Institutional Knowledge Spillovers, Entrepreneurship, and Economic Decline

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Abstract

The knowledge spillover theory of entrepreneurship (KSTE) positions the entrepreneur as the driver of economic growth, positing investments in the production of technological knowledge as the source of entrepreneurial opportunities. The extent of entrepreneurship, typically interpreted as new firm formation, depends significantly on the knowledge filter—the set of barriers to entrepreneurs’ use of existing knowledge. Meanwhile, insights from New Institutional Economics suggest that the supply of entrepreneurship is relatively stable across societies: rather than “less” entrepreneurship, countries that do not experience economic growth may have “different” entrepreneurship (e.g., market activity vs. rent seeking). Institutions determine the payoffs to alternative types of entrepreneurship. We integrate these insights to propose that knowledge spillovers can generate entrepreneurial opportunities that are not inherently productive. We focus on the concept of institutional knowledge: knowledge pertaining to the nature and enforcement of political and social rules in a society. We discuss mechanisms by which this kind of knowledge can spill over from political agencies to firms and across firms to facilitate “unproductive” entrepreneurship. Our work expands KSTE by exploring how spillovers of certain types of knowledge generate entrepreneurial opportunities leading to economic stagnation and decline, rather than growth.

Keywords:
knowledge spillover theory; entrepreneurship and institutions; economic development & growth

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Identifying the sources of economic growth is a central topic in social science (Smith, 1776). Entrepreneurship has long been heralded as a key driver of growth (Audretsch, 2004; Baumol, 1990; Powell, 2008; Schumpeter, 1934), and entrepreneurship scholars have increasingly turned their attention to this relationship. The knowledge spillover theory of entrepreneurship (KSTE) is an important recent approach in this regard (Acs et al., 2013). KSTE suggests that knowledge spillovers generate entrepreneurial opportunities that result in endogenous economic growth through a process of “creative construction” (Agarwal et al., 2007). Existing organizations generate knowledge, principally through R&D investment. But incumbent firms do not appropriate the full value generated by these efforts due to the non-rivalrous nature of knowledge. Thus, knowledge spills over to become a source of opportunities for other entrepreneurs, who seize these opportunities through new venture creation.

In focusing on technical knowledge and new venture creation, scholars have assumed that knowledge spillover-driven entrepreneurship have a strictly positive relationship to growth. Where KSTE scholars have studied the adverse consequences of knowledge spillovers, economic stagnation emerges from a lack of knowledge investments—resulting in a dearth of spillover-driven entrepreneurship (Parker, 2010). Meanwhile, insights from New Institutional Economics suggests that the supply of entrepreneurship is relatively stable across societies. Rather than “less” entrepreneurship, countries that do not experience economic growth have “different” entrepreneurship (e.g., market activity vs. rent seeking) (Baumol, 1990). Furthermore, other forms of entrepreneurship beyond new venture creation can be “unproductive,” driving economic stagnation and decline.

We integrate KSTE with New Institutional Economics to propose that spillovers of certain types of knowledge can generate opportunities for unproductive entrepreneurship.
Specifically, we introduce the notion of *institutional knowledge*: knowledge pertaining to the rules of the game in society (North, 1990). We argue that institutional knowledge spillovers—as differentiated from the traditional “technical knowledge” spillovers—can explain other types of entrepreneurship (e.g., political). Importantly, these opportunities may not be solely value-creating; in fact, institutional knowledge-spillover entrepreneurship may transfer or destroy value.

As KSTE is now established as a legitimate theoretical approach for entrepreneurship scholarship, efforts have been made to delineate its proper scope. Ghio et al. suggest that “The key questions and topics [in KSTE] include the creation of knowledge-based entrepreneurial ventures, the sources and nature of knowledge spillovers and finally the impact of entrepreneurship generated by knowledge spillovers on growth” (Ghio et al., 2015, p. 9, emphasis added). Our paper contributes to the KSTE literature by building on the latter two topics. First, we introduce an underexplored type of knowledge, institutional knowledge, that can spill over to generate opportunities for entrepreneurship. We thus outline a link between the spillover of non-technical knowledge and entrepreneurial action (Agarwal et al., 2010, p. 277). Second, we explore the possibility that the impact of entrepreneurship generated by knowledge spillovers on growth may not be positive. Given that one billion of the world’s poorest individuals live in nations that are suffering from economic stagnation or decline (Collier, 2008), it is critical for entrepreneurship scholars to consider the possible connections between entrepreneurship and economic decline in addition to growth. To the extent that institutional knowledge spillovers generate opportunities for private gain through rent-seeking or other transfers, entrepreneurship can be understood to directly drive economic stagnation or decline.
Our work also contributes to the literature on entrepreneurship and institutions (Acs et al., 2008; Baumol, 1990; Henrekson and Sanandaji, 2011). This literature emphasizes that entrepreneurship can manifest in a variety of ways in based on the incentives inherent in a given societal context, and this allocation is critical to understanding both economic growth and decline. At the macro level, institutions are said to shape the payoffs to alternative courses of action. But exactly how institutions result in opportunities for entrepreneurship (especially unproductive entrepreneurship) is unclear. Our proposed solution is that institutional knowledge spillovers endogenously generate unproductive entrepreneurial opportunities. We thus provide a mechanism connecting micro-level entrepreneurial action to macro-level economic outcomes.

The paper proceeds as follows. We first discuss KSTE and the relationship between entrepreneurship and institutions, paying special attention to the links between entrepreneurship and economic change. We then introduce the notion of institutional knowledge and its connection to entrepreneurial opportunities. Next, we discuss two mechanisms by which this knowledge can spill over: from political entities to firms and across firms. We explore how institutional knowledge spillovers can generate entrepreneurial opportunities leading to economic stagnation and decline. Finally, we conclude with implications.

THE KNOWLEDGE SPILLOVER THEORY OF ENTREPRENEURSHIP

The knowledge spillover theory of entrepreneurship (KSTE) has become an important theoretical foundation within entrepreneurship theory (for a review, see Ghio et al., 2015). The theory has close links to literature in economic growth, which builds heavily on the seminal work of Robert Solow (Solow, 1956). This literature originally set out to explain the macro-level performance of nations based on the society’s allocation of inputs: capital, labor, and a black-box construct,
“technology”. This technology factor was initially taken to be exogenous, but this proved unsatisfying as the majority of growth was attributed to this “residual” factor in empirical evaluation. Thus, a core contribution to this literature came with endogenous growth theory (Romer, 1990). The theory models economic growth as a result of the production of technological knowledge within a society, thereby “endogenizing” the technological change that is said to facilitate growth.2

Whereas endogenous growth theory provides a link between knowledge and economic growth, this approach fails to incorporate the critical mechanism by which knowledge spillovers endogenously drive growth: entrepreneurship (Audretsch, 1995). Firms are assumed to exist exogenously. In contrast, KSTE positions the entrepreneur as the vehicle by which knowledge is translated into production via new venture formation. Firms endogenously emerge as a result of knowledge creation by existing organizations—both private and public.

**Knowledge Spillovers as a Source of Opportunities**

While an important contribution to the growth literature, KSTE approach does much more than merely reinsert the Danish prince into the play of Hamlet (Baumol, 1968) by augmenting endogenous growth theory with the word “entrepreneur.” KSTE is a theory of entrepreneurship, because it provides an explanation for the source of entrepreneurial opportunities. The source and nature of opportunities has been one of the defining questions of modern entrepreneurship literature (Shane and Venkataraman, 2000). In one view, opportunities are taken to exist exogenously; the emphasis is thus on alertness to or discovery of these opportunities (Kirzner, 1973). Others have placed more emphasis on the creation of these opportunities, where the

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2 Of course, technological knowledge production alone is insufficient to account for economic growth; in addition, replicative entrepreneurship that utilizes existing technology in new contexts is also an instrumental source of growth (Minniti and Lévesque, 2010).
opportunity does not exist independently of the entrepreneur’s action (Alvarez and Barney, 2007). Work on the source of opportunities continues to be a source of scholarly interest from a variety of approaches and perspectives (Suddaby et al., 2015). While a largely empirical in focus, the KTSE literature endogenizes opportunities to the economic activity in a society. Knowledge spillovers are said to generate opportunities for additional entrepreneurship.

The basic KSTE logic is as follows. Incumbent firms and public and academic researchers generate knowledge, principally through R&D activities. Incumbents introduce technological change based on this knowledge creation, but they do not utilize all of the knowledge they generate. Knowledge thus also spills over to new firms, which can enter profitably by utilizing the knowledge they themselves did not create (Acs and Audretsch, 1988).

KSTE does not simply assume limitless spillovers that can be accessed by any individual at any time. Rather than a “pure public good” yielding completely non-rivalrous and non-excludable benefits, the external benefits of knowledge creation are constrained (Acs and Plummer, 2005; Anselin et al., 1997; Jaffe, 1989). Instead, knowledge spillovers are said to be localized, typically in the sense of being limited by geographic proximity (Audretsch and Feldman, 1996). One of the critical ways that knowledge spillovers has been linked to new venture formation is through employee spinoffs, new firms started by former employees of existing organizations (Agarwal et al., 2004; Klepper, 2007; Klepper and Sleeper, 2005).

The Knowledge Filter

KSTE also departs from endogenous growth theory by embracing a distinction between different types of knowledge (Acs et al., 2013). Specifically, a distinction is raised between knowledge and economic knowledge (Arrow, 1962). New ideas have (limitedly) non-rivalrous and non-excludable features, yielding the potential for additional production. However, ideas must be
translated into economic (or commercial) knowledge by the entrepreneur. This leads one to ask: what determines the extent to which ideas are exploited to become commercial knowledge? The notion of the *knowledge filter* answers this question.

The knowledge filter limits the translation of knowledge into economic knowledge (Acs et al., 2004; Mueller, 2006). As explained above, entrepreneurship converts knowledge into economic growth through the exploitation of knowledge spillover-based opportunities (Braunerhjelm et al., 2010). However, this exploitation can be mitigated by the barriers that comprise the knowledge filter. The knowledge filter consists of several factors, each of which influence the extent to which profits can be generated and captured by the entrepreneur. Institutional barriers, including the policies and cultural attitudes of organizations toward commercialization, may disincentivize knowledge creators from pursuing entrepreneurial opportunities generated by this knowledge. Meanwhile, economic barriers related to the ease of obtaining intellectual property rights influence the extent to which the entrepreneur can capture the profits generated. Commercialization barriers limit the extent to which licensing and start-up activity will actually generate profits. Local factors, like competition, also moderate the extent to which knowledge creation is translated into entrepreneurial activity (Plummer and Acs, 2014). The more hindering these factors are, the “thicker” is the knowledge filter (Carlsson et al., 2009).

**ENTREPRENEURSHIP AND ECONOMIC GROWTH… AND DECLINE**

As the knowledge filter in the KSTE framework suggests, institutions are critical to the relationship between entrepreneurship and growth. The nexus of entrepreneurship, institutions, and economic development continues to be of critical importance in the broader entrepreneurship literature (Acs et al., 2008; Wennekers and Thurik, 1999). Scholars have expressed increasing
interest in identifying the policies that would foster entrepreneurship (Acs and Szerb, 2007; Audretsch, 2004). The general finding that “institutions matter” for shaping and enabling entrepreneurial activity has found consistent support (Boettke and Coyne, 2009). Liberal economic reform can increase the extent of both formal and informal entrepreneurial activity (Dau and Cuervo-Cazurra, 2014). In addition, strong, small government is positively linked to entrepreneurs’ intentions to grow their businesses (Estrin et al., 2013).

KSTE has generally focused on entrepreneurship within the scope of market activity—specifically, new firm formation. Knowledge spillovers are posited as the source of opportunities in this context. In other words, KSTE implicitly assumes a scope for entrepreneurship that is positive with respect to growth, because the opportunities generated by knowledge spillovers are for increased market activity. It thus seems necessary to consider the possibility that knowledge spillovers may yield entrepreneurship that may be zero or even negative sum.

However, when the link between institutions and entrepreneurship is considered more deeply, it becomes less clear that entrepreneurship per se translates into economic growth. This is because an important insight emerging from the institutions literature is that entrepreneurship is not limited to new firm formation, or even to the market sector.

In his seminal work on entrepreneurship and economic growth, Baumol posited that the supply of entrepreneurship is relatively stable across societies; however, entrepreneurs pursue different opportunities based on the institutional framework within which they are embedded (Baumol, 1990). Institutions influence the allocation of entrepreneurial efforts by affecting the payoffs to alternative activities (North, 1990). Strong, stable governance, including such things as the protection of private property rights and the rule of law, does reward “productive” entrepreneurship, which can take the form of market-based activities such as new firm formation
or new product introductions. In contrast, weak property rights protections and corruption increase the payoff to seeking transfers of resources through redistribution—instances of “unproductive” entrepreneurship (Baumol, 1990, 2002). Thus, not only are lower levels of market-based entrepreneurship to be expected where institutions are weak or underdeveloped (Aidis et al., 2008); in addition, higher levels of other entrepreneurial efforts may be expected.

A broader conception of entrepreneurship is also evident in the Austrian tradition’s approach to entrepreneurship, which suggests that entrepreneurship is a common element of purposeful human action across societies and contexts (Mises, 1949). This perspective was further developed by Kirzner as a theory of entrepreneurship emphasizing alertness to opportunities (Kirzner, 1973). Entrepreneurial opportunities are said to exist across contexts and societies, and are not limited to for profit business activity (Boettke and Coyne, 2009). Both this and Baumol’s insight suggest that entrepreneurship is present even in those nations that experience economic stagnation and decline (Boettke and Coyne, 2003).

Productive and Unproductive Entrepreneurial Opportunities

The above discussion highlights the strong connection between entrepreneurship and economic growth in KSTE and New Institutional Economics perspectives. Meanwhile, the possibility that entrepreneurship can be harmful to economic development is also evident in Baumol’s seminal characterization of entrepreneurship as productive, unproductive, or destructive (Baumol, 1990). Given that entrepreneurship may be productive or unproductive, entrepreneurial opportunities may also yield either the creation, transfer, or destruction of value. The entrepreneur may pursue an opportunity that is personally beneficial but may come through taking from others. As Sobel writes, “In the political and legal arenas, just like in the market sector, there are both Schumpeterian ‘innovation’ and Kirznerian ‘arbitrage’ opportunities that can and do generate
profit for entrepreneurial individuals” (Sobel, 2008, p. 643). If entrepreneurship is present across contexts, and entrepreneurs pursue opportunities, then opportunities must be present across contexts as well. Furthermore, these “extra-market” opportunities need not generate economic value. As Baumol and Strom put it:

[T]here are other avenues that the entrepreneurs can follow in pursuing their goals, whose virtues from the viewpoint of the general welfare are more questionable. An enterprising lawyer who invents an innovative strategy to promote his clients’ rent-seeking activities, or an enterprising counterfeiter who introduces a new way of producing less detectable spurious currency, also demonstrates alertness to unexploited opportunities (Baumol and Strom, 2007, p. 234).

When such instances of political and criminal behavior are acknowledged to be instances of opportunity exploitation by entrepreneurs, the link between entrepreneurship and economic decline becomes an important possibility.

Like much of the broader literature on entrepreneurship and economic growth, KSTE has been limited to discussions “productive” entrepreneurship. As a result, institutions are thought only as a potential enabler or hindrance to a strictly beneficial entrepreneurial process. However, if Baumol and others are correct, then the supply of entrepreneurship is not in fact reduced by “poor” institutions (i.e., those non-conducive to market entrepreneurship); instead, a fairly stable supply of entrepreneurial action is allocated across different lines of economic activity according to institutionally-determined payoffs (Baumol, 1990; Bowen and De Clercq, 2008). Just as productive entrepreneurship is critical to the process that yields economic growth, entrepreneurial activity that is diverted to unproductive or even destructive ends may be the driver of economic downturn (Coyne et al., 2010).

Relevant to this logic is the distinction between positive, negative, and zero-sum games or economic activity. Positive sum games are those which are “win-win.” In the sense of entrepreneurship where market opportunities are exploited, value is created for society because
one party (consumers) value the entrepreneur’s recombination of resources more than the separate or prior uses of those resources. The entrepreneur, as the other party, also gains in the form of economic profits. The entrepreneur is thus said to be the driving force by which markets are positive sum. In contrast, zero and negative-sum games are those in which the one party loses as much (zero-sum) or more (negative-sum) value as the other party gains.

INSTITUTIONAL KNOWLEDGE SPILLOVERS

Having described KSTE and institutional accounts of the entrepreneurship-economic growth nexus, we now introduce the concept of institutional knowledge: knowledge pertaining to the nature and enforcement of political and social rules in a society. We then discuss mechanisms by which this kind of knowledge can spill over from political agencies to firms and across firms to facilitate entrepreneurial action.

Institutional Knowledge

Most formulations of KSTE emphasize technological knowledge (Acs et al., 2004, 2009, 2013; Audretsch and Keilbach, 2007). Typically, this knowledge is said to be the result of R&D investment among both private firms and public research organizations (e.g., academia). However, recent work has considered the possibility that other types of knowledge can spill over to generate entrepreneurship. Ko and Liu discuss how third sector organizations in the U.K. utilize network connections to access tacit knowledge (Ko and Liu, 2015). Tacit knowledge is context-specific, relating to “the particular circumstances of time and place” (Hayek, 1945, p. 521). It is often said to be embedded in networks of actors (Nahapiet and Ghoshal, 1998); furthermore, it is typically difficult to communicate (Lam, 2000).
The link between tacit knowledge and economic activity is eloquently brought to bear by Hayek (Hayek, 1937). Knowledge is dispersed across individuals in society (Hayek, 1945). Indeed, this division of knowledge across individuals is critical to the discovery of opportunities. Different people know different things, and these asymmetries are a critical source of entrepreneurship (Shane, 2000). Rather than weakening its importance, the context-specific, limited nature of tacit knowledge enables entrepreneurs to identify opportunities that are not obvious to others.

The importance of tacit knowledge highlights the connection of “non-technical” knowledge to entrepreneurial opportunities. Another type of knowledge that has not received attention in KSTE is knowledge of the institutional environment, what we define as institutional knowledge. Knowledge about the formal and informal rules and norms in society—and the inconsistencies inherent in these rules and norms—is both limited and unequally distributed across individuals, just like other types of knowledge.

Knowledge is connected to entrepreneurship in part by the inherent uncertainty associated with ideas. As Arrow pointed out, the variance of the expected value of new ideas is greater than traditional factors of production like capital and labor (Arrow, 1962). But even more fundamentally, knowledge that yields opportunities for new products and firms faces uncertainty that may defy probabilistic assessment. This is why entrepreneurial action is said to be beyond the “rational” framework of an optimizing decision calculus (Kirzner, 1973).

Like other forms of knowledge, institutional knowledge involves relatively high levels of uncertainty. Institutional knowledge is also costly to obtain. In many nations, the codified rules and regulations themselves are extensive, making them difficult to track and abide by. Al-Ubaydli and McLaughlin find over a million restrictive words in the United States’ corpus of
regulations, the *Code of Federal Regulations*, in 2012 (Al-Ubaydli and McLaughlin, 2017). The sheer extent of potentially relevant institutional knowledge is further augmented by the fact that many codified rules are rarely or sporadically enforced. Imperfect enforcement of existing rules suggests the importance of tacit knowledge related to the possibility of enforcement in specific contexts. Similarly, in nations that lack a strong rule of law (consistent application of predetermined rules to all individuals), knowledge about the possibility of new rule introductions to discipline prior action also becomes relevant.\(^3\)

**Institutional Knowledge Spillovers as a Source of Opportunities**

Entrepreneurs regularly act in relation to the institutions they face (Douhan and Henrekson, 2010). For instance, they may abide by existing institutions, seek to alter them, or attempt to evade them altogether (Coyne and Leeson, 2004; Elert and Henrekson, 2016; Henrekson and Sanandaji, 2011). This suggests that institutional knowledge can yield entrepreneurial opportunities related to navigating the institutional environment. Institutional knowledge can be particularly beneficial in relation to emerging markets and technologies, where regulatory norms are less established or nonexistent. As entrepreneurs increasingly operate in institutional “gray areas”, the ability to understand and influence institutions as they develop becomes critical (Elert and Henrekson, 2016).

Institutional knowledge can facilitate entrepreneurship by mitigating uncertainty. Of particular interest to our theory is the concept of regime uncertainty: uncertainty pertaining to the laws and regulations in a society (Bylund and McCaffrey, 2017; Higgs, 1997). Regime uncertainty imposes unpredictability in the political framework within which firms are

\(^3\) Institutional uncertainty is not limited to ambiguity in the enforcement of existing rules. It can also arise due to inconsistencies and contradictions that exist across institutional levels (Bylund and McCaffrey, 2017).
embedded. This makes resource coordination and planning difficult for entrepreneurs, often to the detriment of the broader economy. The prolonged economic downturn of the Great Depression in the United States has been argued to be the result of floundering investment in response to the erratic and rapid policy changes of the period (Higgs, 1997). By making it more difficult to navigate the institutional environment, regime uncertainty poses a challenge to market-based entrepreneurship (Bylund and McCaffrey, 2017). As Hillman et al. (1999) highlight:

The political process is so complex that it is virtually impossible for corporations to understand all of its aspects and procedures. Often, without access to insiders in the political process who can explain how the rules work and the dynamics of current issues, organizations may expend an enormous amount of resources trying to accomplish even the smallest of objectives. In turn, these large transaction and information costs facing organizations may affect operating costs and potentially performance (Hillman et al., 1999, p. 68).

Because institutions are costly to navigate, access to superior knowledge about the institutional environment may enable the firm to navigate the institutional environment better than competitors. This suggests that firms that are able to access institutional knowledge are more likely to identify and exploit opportunities related to the institutional environment.

It is important to note that the institutional knowledge spillover may generate entrepreneurial opportunities that are privately profitable but social destructive (e.g., rent-seeking). Political connections in particular can enable a firm to shape policy to its benefit (Claessens et al., 2008). Firms routinely lobby for regulations on themselves that will damage

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4 Institutional knowledge spillovers are not limited to “unproductive” entrepreneurship, however. New knowledge can enable firms to avoid expropriation in the cases when government is predatory or seeking to extract rents (McChesney, 1997). In this case, the institutional knowledge spillover may be both privately and socially productive relative to the case of inability to navigate the legal or regulatory apparatus. Furthermore, such knowledge may reduce the uncertainty of the political apparatus (Baker et al., 2016; Higgs, 1997), which is not intrinsically antithetical to economic growth.
their rivals disproportionately or erect entry barriers (McWilliams et al., 2002; Salop and Scheffman, 1983; Sartzetakis, 1997; Stigler, 1971; Tollison, 1982). Regulations are subject to interpretation, so loopholes may represent a profitable opportunity for entrepreneurs who are aware of them. Relatedly, there may be niches that are, as of yet, unregulated which also present profitable opportunities for alert actors. Similarly, there are cases in which institutional knowledge may convey the information that the costs of enforcement make such enforcement unlikely (Elert and Henrekson, 2016). Similarly, “institutional incongruence” represents a situation when the formal rules of the game differ from the informal ones—with the latter taking precedence (Ellickson, 1986; Webb et al., 2009). These represent instances of institutional knowledge that may be profitably exploited by sufficiently alert entrepreneurs. Knowledge about which illegal activities are most likely to draw the ire of regulatory authorities can be an important input in firm-level decisions.

**Conduits of Institutional Knowledge Spillovers**

How does institutional knowledge spill over to generate entrepreneurial opportunities? Individuals are an obvious conduit by which institutional knowledge may be transmitted across organizations. Individuals who possess institutional knowledge can help reduce uncertainty for the firm relative to rivals, thereby enabling entrepreneurial action. Individual mobility is thus an important mechanism by which institutional knowledge can generate opportunities for organizations to act entrepreneurially.

Employee mobility is an important conduit for the spread of knowledge between firms (Agarwal et al., 2007; Almeida and Kogut, 1999; Anton and Yao, 1995; Campbell et al., 2012; Singh and Agrawal, 2011). As Agarwal et al. (2017) note, “human capital resides in the heads of individuals,” (p. 266). Similarly, Arrow remarks that “Mobility of personnel among firms
provides a way of spreading information,” (Arrow, 1962). Technological knowledge that employees acquire on the job can spill over from one firm to another when an employee leaves for a rival or starts a new firm. In this way, employee mobility is a key mechanism of knowledge flows (Acs et al., 2009; Pakes and Nitzan, 1983). As some have put it, “When firms recruit inventors, they acquire not only the use of their skills but also enhanced access to their stock of ideas,” (Singh and Agrawal, 2011).

That individuals facilitate knowledge spillovers is not merely a theoretical possibility; it is empirically significant. In Inc.’s 1989 list of the 500 fastest growing private companies in the U.S., 71% of 100 founders reported they were developing an idea first encountered in previous employment. Even if an inventor’s specific contributions are made excludable through patent protection, she can take her learnings to her next venture. Firms are typically unable to exploit 100% of their employees’ knowledge. This knowledge is at least partially non-excludable, permitting some to spillover to rivals. Recent research documents how firms hiring new employees tend to make fairly extensive use of their new hires’ ideas—ideas which are often first developed at places of prior employment (Singh and Agrawal, 2011).

We extend the well-accepted notion that employees are valuable for their unique technological knowledge to the corollary insight that employees may also be valuable for their unique institutional knowledge. Because political connections can be so critical to a firm’s profitability, knowledge of how to efficiently seek rents can be a critical component of a firm’s unique capabilities. It follows that employees who have intimate knowledge of the rent-seeking process can be highly valuable assets. KSTE posits that technological knowledge is embodied in employees themselves, who then form firms to exploit this knowledge (Audretsch and Keilbach, 2007). Institutional knowledge is also embodied in individuals, though their unique background,
skills, and experiences. To demonstrate the process by which individual mobility facilitates institutional knowledge spillovers, we now delineate two key mechanisms of knowledge flow: firm to firm and political to firm.

Public-private institutional knowledge spillovers. Institutional knowledge that individuals acquire while working within the public sector can spill over to private firms through cross-sector mobility. The process of law-making generates knowledge of the political process which is subsequently embodied in the individuals involved. Former political agents may have knowledge which enables the exploitation of “institutional contradictions,” or “gaps,” for instance (Elert and Henrekson, 2016). Such institutional contradictions may include regulatory inconsistencies, ambiguity regarding illegality, or areas where enforcement is particularly weak (Elert and Henrekson, 2016). Knowledge of the duration required to get certain regulatory measures passed, for instance, could be critical for corporate planning and strategy. Political actors moving from public to private sector also carry information about forthcoming legislation that the firm may be able to exploit.

The possibility of public to private sector mobility is empirically significant. The institutional knowledge spillover logic is consistent with the prevalence of the “revolving door” phenomenon in many industries, referring to the movement of individuals between public and private sector employment (e.g., employee mobility across regulatory agencies and firms in the regulated industry). The Department of Defense employs over 700,000 civilian employees and has the largest number of executive appointees (Lewis, 2010). As Luechinger and Moser document about the Department of Defense, “…a substantial share of appointees comes from or goes to the private sector,” (p. 98). In fact, roughly 28% of DoD appointees move to a relevant industry after departing the DoD (Luechinger and Moser, 2014).
One way firms can access institutional knowledge is by appointing ex public officials to the firm’s board of directors. The percentage of companies with former government officials as board members appears to have increased significantly in recent decades (Korn/Ferry International, 2000). Of 24 Bush administration cabinet members tracked by Citizens for Responsibility in Ethics in Washington, 17 individuals held positions with 119 different companies by 2011 (Citizens for Responsibility and Ethics in Washington, 2011). Work in strategic management affirms that firms can and do stand to gain from these connections (Hillman, 2005; Lester et al., 2008). Politically connected board members are associated with abnormal stock market returns (Goldman et al., 2008) and increased procurement of government contracts (Goldman et al., 2013).

Recent research has demonstrated a significant boost to a firm’s stock prices when an employee move from public to private sector is announced. One study finds abnormal one-day returns when Department of Defense employees announce their move to private firms. These effects are positively correlated with the importance of the Department of Defense position and are larger when the announcement is unanticipated (Luechinger and Moser, 2014). The supply of such individuals is forthcoming because political agents’ backgrounds have uniquely suited them for private-sector employment in which knowledge of the political process is an important input.

Though the revolving door between private and public sectors is well-established (Acemoglu et al., 2016; i Vidal et al., 2011; Kedia et al., 2015; LaPira and Thomas, 2014), it has not yet been connected to the literature on employee mobility and knowledge spillovers. Furthermore, though private sector employee mobility is a well-recognized source of knowledge spillovers, we contend that the overlooked public to private sector employee mobility also comprises an important source of knowledge spillovers, which may be unproductive.
Interestingly, it is mobility from public to private sector (rather than the reverse) that best predicts regulatory capture (Makkai and Braithwaite, 1992). This is consistent with the notion that public-private mobility facilitates entrepreneurship through institutional knowledge spillovers.

*Firm to firm institutional knowledge spillovers.* Institutional knowledge need not only be transmitted from within public agencies. It may also be transmitted across firms. Private sector employees who regularly engage with political entities may also be expected to possess institutional knowledge that can spill over to rival firms. Consider a large firm with a team of lobbyists. Members of that team inevitably acquire skills pertaining to navigating the regulatory process, acquiring transfers, and engaging in other forms of unproductive entrepreneurship (Baumol, 1990). They may learn which lobbyists have the most effective track records, which political actors are easiest to work with, and who comprises the committees which oversee relevant regulatory agencies. When those employees move to a rival, their knowledge becomes an important input in producing rents that are profitable for the firm, but unproductive on a social scale. Knowing which politician is most easily bribed represents a profitable opportunity for the firm, resulting in swifter rent-seeking.

**DISCUSSION**

Knowledge of the relevant institutional constrains is instrumental for entrepreneurial success. Entrepreneurs can thrive in both poor and functional institutional environments—provided they possess the right institutional knowledge. As we have discussed, political connections are a key source of institutional knowledge. For example, Chinese entrepreneurs with political connections increased their reinvestment in the wake of institutional deterioration, while firms that lack these
connections exhibited the more predictable response: decreased investment (Ge et al., 2017).

Even when institutions are strong on average, political connections are highly valuable—especially during times of crisis. When Timothy Geithner was nominated as the U.S. Treasury Secretary in 2008, firms connected to him experienced abnormally high returns; those same firms experienced abnormally low returns when it became rumored that his confirmation might fall through (Acemoglu et al., 2016). These examples are consistent with a larger literature demonstrating the significant economic value of political connections across a host of contexts (Acemoglu et al., 2016; Chen et al., 2011; Faccio et al., 2006; Ferguson and Voth, 2008; Fisman, 2001; Khwaja and Mian, 2005; Wenfeng et al., 2008).

While the empirical account of political connections allowing firms to create and capture economic value is strong, little theoretical development exists in the way that political connections facilitate entrepreneurial action. The literature on entrepreneurship and institutions suggests that individuals do indeed pursue entrepreneurial opportunities related to institutional inconsistencies (Henrekson and Sanandaji, 2011). However, less has been said about the source of opportunities associated with institutional entrepreneurship. By expanding the knowledge spillover mechanism to account for entrepreneurship beyond “new venture formation,” we have offered such an explanation. Our institutional knowledge spillover theory posits that institutional knowledge embodied within individuals is a critical source of opportunities.

The standard KSTE account assumes that knowledge is positively related to economic growth: knowledge may be underutilized, but it seemingly cannot be harmful to economic development. As described above, the positive connection between entrepreneurship and economic growth depends on the knowledge filter. The knowledge filter concept shares much common ground with the literature on entrepreneurship and institutions (North, 1990).
Furthermore, KSTE and the institutions approach posit largely consistent (if not overlapping) ways that entrepreneurship drives economic growth. Where knowledge filters are “thin,” much knowledge can be commercialized into new ventures, creating economic value for society. Similarly, where “good” institutions persist—e.g., strong protection of property rights, stable rule of law—entrepreneurs pursue a plethora of market-based opportunities.

However, on the issue of economic decline, our theory follows the institutional view and thus diverges from existing work on KSTE. In contrast to the existing literature within KSTE, we emphasize the fact that knowledge spillover-induced entrepreneurship need not be productive. The “density” of the knowledge filter is not to only relevant factor in determining how knowledge is used. Economic decline is not only the result of “less” entrepreneurship, but “different” entrepreneurial activity, with different consequences for the economy. Similarly, it is not so much that “less” knowledge is utilized in stagnating or declining economies—as this would imply “less” entrepreneurship in the KSTE framework. Rather, we propose that different types of knowledge (i.e., institutional knowledge) yield different types of opportunities, diverting entrepreneurial action to unproductive and destructive ends. Thus, economic stagnation does not merely result from the inability to create or utilize existing knowledge spillover-generated opportunities due to a “thick” knowledge filter (Carlsson et al., 2009), but also through the creation of knowledge spillover-generated opportunities for unproductive entrepreneurship.

In considering the role of different types of opportunities on economic growth, our work complements recent scholarship in mainstream entrepreneurship research, which has acknowledged that entrepreneurship may contribute more or less to economic growth based on the nature of the entrepreneurship that emerges. To that end, some have offered explanations of the conditions under which entrepreneurship translates to economic growth (or does not). For
Alvarez and Barney, “One potential reason why entrepreneurship has delivered mixed economic advances may be that the types of opportunities that are exploitable with the kinds of human capital, property rights, and financial capital that are now available to the abjectly poor are not the kind of opportunities that are likely to lead to job creation and economic growth” (Alvarez and Barney, 2014, p. 160). An example of this is that institutions may influence the allocation of entrepreneurial talent toward high-growth economic activity (Bowen and De Clercq, 2008). These insights highlight that there are different types of opportunities that correspond to more or less value creation in society. The possibility of value destruction through entrepreneurship is a natural next step in this vein.

The evidence suggests that political connections tend to be privately profitable and socially unproductive, involving concentrated benefits to well organized groups at the expense of broadly diffused costs to less organized groups. The possibility that private actors can pursue personal gain that simultaneously harms the general welfare is not new. Mancur Olson argued that groups of private actors may utilize collective action to the detriment of the broader society (Olson, 1982). Furthermore, Gordon Tullock explained how transfer and destruction-based action can be self-reinforcing: “As a successful theft will stimulate other thieves to greater industry and require great investment in protective measures, so each successful establishment of a monopoly or creation of a tariff will stimulate greater diversion of resources to attempts to organize further transfers of income” (Tullock, 1967, p. 231).

However, the role of entrepreneurship in this process has only received limited attention. The most thorough exposition in recent years is that of Christopher Coyne and coauthors, who postulate that a “non-productive” entrepreneurial process as a source of economic stagnation and decline (Coyne et al., 2010). In their view, entrepreneurial activity that transfers or destroys
economic value can generate additional opportunities for similar types of entrepreneurial activity. This results in a path dependent process, wherein the unproductive opportunities exploited by entrepreneurs result in unproductive opportunities for other actors as well. Rent seeking, in which small, well-organized groups engage with the political system to seek concentrated benefits that impose a low cost on a larger, more dispersed group, is said to yield such a process. This can be seen in the successful efforts of agrarian groups and small oil refiners to lobby for antitrust legislation across 24 states and eventually the federal government in the late nineteenth century United States (Coyne et al., 2010, pp. 339–340). Scholars have suggested that these early efforts shielded small producers from the competitive pressure of large, more efficient producers (Armentano, 1990; Troesken, 2002).

Our work complements this account by offering a mechanism for the self-reinforcing nature of nonproductive entrepreneurial activity. As firms compete to influence the political apparatus to their benefit, more institutional knowledge is generated. Those involved in the process of nonproductive entrepreneurship exploit opportunities for zero or negative sum transfers in the present, but they also generate knowledge about inconsistencies and imperfections in the institutional environment. Thus, entrepreneurial opportunities that involve rent-seeking, theft, or violence may generate future opportunities for similarly destructive behavior. In this way, institutional knowledge spillovers provide an account where certain types of entrepreneurial activity are a mechanism for economic stagnation and decline.

We have discussed how individuals represent an important conduit for institutional knowledge spillovers, paying special attention to cross-sector mobility. The movement of individuals within the private sector has received ample attention in accounts of individual and firm-level entrepreneurship, industry evolution, and economic development. However, research
suggests that the revolving door is both empirically important and that, while conferring private benefits, may be unproductive on a societal scale (Duncan and Coyne, 2015). We expand the study of employee mobility and entrepreneurship in this way. For the purposes of our story, this is significant because it demonstrates that not all spillovers are productive. Movement from the public to private sectors generates knowledge flow that, in turn, creates opportunities that are profitable at the firm level. Yet, this knowledge, when it provides information about how to rent-seek more effectively, yields outcomes that may be, on net, socially costly. These opportunities may thus generate stagnation and economic decline, rather than the economic growth that the literature has come to associate with purely technological knowledge spillovers driven by employee spinoffs.

**CONCLUSION**

One of the central questions in social science is why some nations grow while others stagnate or even decline (Smith, 1776). KSTE provides fertile ground for entrepreneurship scholarship in that it squarely positions entrepreneurship as the driver of economic growth at the macro level while offering an explanation for the source of entrepreneurial opportunities at the micro level. Yet, existing research on KSTE has been limited by assuming that knowledge spillover entrepreneurship generates growth alone. The knowledge filter may limit the translation of knowledge into opportunity exploitation, but the opportunities generated by knowledge spillovers are assumed to be strictly growth-inducing. Consideration of another type of knowledge—institutional knowledge—allows for increased breadth of KSTE to understand economic stagnation and decline not merely as the result of “excessive knowledge filtering,” but
as the direct result of knowledge spillovers that generate potentially unproductive entrepreneurial opportunities.

We have provided a theory of institutional knowledge spillovers wherein knowledge about gaps in the institutional environment generates opportunities for entrepreneurship; however, exploiting these opportunities may entail the transfer of as opposed to the creation of economic value. We have discussed how these institutional knowledge spillovers may be transmitted via cross-sector mobility of individuals and by traditional employment mobility among firms. Our theory extends the scope of KSTE to account for a broader conception of entrepreneurship. We also make headway toward a clearer theoretical integration of KSTE with perspectives of entrepreneurship rooted in New Institutional Economics. The recognition of entrepreneurship more widely relevant to human action across economic, political, and social contexts also offers a path to reconciling KSTE with the subjectivist economic approach to entrepreneurship (Koppl and Minniti, 2010; McCaffrey, 2018). In addition, we provide what we hope is a fruitful framework for empirical investigation into entrepreneurship’s influence on economic stagnation and decline—an underexplored potential “dark side” of entrepreneurship (Kets de Vries, 1985) at the macro level.

REFERENCES


Collier, P., 2008. The bottom billion: Why the poorest countries are failing and what can be done
about it. Oxford University Press, USA.