TRIPS early (before 1998). As the figure indicates, only one of eight countries showed innovative activities by foreign MNEs. This suggests that the countries initially took advantage of the ten-year grace period, but since they did not have any firm lobbying one way or the other, they ended up ratifying the TRIPS agreement right away. Only Dominica had some innovative activities from foreign MNEs in 1996, during the TRIPS compliance decision process. The remaining actors in the national innovation system in these countries were either investors or foreign universities.

Figure 4.3 shows the compositions of innovation systems within developing countries that introduced amendments to the original TRIPS text, but did not use the ten-year grace period. As the figure shows, all of these countries already had some kind of innovative activity by local or foreign firms. Foreign firms dominated two of the countries' innovation systems, which explains why they did not use a ten-year grace period. However, Singapore's local firm composition was very high compared to countries in the prior cases and the local

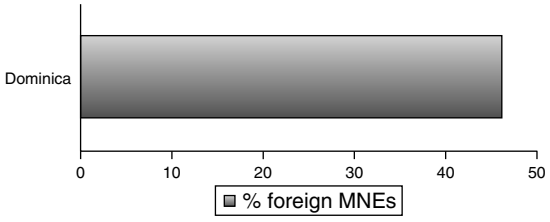

Figure 4.2 TRIPS decision 2 – composition of innovation systems in 1996

Note: Bahrain, Bolivia, Cameroon, Côte d'Ivoire, El Salvador, Gabon and Grenada had no active innovation system in 1996.

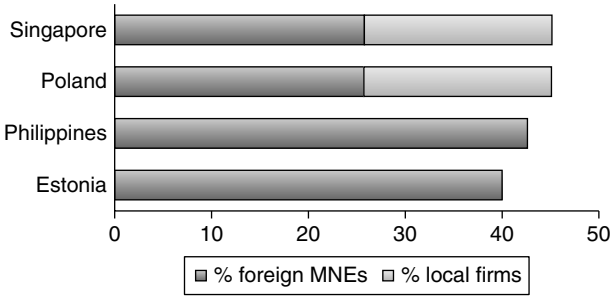

Figure 4.3 TRIPS decision 3 – composition of innovation systems in 1996

Note: Uruguay and Venezuela had no active innovation system in 1996.

firms and foreign firms make up most (44 per cent) of the total innovations in these countries, suggesting that maybe local institutions were influential in pushing the local governments to introduce amendments in cases where local firm assignees were missing.

Domestic firms' pressures

Domestic firms of a country are interested in the development of the domestic market and thus inform, train and engage with governments to influence decisions that change policies, laws and regulations (Fisman, 2001; Hillman and Hitt, 1999). In the case of intellectual property protection, the incentives of domestic firms are different from incentives of foreign firms. In a developing country, and especially in the early stages of development, most domestic firms will possess process capabilities which allow them to develop new process innovations rather capabilities that allow for the development of new innovations on the whole (Kumaraswamy et al., 2012). For instance, Brandl and Mudambi (2014) show that Indian firms were not able to compete with foreign firms in the national innovation system early on in the country's development but only over time were able to develop capabilities to compete.

Lower IP protection standards can help domestic firms, especially in developing countries, to learn how to source knowledge from other firms and form collaborations, allowing them to capitalise on imitation activities and knowledge spillovers (Kumaraswamy et al., 2012). The firms are then able to develop necessary absorptive capacities to move to the next stage of development (Awate et al., 2012). Thus, only with low IP protection regulations implemented and supported by local governments are these activities possible. Local governments are aware of domestic firms' innovative capabilities and maturity to compete with multinational firms (Li, 2008). Domestic firms can then collectively act with the objective of influencing government policies or, in our case, IP protection policies, in order to get them designed and implemented with their own interests in mind (Edquist, 2001). As found by Bonardi et al. (2005), firms lobby for their own interests and influence policies. These activities are evident in the innovation systems of developing countries. Consequently, high composition of domestic firms in innovation systems of developing countries results in the usage of a ten-year grace period and introduced amendments to original IP regulations, resulting in a slow transition to full TRIPS compliance – see Figures 4.4 and 4.5 for empirical support.

Figure 4.4 shows the composition of the innovation systems of developing countries which used the ten-year grace period entirely with ratification in 2005 or ratified TRIPS late (after 1999). Thus, TRIPS compliance process took longer and was slower than in the prior three TRIPS decisions. As the figure indicates, local firm composition was much higher in these countries, compared to prior decisions. In three of the 27 developing countries local firms dominated

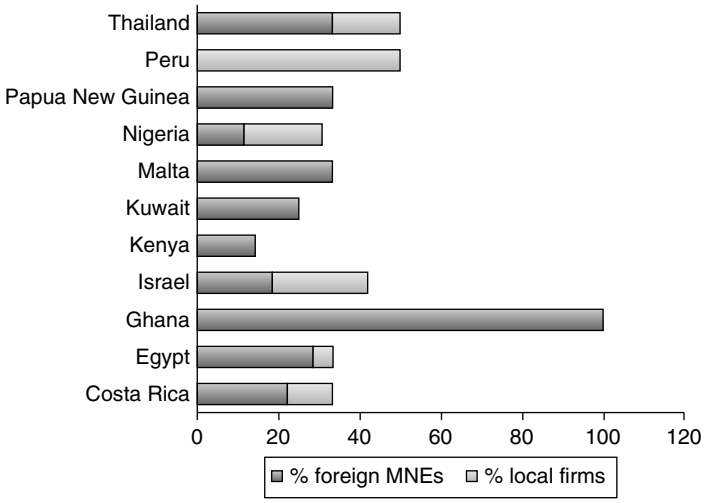

Figure 4.4 TRIPS decision 4 – composition of innovation systems in 1996

Note: Brunei, Chile, Guatemala, Guyana, Honduras, Jamaica, Macau, Mauritius, Morocco, Namibia, Paraguay, Saint Lucia, Sri Lanka, Surinam, United Arab Emirates, and Zimbabwe did not have an active innovation system in 1996.

innovative activities. Sixteen of the developing countries did not have an active innovation system in 1996, and in these countries either the local institutions could have been active in lobbying governments to slow down the TRIPS compliance process or governments intentionally wanted to slow down the process in order to start building up innovative capability slowly.

Lastly, Figure 4.5 shows the compositions of innovation systems of developing countries that used the ten-year grace period, ratified TRIPS late and introduced amendments to the original TRIPS text. As the figure indicates, all of the countries had at least some amount of local firms active in innovation processes, which was not the case in countries which decided to comply with TRIPS faster. Although Hong Kong's innovation system is well advanced (in terms of total number of patents), local firms dominated innovative activities. Strong local institutions lobbying for a slower compliance to TRIPS back up the low composition of local firms compared to foreign firms in India as also argued by Brandl and Mudambi (2014).

Concluding discussion and implications

This chapter set out to study the impact of actors and time on institutional change in a developing-country context. It aimed to shed light on the aspect of the pace of change and drivers as well as actors of change in a unique country

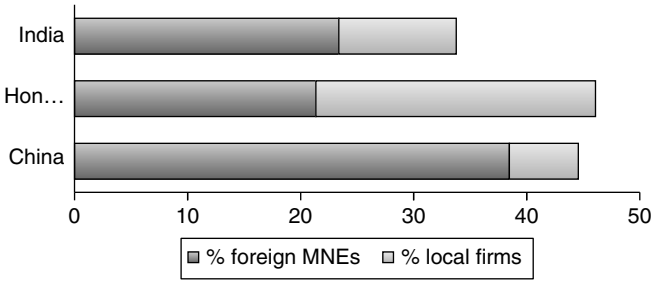

Figure 4.5 TRIPS decision 5 – composition of innovation systems in 1996

context studying TRIPS ratification processes. The above outlined discussion supported by tables and figures shows that countries with a high amount of patent output by local firms show a slow transition to TRIPS IP protection standards. This leads to the conclusion that local firms do hinder and influence the compliance to TRIPS. As argued above, local firms in a national innovation system of a developing country try to influence policies to hinder TRIPS compliance for as long as possible. In addition, the composition of foreign MNEs in the national innovation system of a developing country also has an impact on TRIPS compliance: the higher the composition of foreign MNEs, the faster TRIPS compliance is achieved. The pressure by multinational firms is impacting local governments to comply with TRIPS regulations faster. Or, put differently, the lower the composition of foreign MNEs in the national innovation system of the developing country the less pressure is on governments and the more impact domestic firms have slowing down TRIPS compliance.

These results show two main findings. First, change process of institutions and the differences in terms of time and pace of change. We can see that different countries apply changes differently. Depending on country contexts and decisions taken by the country, compliance to TRIPS regulations is either fast- or slow-paced similar to earlier discussions on institutional changes. Second, in line with this finding, we identify two major actors that influence these changes and the pace of institutional changes. We found that political activism and lobbying (Boddewyn and Brewer, 1994; Hillman and Hitt, 1999), as argued earlier, is responsible for these influences with varying impact on institutional change processes.

We combine these two findings to generate a contribution to the academic literature, to bring together the focus on actors of institutional change processes and aspects of time and pace in institutional change processes (Dacin et al., 2002) which has not been attempted thus far (Cantwell et al., 2010). We offer a contribution with an extension of institutional change theory that presents the different actors that influence institutions and their impact on

the pace of change, especially extending North (1990, 2006) who argued that actors not only adapt to given institutions, but aim to shape institutions by providing a process mode of interactions.

Implications for policy and practice

Our findings strongly suggest that policymakers, especially from developing countries, need to be aware of competing and complementing actors within the institutional environment of their countries to ensure that governments develop an optimal set of rules and regulations that are conducive to their national innovation system and, as a result, the catch-up process of their countries in terms of innovation capabilities. If not considered satisfactorily, they can end up implementing suboptimal standards which might curtail further development of the developing country and slow or even hinder this catch-up. Moreover, it is important to know the different actors and their drive to influence and pressure policymakers. Knowing their intentions allows the government to take appropriate actions to both acknowledge and act upon or act against these pressures.

Moreover, findings related to the pace and change process of institutions, influenced by these actors, could allow policymakers and governments to make educated assumptions of further developments of their country and the impact policies in other fields or industries could have on institutional changes. However, this finding of time and pace needs to be considered with caution, as there is a strong country and situation context. TRIPS regulations and the need to reach a certain IP standard was forced through the WTO and can be considered as an exogenous shock and driver for change, also in relation to the pace of change. A natural process of institutional change might have different outcomes with different institutional change processes as well as pace. Moreover, these results suggest lessons for managers of domestic and foreign firms that are active in the innovation systems of developing countries. As variation among developing countries in their TRIPS compliance decisions indicate, if domestic firms increase their presence within the innovation system, they can slow down the institutional change towards higher IP standards so that they might have more time to transform their output capabilities to innovation capabilities. Conversely, if foreign MNEs increase their composition within innovation systems of developing countries, they can speed up the compliance to global standards, which will decrease uncertainties related to institutional voids in developing-country contexts.

Suggestions for future research

When we consider institutional change we mean the change of institutional rules and regulations regarding IP protection standards before TRIPS and after TRIPS ratification. We do not study the actual change that happens and do

not consider institutional design in developing countries pre- and post-TRIPS. Moreover, TRIPS ratification implies institutional changes and changes of IP protection standards, especially in a developing country context with initial low protection levels that need to reach high protection levels according to TRIPS requirements. Thus, these changes are exogenously influenced and driven, and thus not a 'natural' occurrence. Institutional change in this study is forced and time-restricted to a maximum of ten years (the ten-year grace period). Future studies could see if our arguments hold in a non-restricted context where institutional change in developing countries is not influenced by exogenous pressures. Moreover, we only consider two actors as influencing factors for institutional change with regard to TRIPS. However, there are additional actors in- or outside of national innovation systems that might influence these change processes. We purposefully left out national or foreign institutions such as national laboratories or universities that are connected to governments making these institutional change decisions. The connection between these institutions and governments are strong and may skew the decision of institutional change. Additionally, the influence of supranational institutions such as the IMF might have an impact on institutional change processes as well, and future research could follow up on this aspect.

Note

1. The composition of a national innovation system is calculated as the proportion of specific actors (e.g. domestic firms, foreign firms, national institutions, individuals) in relation to all actors of an innovation system, using patent assignees as indicators.

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