

STRATEGIZING BY THE GOVERNMENT: CAN INDUSTRIAL POLICY CREATE FIRM-LEVEL COMPETITIVE ADVANTAGE?

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Despite the prevalence of governmental action devised to foster firms and industries, the link between industrial policy (IP) and competitive advantage has received scant attention in strategic management. I propose a model where such a link is mediated by the accumulation and churning of local resources and capabilities. I also introduce the concept of support-adjusted sustainable competitive advantage (SASCA), which occurs if a firm's observed performance is superior to the expected performance of competitors had they received the same array of policies. I argue that achieving SASCA through IP is a difficult endeavor and requires the interplay of three conditions: insertion in global production networks, geographical specificity, and governmental capability. Thus, the model expands the potential determinants of competitive advantage into the context of governmental intervention. Copyright © 2013 John Wiley & Sons, Ltd.

INTRODUCTION

Can governments help develop firms and industries? For scholars associated with the so-called industrial policy (IP) literature, the answer is a vehement “yes.” Thus, Rodrik (1995, 2004) and Amsden (1989) forcefully argue that rapid industrial development is often backed by governmental subsidies and protective tariffs that deliberately distort markets in order to incentivize local investment and entrepreneurship. Influential books have been written about how diverse countries such as Japan (Johnson, 1982), South Korea (Amsden, 1989) and Taiwan (Wade, 1990) have managed to catch up with developed economies through active governmental policy. To some, even the rapid development of the United

States owes much to temporary protection against industrialized products from England in the nineteenth-century (Chang, 1994) as well as government-sponsored research and targeted initiatives such as those in computing, health, and agriculture (Graham, 2010; Mazzucato, 2011; Mowery, 1984). Despite criticisms that excessive governmental involvement in the private sector can lead to rent-seeking (Ades and Di Tella, 1997; Krueger, 1990; Pack and Saggi, 2006), some authors go as far as to claim that imperfect IP “is infinitely better than failing on the opposite side” of governmental inaction (Reinert, 2009: 102).

Surprisingly, although strategic management (SM) is about how competitive advantage is created and sustained (Barney, 2002; Peteraf, 1993), there has been scant integration between the SM and IP literatures. However, IP and SM, viewed broadly, do share similar conceptual roots. At a more fundamental level, IP is based on the idea of “imperfect tradability of key inputs (and technologies) associated with modern sector production” (Rodrik, 1995: 78). In other words, a basic cause of underdevelopment is the restricted access to

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rare and valuable resources necessary to catch up. Yet, the idea that resources are imperfectly traded in factor markets is precisely the core assumption of the resource-based view in the SM literature (Barney, 1991; Peteraf, 1993). According to this view, the possession of valuable, rare and difficult-to-imitate resources leads to *sustainable* competitive advantage—i.e., firms consistently outperforming comparable peers over extended periods. Thus, while SM is concerned with explaining why superior performance is created and sustained, IP aims to explain how resource immobility prevents less developed regions from catching up and thriving in global markets—obviously two related objectives.

Their similarities notwithstanding, IP and SM contributions remain largely disconnected. Despite some recent work by management scholars on how the state can affect industry evolution (Lenway and Murtha, 1994; Mahmood and Rufin, 2005; Spencer, Murtha, and Lenway, 2005; Tzeng, Beamish, and Chen, 2011), we still lack a theoretical framework describing in which conditions IPs may or may not create firm-level competitive advantage, which is a focal issue in SM. In this paper, I propose a model where the link between IP and firm-level performance is mediated by the accumulation and churning of local resources and capabilities. My goal, however, is *not* to defend IP initiatives. Rather, I argue that IPs help achieve competitive advantage only under very particular conditions, and they may even result in *dis*advantage. For example, a given global competitor may exhibit superior observed profitability simply because it receives large subsidies or because its country has heavy entry restrictions. Following this logic, I introduce the concept of *support-adjusted* sustainable competitive advantage (SASCA), which occurs if a firm's observed economic performance is superior to the expected performance of competitors had they received the same array of support policies. I then propose a set of conditions linking IP and SASCA.

Given the complexity of the topic at hand, I do not intend to offer an exhaustive theory integrating IP and SM; several issues invite further in-depth investigation. In this sense, in the last section, I present the implications of the model and suggestions for a research agenda that further explores the interstices between SM and IP.

INDUSTRIAL POLICY, RESOURCE ACCUMULATION, AND FIRM-LEVEL RENTS

Background

“Industrial policy” is a rather expansive term; many definitions have been used in the literature. In general, however, there is an agreement that IP involves forms of governmental interventions that attempt to promote productive investments in a way that would not occur in market interactions free of such interventions (Cimoli *et al.*, 2009; Pack and Saggi, 2006). According to IP scholars, using governmental policies to alter the nature and path of productive investments will be particularly advantageous when a given regional context is subject to *externalities* across industries and activities (Harrison and Rodríguez-Clare, 2010; Krugman, 1993; Marshall, 1920). Autonomous decision making will fail to incorporate those positive externalities; to use Hirschman’s (1958) famous terminology, backward and forward linkages in the local production chain will have to be created. The solution, according to IP authors, is a “big push” by the government to promote coordinated, complementary investments (Murphy, Shleifer, and Vishny, 1989; Rosenstein-Rodan, 1943).

IP scholars also typically eschew the notion from classic trade theory that countries should specialize in activities for which they have a natural, static comparative advantage (such as abundant land or low-cost labor). They argue instead that countries should foster dynamic advantages by creating mechanisms through which firms upgrade their capabilities and exploit new technological trajectories (Amsden, 1989; Cimoli *et al.*, 2009; Possas, Salles-Filho, and da Silveira, 1996). Hausmann and Rodrik (2003), in particular, argue that governmental stimulus is needed for local entrepreneurs to “discover” their *latent* (unrealized) competitive advantages. Because learning investments yield downstream externalities and are risky, individual returns will likely fall below their expected social return. Following this logic, governmental help can incentivize entrepreneurial effort to invest in new capabilities.

Types of IP

In applied IP discussions, two general policy categories have been proposed: *vertical* and *horizontal* (e.g., Lall and Teubal, 1998; Sapir,

Buigues, and Jacquemin, 1993). Vertical IP aims at promoting *particular* industries or firms. If applied to a local industry and for all or most firms in that industry, vertical IP is usually referred to as *industrial targeting*: "benefits given to certain sectors that are not given to all sectors" (Beason and Weinstein, 1996: 286). Examples of vertical IP mechanisms include differential tax breaks or subsidized credit programs to stimulate exports or prompt investments in certain industries and regions. Vertical IP can also involve firm-level targeting or the promotion of THE so-called *national champions*—flagship companies supported by governments and acting as symbols of national presence in global markets. With the argument that large scale and the prospect of positive economic rents are necessary to prompt investments in innovation and global expansion, policies inducing national champions often involve concentration in the domestic market and temporary protection for incumbents (see e.g., Falck, Gollier, and Woessmann, 2011).

Horizontal IP, in turn, involves overarching governmental policies that yield externalities to multiple sectors and firms. Examples include government-induced investments in transportation and export infrastructure; credit programs for diverse activities; policies to reduce red tape to launch new firms; and investments in public schools and universities with multiple training programs and varied research projects. These as well as several other initiatives help improve the *business environment* of the country and increase the rate of return of individual investments in a generalized way. Because horizontal IP does not involve targeting at the industry or firm level, governmental help will be more along the lines of facilitating firm entry and resource deployment, while—without vertical IP—the selection of sectors or firms will be left to market forces. For this reason, critics of IP usually refrain from attacking horizontal policies and instead center their arguments on the potential distortions caused by vertical targeting (e.g., Pack and Saggi, 2006).

IP-induced resource accumulation and change

In my proposed framework, the link between IP and competitive advantage is mediated by the evolution of resources and capabilities. Similar to the resource-based view in SM, which explains differential performance based on imperfections in

resource markets (Barney, 1986, 1991; Peteraf, 1993), IP scholars assume that resources are heterogeneous and, at least to some extent, immobile across country borders (Rodrik, 1995). In this sense, governmental action, however focused, fundamentally seeks to alter the profile and distribution of resources in the local economy (Caves, 1987). Schumpeterian perspectives in SM (Teece, Pisano, and Shuen, 1997; Wiggins and Ruefli, 2005) and IP (Cimoli *et al.*, 2009; Possas *et al.*, 1996) also share the assumption of uncertainty and constant change. In other words, firms learn new capabilities over time but are also subject to external shocks that may render their existing know-how obsolete or alter the value of their existing resource configurations. I also follow IP (Hausmann and Rodrik, 2003; Hirschman, 1958) and SM scholars (Agarwal, Audretsch, and Sarkar, 2010; Mesquita and Lazzarini, 2008) who commonly emphasize that entrepreneurial action is subject to externalities across multiple activities and learning externalities as firms progressively discover new capabilities.

Given these assumptions, "strategizing" by the government involves policies to influence learning and the local accumulation of heterogeneous resources in a context of uncertainty. For expositional simplicity, I henceforth refer to "resources and capabilities" generally as "resources" (e.g., Barney, 2002: 144). I argue that resource accumulation (and change) will be affected by IP—which is *not* to say that resources, and the competitive advantage they generate, will *only* be created through active IP. In addition, although I follow the SM literature by assessing competitive advantage at the firm level, I consider that IP can foster the accumulation of resources at the firm, industry, or country levels (Lall, 1992; Mathews, 2003). From the point of view of any given firm, industry- and country-level resources can be seen as locally available collective goods that can improve firm-level performance (Klein *et al.*, 2013; Kogut, 1991).

Country-level resources are *flexible* because they can be applied to multiple industries and applications (Combs *et al.*, 2011). Such flexible resources include, for instance, generic transportation infrastructure, overarching financial credit, basic scientific know-how, human capital created from primary and secondary education systems, and so on. By contrast, *specialized* resources are circumscribed into particular uses

and applications. Specialized resources *at the industry level* are resources available to all or most firms in a given local industry. Examples of such specialized resources include colleges and research centers focused on particular knowledge domains (e.g., agricultural technology) as well as industry-dedicated infrastructure (e.g., state-sponsored telecommunication networks). Resources can also be specialized *at the firm level*, such as patented technology or private concessions to exploit mines and oil deposits. Below I describe how the various types of IP might promote those distinct resources.

IP-induced resource accumulation

Suppose that IP positively affects the likelihood that the firm will come up with a new, profit-enhancing project based on its own stock of accumulated resources and the extent of country- and industry-level resources that facilitate firm-level investment activity (e.g., Aghion, 2011). IP can also reduce the costs to discover market opportunities and revamp latent advantages.

Horizontal IP, in particular, can generate an adequate supply of country-level, flexible resources that create opportunities for new specialization. For instance, with an adequate supply of flexible, high-quality labor, the costs to invest in new projects drop, as does the likelihood that firms will discover new applications based on their existing human capital. Vertical IP, in turn, more directly influences the process of resource specialization through deliberate targeting. For instance, in an agriculture-intensive country the government can expand farm credit and invest in dedicated logistics to reduce the costs and increase the reach of new export initiatives. Alternatively, it may create new research centers and stimulate new R&D in advanced biotechnology or value-added food derivatives. In each case, targeting can occur both at the industry and at the firm level. Thus, to induce new resource specialization, policymakers can either incentivize the generalized entry of multiple firms into a novel sector or stimulate large-scale investment by a national champion.

IP-induced resource churning

While the IP literature usually emphasizes IP-induced resource accumulation, I introduce

here an equally important process of resource *churning*: how specialized resources may turn into either renewed specialized resources or flexible resources. Without churning, accumulation may lead to poor performance for two important reasons. First, a local industry may face the risk of resource *depletion*, as exemplified by nonrenewable natural resources or physical assets that rapidly depreciate. Second, because firms tend to focus on existing solutions and knowledge sets that generate immediate application (Levinthal and March, 1993), the economy may become progressively *overspecialized*. This process will be particularly problematic under high uncertainty, when market or technological shocks erode existing advantages and reduce the economic value of existing specialized resources. Threatened by those shocks, rent-seeking incumbents will have incentives to request continuous protection (Grossman and Helpman, 1994; Krueger, 1990). Rent seeking will therefore reinforce overspecialization and thwart industry reshuffling through the exit of unproductive firms—which is a key performance-enhancing mechanism in new models of global trade (Bernard *et al.*, 2003; Melitz, 2003).

Churning can mitigate overspecialization and depletion in two ways. First, existing specialized resources may be reconverted into *new* specialized resources. For instance, state-sponsored military technology had an important impact on the subsequent development of the computer industry in the United States (Langlois, 1992; Mazzucato, 2011). Research has also shown that, in declining industries, specialized resources such as experienced personnel and productive assets can be acquired by other firms and redirected to other uses (Anand and Singh, 1997; Capron, Dussauge, and Mitchell, 1998). A second way of churning involves specialized resources becoming *flexible* resources. In Singapore, teachers in primary or secondary education often come from specialized jobs such as engineering and services; Barber and Mourshed (2009: 29) note that “during the financial crisis [of 2008] Singapore’s Ministry of Education set up a recruiting station in the heart of the financial district.” In the case of resources that can be gradually depleted, such as minerals, governments can use the royalties from their exploitation to promote flexible resources or incentivize new industries. Thus, churning is also a form of dynamic adaptation.

Can IP-induced resources create firm-level rents?

SM scholars focus on the determinants of *sustainable competitive advantage*: persistent economic rents at the firm level (Barney, 2002), often operationalized as a situation where a firm consistently outperforms industry peers in terms of profitability and other relevant performance indicators (e.g., McGahan, 1999; Mueller, 1986). Peteraf (1993), in particular, proposes that persistent rents derive from the interplay of four factors: resource heterogeneity, resource immobility, ex ante and ex post limits to competition. Recall that resource heterogeneity and immobility are critical assumptions of both IP and SM. Firms located in distinct countries, subject to distinct IP regimes, should face the heterogeneous supply of flexible or specialized resources. For instance, although human capital can to some extent migrate, the same is not necessarily true for the country-level resources that promote local accumulation of human capital (e.g., high-quality schools and universities).

Resource scarcity and immobility will, however, not suffice. Ex post barriers to competition will be necessary to guarantee that rents are *sustainable* in the long run due to the poor imitability of local resources (Barney, 1991). This is a critical condition that I explore later. Ex ante barriers, in turn, guarantee that firms will not overly compete for IP-induced resources, thereby dissipating rents. Given the assumption of resource heterogeneity, some firms may have superior capabilities to other firms in acquiring those resources, even within the same country and industry. Furthermore, as stressed by Rumelt (1987), ex ante uncertainty will create rents that can be appropriated by the few firms willing to invest in new discovery. Not all firms will compete for the same IP-induced resources if they foresee distinct opportunities and follow distinct learning paths.

SUPPORT-ADJUSTED SUSTAINABLE COMPETITIVE ADVANTAGE (SASCA)

In a context with deliberate governmental intervention, however, it is necessary to adjust the way competitive advantage is defined and assessed. Because IP will deliberately change the allocations that would normally occur under free markets, simply observing whether firms are having

actual rents can be misleading. Companies may be artificially “profitable” due to heavy import tariffs, massive subsidies or selective tax breaks. For instance, Haley and Haley (2013) estimate that many Chinese industries have received subsidies surpassing 30 percent of industrial output. Therefore, to gauge competitive advantage correctly in the context of IP, it is also important to factor in the *extent* of governmental support that firms and industries receive (Harrison and Rodríguez-Clare, 2010).

To facilitate this understanding, consider the following example. Suppose that a given global industry has two major competitors with a similar size, each in a particular country or region. The average profitability in this industry, removing IP-related factors that can affect profits, is five percent. Firm 1 has received \$50 million in governmental subsidies, which have marginally increased its profitability by 5 percentage points. Firm 2, in turn, has received a lower amount of subsidies, \$10 million, which have marginally increased its profitability by 2 percentage points. The final (observed) economic returns of Firms 1 and 2 are therefore ten and seven percent, respectively. Although Firm 1 outperforms Firm 2 when we consider observed profits, this is not true when we take into account the effect of subsidies. For instance, what would be the performance of Firm 1 had it received the same level of subsidies of Firm 2 (\$10 million)? Because each additional \$10 million results in a marginal increase of 1 percentage point in Firm 1’s profitability, with \$10 million in subsidies (instead of \$50 million), we would expect its final return to be six percent—therefore *below* Firm 2’s observed profitability.

We can thus say that Firm 2 has *support-adjusted* competitive advantage: its observed performance is superior to the *expected* performance of industry peers receiving the same level of support. This comparison is aligned with the familiar definition of competitive advantage as the difference between actual and expected performance based on the industry norm—only that, in the context of IP, the latter will have to incorporate the level of help that each competitor receives from its government. However, to be fully consistent with competitive advantage as defined by SM, support-adjusted competitive advantage must be more or less persistent or *sustainable* in the long run. If this is the case, the firm is said to exhibit SASCA.

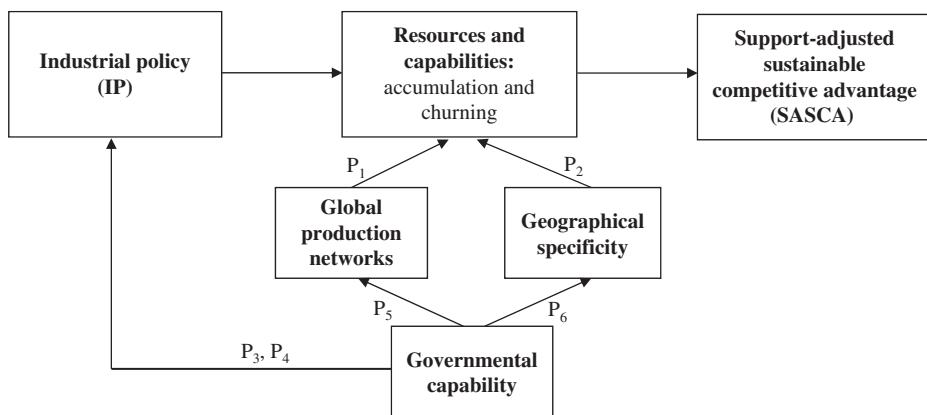


Figure 1. Theoretical model linking IP and SASCA

Given this definition, it is possible, and even likely, that certain firms will have SASCA even when countries engage in a race to equalize the level of support that they apply to their companies. By construction, SASCA involves a comparison between observed and expected performance *conditional on the same level of support*. However, countries will differ in their effectiveness to turn IP initiatives into competitive advantage. In the previous example, Firm 2 exhibits SASCA because its governmental subsidies have a larger *marginal effect* on profitability. With an extra amount of \$10 million in subsidies, Firm 1's government increases firm-level profitability by 1 percentage point, which is half the marginal effect obtained by Firm 2's government (2 percentage points). Further support to Firm 1 might increase observed economic rents but not SASCA. In other words, SASCA is not based on the absolute support received by a firm, but rather on the *relative* efficiency that governments have in creating firm-level rents.

Heterogeneous marginal returns of IP initiatives are therefore critical to explain superior performance according to SASCA. My subsequent theorizing essentially proposes variables that can explain such heterogeneous marginal returns.

TURNING IP-GENERATED RESOURCES INTO SASCA

I propose conditions under which IP-induced resource accumulation and churning eventually lead to SASCA. To identify those conditions, I started with a detailed reading of the IP literature

and of narratives of how countries have adopted distinct policies (e.g., Amsden, 1989; Buigues and Sekkat, 2009; Evans, 1995; Graham, 2010; Johnson, 1982; Khan and Blankenburg, 2009; Mowery, 1984; Rodrik, 1995; Wade, 1990). After identifying common assumptions between IP and SM (as discussed before), I then selected conditions commonly described in the IP literature that are, at the same time, consistent with the processes of rent generation and persistence proposed by SM scholars. The proposed conditions are *global production networks*, *geographical specificity* and *governmental capability*. In my model, they essentially link IP and SASCA by affecting the dynamics of resource accumulation and change (see Figure 1). Below, I describe these conditions and deliver testable propositions linking IP and SASCA.

Insertion in global production networks

Global production networks are interfirm webs "whose interconnected nodes and links extend spatially across national boundaries and, in so doing, integrate parts of disparate national and subnational territories" (Coe, Dicken, and Hess, 2008: 4). Local firms may become suppliers or customers of foreign firms and actively participate in complex transnational interactions (Gereffi, Humphrey, and Sturgeon, 2005). Thus, the magnitude of local firms' involvement in global production networks can be assessed by the degree to which they establish contracts or alliances with external players—not only to export products and services but also to acquire superior know-how encapsulated in imported products or flowing through

interfirm knowledge-sharing ties. In this context, governments will have an important role in incentivizing or inhibiting firm-level global insertion. At first glance, this may be seen as inconsistent with IP, given that chosen policies commonly involve temporary protection through import tariffs or entry restrictions. However, while receiving some degree of support, domestic firms may be encouraged by their governments to export their products aggressively, collaborate with certain foreign entrants, and import complex components not available locally.

Firm-level insertion in global production networks will be accompanied by two distinct performance-enhancing mechanisms. First, firms will have improved access to the know-how residing *outside* the region where the IP is applied. Research has found, for instance, that imported components allow firms to incorporate new technologies and achieve productivity gains (e.g., Blalock and Veloso, 2007). By being involved in external interactions, firms may also have access to more tacit sources of knowledge through joint projects and evolving alliances with foreign partners (Patel *et al.*, Forthcoming). This process should facilitate specialization efforts at the cutting edge of industry evolution and even create opportunities for new specialization paths combining internal and external capabilities.

Global production networks will also introduce competitive forces in the domestic arena. By being required to meet international standards through exports or facing the advent of selective imports and foreign entrants (currently or in future periods), domestic firms will have more incentives for learning and for the continuous search for improved solutions (Barnett and Hansen, 1996; Porter, 1990). Because integration exposes local industries to global standards, even IP proponents emphasize the disciplining effect of an export orientation (Amsden, 1989; Wade, 1990) and some even talk about the need for "sunset clauses" that establish a credible end of support programs if firms are not found to be competitive (Rodrik, 2004). In other words, insertion in global production networks can also facilitate resource churning.

An illustration of dysfunctional IP initiatives due to (among other things) the lack of integration in global production networks is the market protection of the Brazilian computer industry in the 1980s. Through tight restrictions on

imports and foreign direct investment, Brazil stimulated domestic groups to invest in computer manufacturing facilities, but those investments failed to deliver competitive products. In the words of Evans (1995), "while manufacturers in other countries shopped the world for price/performance in components, Brazilian manufacturers struggled to build local networks of suppliers that could reliably deliver technologically simple items like power supplies and fans" (p. 161). Furthermore, without external competitive pressure, "the policy also created powerful incentives *not* to engage in local innovation" (p. 120, emphasis in the original).

In sum, using the framework described in the previous section, an increase in the extent of local firms' insertion in global production networks should improve the marginal return on IP initiatives, thereby promoting SASCA. Each monetary unit invested in industrial development will result in superior performance if the supported industries have incentives to upgrade their own resources constantly and to tap into valuable, external knowledge successfully. This leads to my first proposition:

Proposition 1: *IP is more likely to lead to SASCA when there is enhanced firm-level insertion in global production networks.*

Geographical specificity

I refer to *geographical specificity* as a condition where resources are circumscribed within a particular region and are difficult to be replicated in other localities. This concept draws from what Fahy (2002: 64) refers to as country- or region-specific resources, which are "imperfectly mobile across borders." There are three main classes of geographically specific resources. First, *physical* geographical specificity derives from natural conditions, such as unique climate, or inherited resource endowments, such as rich mineral reserves. Countries lacking these physical resources may, however, develop relative advantages based on other resources with a more intangible nature. Thus, *human* geographically specific resources can involve high-quality education systems providing a large pool of skilled workers or even an innate population with distinct, valuable traits (e.g., English fluency in India). Finally, *social* geographically specific resources are based

on local interactions developed over time. Putnam (1993), in his work on social capital, examines how regions differ in terms of societal trust and how trust-enhancing norms locally evolve based on complex historical interactions. Scholars examining regional clusters have also underscored the importance of social interactions promoting joint learning and innovation (Arikan, 2009; Piore and Sabel, 1984; Porter, 1990).

I argue that policies are more likely to lead to SASCA when they build upon geographically specific resources. For instance, incentives to develop high-technology firms are more likely to succeed in the long run when firms can rely on a distinctive supply of skilled labor and research centers specialized in niche fields. Without geographically specific resources, IP may lead to competitive parity at best; further, even if novel products are introduced, foreign competitors well positioned in global production networks will easily replicate their structures of production in other localities. Thus, simply encouraging specialized industrialization or regional agglomeration will not be enough if local accumulation is based on resources possessed or imitable by foreign competitors.

In addition, there should also be important interactions between various types of geographically specific resources. In fact, in many cases a *nexus* of geographically specific resources will be necessary to trigger particular trajectories of resource accumulation. For instance, McDermott, Corredoira, and Kruse (2009) show how complex networks between local governments, associations, and entrepreneurs helped spark innovation and upgrading in the Mendoza region, which presents very favorable (and rare) natural conditions for high-quality wine production. Interestingly, they argue that another Argentinean cluster (San Juan), with similar physical resources, failed to generate competitive firms because it lacked the distinctive public–private social interactions present in Mendoza. In other words, firms in Mendoza benefitted from a nexus of physical and social geographically specific resources imperfectly available in other regions.

Such a nexus should also create ex post barriers to competition. In Barney's (1991) resource-based formulation, imitation is curtailed by a host of historical conditions as well as complex interactions between various firm-level factors causing competitive advantage. For instance, the path-dependent nature of social interactions and the gradual

accumulation of human know-how imply that it will be difficult for firms and policymakers to imitate the relational foundations that bolster cooperation and innovation in other local contexts. Even with heavy governmental support, replication will take time and even become unfeasible if competitors lack key immobile resources. Therefore, similar to the effect of global production networks, geographical specificity should increase the marginal return on IP initiatives. Here, however, the effect will also be along the lines of generating *persistence* of rents in the long run due to resource immobility as well as ex post barriers to imitation created by a nexus of geographically specific resources imperfectly available to foreign competitors. In other words:

Proposition 2: *IP is more likely to lead to SASCA when policies encourage firms to build upon a nexus of geographically specific resources.*

Governmental capability

Because IP represents deliberate intervention in the economy to spur resource accumulation, a critical question is whether governments have the *ability* to conduct performance-enhancing interventions. Pack and Saggi (2006: 281–283), for instance, offer an impressive list of parameters that would need to be collected by industrial policymakers to address economy-wide production externalities. At a more fundamental level, Coase (1960: 18) insists that market failure does not necessarily justify governmental intervention, because the latter can also fail. Apart from cognitive limitations in identifying the “correct” areas for successful intervention and opportunities to revamp latent advantages, Krueger (1990) and others (Ades and Di Tella, 1997; Haber, 2002) warn about the risk of policy capture by rent-seeking industrialists who lobby for private benefits and unjustified protection—which, as discussed before, can cause overspecialization and lock-in.

Therefore, successful IP requires distinctive ability to perform successful interventions. Honadle (1981: 577) defines *governmental capability* as a distinctive public skill “to anticipate and influence change; make informed, intelligent decisions about policy; develop programs to implement policy; attract and absorb resources; manage resources; and evaluate current activities to

guide future actions." Based on this definition, I consider that capable policymakers emphasize two critical aspects in the selection and implementation of policies. First, instead of pursuing centralized planning, which is cognitively cumbersome, capable policymakers instead try to incentivize entrepreneurial activity building on local and external resources. Second, and no less important, capable policymakers curb rent seeking through a careful process of policy evaluation. IP authors such as Amsden (1989) and Rodrik (2004) stress the importance of planning and clear performance metrics (e.g., export performance) to assess whether support programs should be continued or aborted. Capable policymakers execute coordinated interventions in tandem with mechanisms to monitor the performance of these interventions and cease support for nonperformers. This is akin to an infusion of *market-like incentives* within state policy (Khan and Blankenburg, 2009). Monitoring and performance-contingent support avoid inefficient specialization and enhance churning. With clear rules and procedures, policymakers also generate a more stable environment in which to foster the evolution of sustainable advantage.

A fundamental question, however, is which conditions promote the emergence of superior governmental capability. The IP literature greatly emphasizes the role of *skilled technical staff* with superior analytical capabilities and a sense of professionalism in their policymaking duties (Evans, 1995; Schneider, 1991; Trebat, 1983). For instance, in South Korea (Amsden, 1989) and Taiwan (Wade, 1990), IP was largely in the hands of top-notch talent recruited from local prestigious schools through rigorous screenings.

Governmental capability should also depend on the extent to which those skilled policymakers are able to understand the legitimate needs of the private sector without acquiescing to unjustified demands. Granting policymakers autonomy in the formulation of IP initiatives, while simultaneously appointing Weberian professional bureaucrats, should not only avoid undue political interference but also reduce the risk of policy capture by private interests. However, insulated policymakers should also extract useful information from private firms and search for potential areas of improvement. Evans (1995) refers to this as *embedded autonomy*: a situation where "pockets of efficiency" in governmental bureaucracy keep some dialogue with the private sector, while

preserving their autonomy to devise performance-enhancing policies free of significant political distortion. As he explains, policymakers "are embedded in a concrete set of social ties that binds the state to society and provides institutionalized channels for the continual negotiation and renegotiation of goals and policies" (1995: 12).

In my model, governmental capability is a central element, affecting SASCA via several channels. Given that policymakers have a large menu of possible policy choices, a critical aspect will not only be whether each particular policy choice has a small or large marginal return but also whether the selected policies will *collectively* improve SASCA. In particular, skilled policymakers are likely to promote a clever combination of horizontal *and* vertical policies that yield both specialized and flexible resources. Neglecting horizontal policies that would otherwise advance flexible resources would result in what Krueger (1990: 10) refers to as "failures of omission," including the "deterioration of transport and communications facilities," as well as weak educational systems that fail to deliver economy-wide qualified human capital. By the same token, sole emphasis on horizontal policy may be suboptimal because it would not necessarily address the externality problem discussed earlier (Aghion, 2011; Rodrik, 2004). For instance, policymakers may recognize that certain activities require specialized R&D and infrastructure that may be too costly or risky to be borne by individual entrepreneurs. Vertical policies can thus encourage firm-level experimentation and new resource specialization. In sum, by viewing vertical and horizontal policies as complements in the process of resource accumulation and change (Lall and Teubal, 1998), capable policymakers are more likely to adopt a balanced combination of those policies:

Proposition 3: *Governmental capability promotes vertical and horizontal IPs, balancing flexible and specialized resources, which in turn increases the likelihood of achieving SASCA.*

When adopting vertical IPs, policymakers can either try to reinforce certain industries and firms or encourage experimentation in new learning trajectories. As an example of reinforcement, recall from our earlier discussion that governments may want to select national champions and promote

local industry concentration with the justification that, to be on par with global peers, those champions need to achieve economies of scale and heavily invest in innovation. However, the creation of large, powerful corporations tend to increase their political ability to claim unjustified support (Ades and Di Tella, 1997; Olson, 1982). Furthermore, cognitive limitations hamper policymakers' ability to identify the "correct" firms and industries to be reinforced. Arguably, in their effort to pick promising firms, policymakers may exclude other players with greater potential to prosper. Spencer *et al.* (2005: 328) provide an interesting example in Japan, showing what happened when Sharp was excluded by the government from an early computer consortium: "The consortium failed. But Sharp succeeded in calculators, and its advances in calculator screens provided a basis for its founding role in the high-volume, large-format flat panel display (FPD) industry."

Therefore, capable governments, when adopting vertical policies, are more likely to encourage new experimentation rather than reinforced specialization. This will occur through two complementary channels. First, policymakers will avoid supporting large incumbents with scale and financial clout to undertake their own projects. Achieving SASCA is very unlikely in this case: comparable firms in other countries may achieve similar or even higher levels of performance with minimal governmental support. Policymakers will instead try to encourage entrepreneurial experimentation by reducing the constraints of firms with latent capabilities that could result in new, profitable projects (Inoue, Lazzarini, and Musacchio, Forthcoming). Second, with clear performance goals, capable governments increase the odds that failed experiments will be aborted in the future. Absent this process of churning, local firms may preserve artificial rents and survive at the cost of heavy protection, which is also antithetical to the objective of achieving SASCA. This logic leads to

Proposition 4: *When adopting vertical IP, capable governments emphasize policies that encourage new experimentation rather than reinforced specialization, which in turn increases the likelihood of SASCA.*

Governmental capability should also indirectly affect the marginal return on IP initiatives by

guaranteeing that the other two conditions, insertion in global production networks and geographical specificity, are met. Regarding global production networks, skilled policymakers will more effectively identify instances in which external resources could increase learning and adaptation to changing conditions. For instance, they will avoid protecting inefficient local suppliers when foreign capabilities can be successfully assessed and welcome foreign entrants that can enhance the capabilities of domestic firms (Thun, 2004). Policymakers under embedded autonomy will also shun rent seeking by using potential sourcing from global production networks as a credible threat to halt support in the case of poor performance. Thus, policymakers can create observable performance targets based on firm-level exports and resort to foreign players if the supported firms fail to become competitive. In other words, capable policymakers will employ global production networks as a mechanism to further learning and infuse market-like incentives into state policy:

Proposition 5: *Governmental capability leads to IPs fostering insertion in global production networks.*

Instead of selecting industries or firms whose resources are widely available or easily imitable by firms in other regions, capable policymakers also devise policies that benefit from a nexus of geographically specific resources. Otherwise, as discussed before, any IP-induced economic rent will be rapidly competed away by other firms located in other regions. Embedded autonomy also implies that policymakers stimulate productive channels of communication between governments and the private sector—more along the lines of retrieving useful information than acquiescing to private pressure. The resulting public–private networks used to execute IP should emerge from complex social interactions and will be, themselves, a geographically specific social resource difficult to replicate in other localities (McDermott *et al.*, 2009). This leads to my final proposition:

Proposition 6: *Governmental capability leads to IPs building on a nexus of geographically specific resources.*

An application

The Chilean case offers an opportunity to engage my previous theoretical discussion in an applied setting. Although Chile is often portrayed as a country whose recent development was based on the pro-market reforms engendered in the 1970s and 1980s, a more realistic description is of a combination of market mechanisms with selective IPs of various sorts (Sabel, 2007). Because the country is highly dependent on mining and commodity exports (Ffrench-Davis, 2010), Chilean governments have tried to mitigate the hazards of overspecialization and excessive depletion by channeling mining revenues toward new sectors and activities (Agosin, Larraín, and Grau, 2010). Key agents of policy execution include Corfo, Chile's state-owned development organization managing several innovation funds fed by mining royalties, and Fundación Chile, a semi-public foundation partially controlled by Corfo and Australian mining firm BHP Billiton.

Many interventions in the Chilean economy combine an orientation toward global networks and innovation efforts building on a nexus of geographically specific resources. Firms in the fishing industry, for instance, have been highly integrated with global markets, often in partnership with foreign players and pursuing an aggressive export orientation. Between 1990 and 2000, Chile's share of the global market of salmon and trout jumped from 10 to 35 percent (see e.g., UNCTAD, 2006). In addition, besides Chile's temperate climate and water resources, firms have benefited from a nexus of human and social geographically specific resources. Corfo created in 1964 the Fisheries Development Institute, a nonprofit R&D organization. Many firms were founded by entrepreneurs with previous technical knowledge in fish farming and reproduction. SalmonChile, a business association that comprises salmon exporters, created the Salmon Technology Institute in 1994 to disseminate technologies for quality control and food safety.

Fundación Chile was even more active in the creation of new ventures, buying equity stakes in nascent firms and then selling those stakes after some time to capitalize other entrepreneurs. Salmónes Antártica, for instance, was established by Fundación Chile in 1982 and rapidly became a large-scale operator (UNCTAD, 2006). More recently, Fundación Chile has moved toward more

horizontal initiatives such as technical support to general education and public services. Corfo has also adopted more horizontal programs to promote entrepreneurship. For instance, the program "Start-up Chile," based on mining funds, provides small entrepreneurs (including foreign ones) with grants to establish new firms in the country. These initiatives suggest a process of churning whereby rents from existing specialized resources (notably mining) help generate new flexible resources and new resource specialization.

Furthermore, Chile is well known for its institutional reforms that have helped curb corruption and increase bureaucratic efficiency (e.g., Stone, Levy, and Paredes, 1996). Corfo's programs include phased grants to entrepreneurs conditional on clear firm-level performance metrics. Although its bureaucracy is relatively insulated, there is substantial interface with the private sector. At Corfo, it is common to find technical personnel with foreign graduate degrees and previous entrepreneurial experience. Fundación Chile is itself a government-backed body with close (yet autonomous) interaction with private firms. All these aspects suggest that Chile has distinctive governmental capability. In sum, although a precise assessment of SASCA requires gauging the extent of governmental support, disciplined interventions executed by capable policymakers building on a nexus of geographically specific resources and encouraging firm-level participation in global networks have apparently had a positive impact on resource accumulation and churning.

CONCLUDING REMARKS

In this paper, I propose key conditions affecting whether the IP-induced dynamics of resource accumulation will lead (or not) to firm-level competitive advantage. Thus, my theorizing not only helps integrate SM and IP, but also offers important contributions to stimulate further integrative research at their interface. I describe these contributions below and then outline suggestions for future research.

Contributions

In my effort to bring IP into SM discussions, I explicitly place governments as potential determinants of firm-level performance instead of treating

them as mere exogenous factors affecting the local business environment. For better or worse, many governments throughout the world keep intervening in industries and firms despite the privatization and liberalization wave of the 1990s (Bremmer, 2010). Yet, thus far, very few studies in SM have explicitly modeled the role of the state. If governmental action to promote firms and industries remains pervasive, then an explicit incorporation of governments as potential strategists may help us better understand the origin of competitive advantage (or disadvantage) in many countries. I identify those assumptions shared by the IP and SM literatures and offer a set of testable propositions linking IP and competitive advantage through the mediating mechanism of resource accumulation and change.

My framework naturally informs how governmental strategizing may or may not lead to competitive advantage at the firm level. Yet, there are also important managerial implications. Given the wide range of policies that can be chosen, managers and entrepreneurs, in their dialogues with governments, should understand which policies are more likely to foster the creation of sustainable competitive advantage. Furthermore, managers should be able to read and react to competitive environments subject to governmental intervention. I argued that IP can severely distort cross-country comparisons based on observed economic profitability when industries or firms receive subsidies or heavy protection from their governments. The concept of SASCA introduced here can help managers better understand whether competitors have true competitive advantage or whether rents are simply an artificial outcome of protective policies.

The discussion on the conditions affecting the relationship between IP and SASCA also informs received theories on the *regional* determinants of competitive advantage. Porter (2008), in his examination of how countries have created global companies out of regional interfirm clusters, actually positions himself *against* several IP prescriptions. In his view, policies such as pro-domestic bias and support to national champions are detrimental because they artificially shield firms from the competitive forces that induce innovation (Porter, 2008: 264–265). Yet, governmental action is naturally region-specific, and some theorists even recommend that IPs should emphasize cluster promotion (e.g., Harrison and Rodríguez-Clare,

2010). My discussion contributes to this literature by proposing *how* IP can act as a region-specific factor that, under particular conditions, promotes competitive advantage.

A future research agenda at the interface between IP and SM

Despite these contributions, several issues remain unaddressed and invite further research that can potentially spark an interaction between IP and SM scholars. I present below some suggestions for such a future research agenda.

Incorporating IP variables in the analysis of firm-level performance

Future empirical studies should try to adjust observed firm-level profitability according to a vector of policies proxied by the extent of governmental subsidies, pro-domestic biases in governmental procurement and industry-specific tariffs among other policy variables that might affect observed performance. Empirical scholars might also try to retrieve more directly the marginal returns of those policy variables at the firm level. This can be carried out through interactions between, say, the extent of the subsidies received by a firm or industry and the conditions that should affect the marginal returns of those subsidies (i.e., global production networks, geographical specificity and governmental capability as well as other variables proposed by future research). As discussed before, those differential marginal effects are crucial to SASCA. Other things being equal, after controlling for other factors unrelated to IP, firms present in an industry and region whose policymakers achieve superior marginal returns with their IP initiatives should have superior SASCA.

Governments as interdependent strategists

As noted before, “strategizing” in my context has more to do with policies devised by the government to stimulate resource accumulation and change. I am therefore abstracting from interdependent actions and reactions by policymakers in industries spanning various countries. However, an escalation in industry- or firm-level governmental support in a particular country may be retaliated by similar measures in other countries (Brahm,

1995). For instance, Gollier and Jullien (2011: 153) warn that, even if countries have an argument to promote their own national champions, "each nation will dissipate resources to create firms." Therefore, "strategizing" can also be generalized to include such competitive reactions in a more game-theoretic fashion.

The institutional environment for IP

SM scholars have increasingly incorporated the institutional environment of the country—its set of formal and informal "rules of the game," as defined by new institutional economist Douglass North (1990)—as a determinant of strategic action, resource accumulation, and firm-level performance (Hoskisson *et al.*, 2000; Khanna and Palepu, 2000; Peng *et al.*, 2009). An alternative channel for the effect of institutions on performance may relate to IP itself. On the one hand, policymakers may be influenced by *local* institutions at the country level. The literature on the *varieties of capitalism* is perhaps a useful starting point to discuss how local institutions affect IP (Hall and Soskice, 2001). Variations in the institutional environment should prompt distinct policy parameters; for instance, a movement toward a more liberal market ideology should tilt the mix of vertical and horizontal policies toward the latter.

Policymakers may also be constrained by *international* institutions that limit the adoption of certain policies. Heavy protectionist tariffs and targeted subsidies are increasingly condemned by the World Trade Organization (Buigues and Sekkat, 2009). Such international institutional constraints can also be incorporated in the analysis of governments as interdependent strategists, as discussed earlier. For instance, when faced with heavily subsidized national champions, firms may request their governments to access international institutions and file formal complaints to guarantee a level playing field in the industry.

Organizing the implementation of IP

Various organizational arrangements can be used to implement governmental interventions. Policymakers may more directly rely on the state itself as an entrepreneur (e.g., through state-owned enterprises; Trebat, 1983) or, more indirectly, by encouraging investments by private firms—which, in turn, can be either small entrepreneurial ventures

(Baumol, Litan, and Schramm, 2007; Mesquita and Lazzarini, 2008) or large, diversified business groups (Amsden, 1989; Khanna and Palepu, 2000; Mahmood and Rufin, 2005). Musacchio and Lazzarini (2014) also analyze distinct ways in which governments can participate in business. Although IP does not necessarily mandate a single organizational form, different ways to implement state interventions should have profound implications for competitive advantage. A comparative framework assessing in detail the pros and cons of each organizational mode, can greatly contribute to the analysis of IP execution.

To be sure, these suggestions do not exhaust all possibilities for an integrative research agenda. Whichever particular topic is chosen, SM scholars' tradition to examine the determinants of competitive advantage, associated with IP scholars' knowledge of state interventions, should help us better understand not only the expected effect of certain policies but also how policymakers can craft IP initiatives whose impact exceeds initial expectations.

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