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Magnus Henrekson, Erik Lakomaa and Tino Sanandaji

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Magnus Henrekson^{*}, Erik Lakomaa^{**} and Tino Sanandaji^{***}

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Abstract: Innovation often takes place in entrepreneurial ecosystems. We use the history of the Silicon Valley venture capital model and the Hollywood motion picture industry to illustrate how specialized institutions that regulate these entrepreneurial ecosystems emerged through actions by business entrepreneurs, rather than being designed by policymakers. Schumpeterian entrepreneurs not only create new companies; they also create new institutions as an integral part of the restructuring process. At times, efforts of identifiable entrepreneurs are crucial, while in other instances institutional change results from a Hayekian process of emergence fueled by business entrepreneurs' efforts. Some institutions remain informal, whereas others become formalized. The greater room to forge institutions through business practices may in part account for the higher rates of entrepreneurship observed in common law countries.

JEL Codes: L26; M13; O31; P14.

Keywords: Entrepreneurship policy; High-impact entrepreneurship; Innovation; Institutional entrepreneurship; Schumpeterian entrepreneurship.

^{*} Corresponding author. Email: magnus.henrekson@ifn.se. Address: Research Institute of Industrial Economics (IFN), P.O. Box 55665, SE-102 15 Stockholm, Sweden.

^{**} Email: erik.lakomaa@hhs.se. Address: Institute for Economic and Business History Research (EHFF), Stockholm School of Economics, P.O. Box 6501, SE-113 83 Stockholm, Sweden.

^{***} Email: tino.sanandaji@hhs.se. Address: Institute for Economic and Business History Research (EHFF), Stockholm School of Economics, P.O. Box 6501, SE-113 83 Stockholm, Sweden.

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1. Introduction

Numerous attempts have been made by governments to establish ecosystems that foster Schumpeterian entrepreneurship. While many such initiatives were persistent and backed by resources, most ultimately failed, for reasons that remain puzzling (Lerner, 2009; Hözl, 2010). Public programs have had some success in promoting routine, incremental innovation (e.g., Hussinger, 2008; Howell, 2017). However, the record of government intervention is weaker when it comes to pathbreaking entrepreneurship, as shown in a recent survey by Karlson, Sandström, and Wennberg (2021). Countless national and regional governments have tried to replicate the success of Silicon Valley through policy interventions, so far with scant success (Hospers, Desrochers, and Sautet, 2008; Mason and Brown, 2014).

The understanding of entrepreneurship policy has made significant advances over time, for instance, in distinguishing between different types of firms and in emphasizing the importance of the conditions of the institutional framework (Mazzoni, Lazzarotti, and Innocenti, 2021; Pocek, 2020). However, modern entrepreneurship policy focuses excessively on how policymakers should design institutions to promote entrepreneurship. It neglects a crucial element on the nature of pathbreaking entrepreneurship: *Schumpeterian entrepreneurs not only create firms—they also create institutions; and then successful institutions tend to gradually self-evolve conditioned by past experience.*

The laws and rules instituted by the central and subnational governments are only a part of the broader range of formal and informal institutions that regulate entrepreneurial ecosystems (Bogers, Sims, and West, 2019; Kara and Peterson, 2019; Jacobides, Cennamo, and Gawer, 2018). The latter types of institutions reside in or consist of organizations, contracts, business practices, employment forms, conflict resolution procedures, and other economic structures created by Schumpeterian entrepreneurs.

In many cases, successful business entrepreneurs are central figures in creating the institutional environment, both when they build their firms, and later as agents in business associations, universities, public advisory panels, and other key acting bodies in the entrepreneurial ecosystem. These ecosystems are industry-specific, relying on culture and informal structures that have gradually evolved through the actions of past entrepreneurs and their interactions with each other and other complementary agents.

At times, these changes are the result of premeditated and deliberate decisions in order to improve framework conditions for entrepreneurship. In other cases, the emergence of successful institutions is the result of a gradual process that has self-evolved conditioned by past experience. This should not

be interpreted as randomness or chance. However, the actions taken—to start a business, to lobby legislators, or in other ways try to influence policy—are intentional, but the outcomes might not always be the expected ones; after all, entrepreneurship is an activity that takes place under uncertainty (Bylund and McCaffrey, 2017).

Although entrepreneurs are closer to the knowledge frontier than policymakers, they face the same fundamental difficulty in envisaging the optimal setup of new complex institutions for novel technologies or business models. Therefore, value-enhancing institutional arrangements tend to be discovered incrementally. Although difficult to measure empirically, historical cases suggest that the process of institutional development is a mix of explicit top-down policymaking and gradual or even accidental discovery through trial and error.

If central planners knew what the next radical innovation would be, there would be no need for private firms to carry out innovation—let alone Schumpeterian entrepreneurs. Due to the continuously evolving frontier, policies that attempt to emulate the most recent entrepreneurial success will instead promote replicative firms and obsolete entrepreneurial institutions. These firms are not pathbreaking and rarely realize the huge profits awarded to high-impact Schumpeterian ventures. Moreover, when the government cements and reinforces traditional institutions, it makes it harder for institutional Schumpeterian entrepreneurs to induce the institutional change that would promote the growth of new business ventures and new industries.

It is conceivable that central planners could copy these institutional structures to promote new innovative entrepreneurs, were it not for the inherent difficulty in identifying the appropriate path. Knowledge in this evolving environment is dispersed, in particular the type of rare and unconventional insight that tends to characterize the next radical innovation and the institutional changes needed to realize its potential. The problem is thus not only the complexity of knowledge but also the tendency of governments to rely on experience and copy past formulas—both regarding business ideas and institutional design. By definition, Schumpeterian entrepreneurship is contrarian, aiming to disrupt established patterns by imagining and executing unconventional, new innovations despite resistance from incumbent forces.

One major explanation for the failure of top-down Schumpeterian entrepreneurship policy is that Schumpeterian entrepreneurs are distinct not only from replicative firms but also from firms engaged in routine innovative activity, such as expanding or improving existing technologies. Entrepreneurs always—in one way or another—challenge the incumbent order (Schumpeter, 1942). Autio (2016) asserts that any analysis of the challenging role of entrepreneurs to the existing order should be

extended to the entrepreneurial ecosystem as such since entrepreneurial ecosystems are a feature of emerging fields, in contrast to established industries. Since Schumpeterian entrepreneurship and the concomitant entrepreneurial ecosystem are contrarian and thus unpredictable, the problem facing a central government becomes qualitatively different.

We use the history of the Hollywood motion picture industry and the venture capital industry in Silicon Valley as cases to illustrate how industry practices and specialized institutions in these ecosystems evolved through actions by business entrepreneurs, rather than being designed by policymakers.

The remainder of the paper is organized as follows. In the next section, we survey studies on the effectiveness of entrepreneurship policy programs. Section 3 puts forward theoretical foundations in the form of Schumpeter's definition of the entrepreneurial function and Hayek's analyses of institutional change as a spontaneous bottom-up process. In section 4, we make the point that the unpredictable and contrarian nature of Schumpeterian entrepreneurship makes it impervious to top-down premeditated policymaking; successful entrepreneurial ecosystems in Hollywood and Silicon Valley evolved as a result of business experiences that continually improved the institutional setup. Section 5 concludes the paper.

2. The elusive quest for the right entrepreneurship policy

Most industrial countries have policies aimed at stimulating entrepreneurship, often spending a great deal of resources (Block, Fisch, and van Praag, 2017). In their study of Italian industrial districts, Lazerson and Lorenzoni (1999, p. 257), conclude that “no industrial district has ever emerged from a set of industrial policy initiatives promoted by either private or public organizations.” Isenberg (2010) points out that governmental attempts in numerous countries to kick-start entrepreneurship have failed when guided by public officials. A similar conclusion is reached by Porter (1998), who argued that governments “should reinforce and build on existing and emerging clusters rather than attempt to create entirely new ones,” and that “most clusters form independently of government action—and sometimes in spite of it.”

Acs et al. (2016, p. 35) review the evidence and conclude that “most Western world policies do not greatly reduce or solve any market failures but instead waste taxpayers' money.” Entrepreneurship policy tends to be backward-looking and static, not expecting that stimuli can backfire by causing agents to change their behavior—for example, by not growing beyond a certain size in order to continue to benefit from concessions offered to firms below a certain size threshold. Such thresholds act as a *de facto* tax on firm growth and incentivize firms to remain small, as empirically

demonstrated in France (Garicano, Lelarge, and Van Reenen, 2016) and Italy (Schivardi and Torrini, 2008). Entrepreneurs that are thus limited may never discover whether they could have become high-impact entrepreneurs if they attempted to scale up beyond the stipulated threshold.

In addition to traditional subsidies, many government programs have attempted to center high-growth entrepreneurship policies around universities and encourage certain activities such as incubation facilities, spinout programs, and angel investor clubs (Mason and Brown, 2014; Link and Sarala, 2019). Despite these efforts, few university spinoffs become high-growth firms; the majority remain small or fail (e.g., Åstebro, Braunerhjelm, and Broström, 2013). Interestingly, spinoffs from universities, on average, perform considerably worse than spinoffs from private firms in terms of growth and survival rates (Klepper, 2009; Wennberg, Wiklund, and Wright, 2011). Entrepreneurship originating directly from universities has not proven as successful as hoped, and government support has so far not made universities hotbeds of entrepreneurial activity. Universities, lacking incentives for challenging existing institutions, are thus unlikely to create innovations that require institutional change.

Industry-run research centers, such as Xerox PARC and Bell Labs, occupy an intermediate position. Examples show that they may be very innovative (Bassett, 2002; Chesbrough and Rosenbloom, 2002; Chesbrough, 2003; Gertner, 2012). On the other hand, they too lack the incentives to upend the existing order by institutional entrepreneurship.¹

Cumming and MacIntosh (2006, 2007) examine the attempts of the Canadian government to stimulate the venture capital industry, concluding that the policies failed and even crowded out private capital to Canadian startups. Indiscriminately handing out large amounts of subsidized funding risks flooding the market with poor-quality projects (Kärnä, Gustavsson Tingvall, and Halvarsson, 2020), making private alternatives unprofitable, and undermining the incentives of venture capitalists to develop a highly competent venture capital sector adapted to local needs and conditions (Isenberg, 2010). Setting up large venture capital funds with an inefficient incentive structure can indeed impede the organic spontaneous formation of a private venture capital industry. Governments have also developed a range of initiatives to provide organizational sponsorship to entrepreneurs in order to help them grow as well as to shelter and support nascent ventures.

¹ In addition, the geographic distance between the West Coast Xerox PARC and the East Coast headquarter of Xerox might have contributed to the difficulties to commercialize Xerox PARC's inventions (Hiltzik, 1999).

Examples include small business loans, government funded venture capital as well as policies aimed at connecting entrepreneurs with business incubators and external resource providers (Amezcuca et al., 2013). One concern is that such programs may crowd out firms that do not receive support. For instance, public cluster policies appear to have indirect negative effects on firms outside the targeted industries (Audretsch et al., 2019). Moreover, artificially created resource-rich environments shelter firms and blunt their creative edge, in contrast to challenging environments that push firms to develop creative solutions (George, 2005; Bradley, Wiklund, and Shepherd, 2011). Evaluations of public policy cluster programs have also pointed to other possible downsides such as overspecialization (Uyarra and Ramlogan, 2016).

From a public choice perspective, it could be argued that this underperformance is to be expected, since government programs are influenced by self-interested special interests and vote maximizing politicians, rather than aiming at economic efficiency (Buchanan and Tullock, 1962). However, the problem is more fundamental. The failure of top-down entrepreneurship policy emanates from a lack of information; even benevolent social planners could never obtain the requisite knowledge to implement policy measures that optimally promote the most promising entrepreneurs.

3. Schumpeterian entrepreneurship and Hayekian institutional change

Arguably, the most influential theoretical definition of entrepreneurship is the Schumpeterian definition, which singles out the entrepreneur as the *primus motor* of capitalism. The entrepreneur is in this view defined as an innovator, as a driver of economic growth, and as a trigger of technological development (Hébert and Link, 2006; McCraw, 2007).²

Two elements of Schumpeter's complex writings have not been sufficiently addressed in the entrepreneurship policy literature. First, Schumpeter was not only an entrepreneurship scholar but also an institutional theorist who integrated the process of radically altering the status quo in various industries with changes in institutions. Indeed, the creative destruction that brings about changes in business practices rarely happens without some degree of institutional change. In the words of Schumpeter (1942, p. 84):

[T]he problem that is usually being visualized is how capitalism administers existing structures, whereas the relevant problem is how it creates and destroys them.

² For a recent discussion of how the term entrepreneurship is used in the literature, see Bögenbold (2019).

As radical new innovations break through, they gradually become part of the conventional system of doing business: “The more an innovation becomes established, the more it loses the character of an innovation and the more it begins to follow impulses, instead of giving them” (Schumpeter, 1939, p. 340).

Second, Schumpeter emphasized the contrarian nature of the entrepreneur, and the importance of breaking through the resistance and hostility facing those who enact any major change, be it in creating new organizations, new institutions, or, as is often the case, both. The economic activity discussed by Schumpeter stressed “blazing new trails,” striking out “along unconventional paths,” uprooting the equilibrium, advancing the economy, overcoming resistance to change from the status quo, and “breaking up old, and creating new, tradition” (Schumpeter as quoted in McCraw, 2007, p. 70 and pp. 161–162).

Schumpeter made clear that individuals with the ability to go against the stream and disrupt existing equilibria are rare: “To act with confidence beyond the range of familiar beacons and to overcome that resistance requires aptitudes that are present in only a small fraction of the population” (Schumpeter, 1942, p. 132). Similarly, he emphasized the role of entrepreneurs to tread untraveled paths (*ibid.*):

To undertake such new things is difficult and constitutes a distinct economic function, first, because they lie outside of routine tasks which everybody understands, and secondly, because the environment resists in many ways that vary, according to social conditions, from simple refusal either to finance or buy a new thing, to physical attack on the man who tries to produce it.

A recurring theme of this theory is the difficulty faced by the entrepreneur in changing traditional ways of doing things. Barriers to innovation and immense difficulties that must be surmounted include “the resistances and uncertainties incident to doing what has not been done before” (Schumpeter, 1928, pp. 379–380).

There are clear parallels between Schumpeter’s theories and Hayek’s work on institutional development, although Hayek focused more abstractly on economic actors who bring about institutional change rather than specifically focusing on entrepreneurs (e.g., Hayek, 1973, 1978). As discussed by Ebner (2005), the mostly unspecified actor in Hayek’s theories who facilitated institutional change through evolution in traditions and cultural rules could be viewed as a type of entrepreneur.

Hayek asserts that rules of society are shaped by customs and habits, which are not deliberately designed but rather emerge through a spontaneous process where pioneering entrepreneurs play a

key role, that is, the rules of society are, as noted by Adam Ferguson already in 1767 (as quoted in Hayek, 1967), “the result of human action, but not the execution of any human design.” Hayek is said to have focused more intensely on the evolutionary mechanism of the competitive coordination of dispersed knowledge. Indeed, as Hayek rarely theorized on individual behavior in favor of the analysis of rules and institutions, it is usually argued that he dismissed the issue of entrepreneurship. Technological and institutional innovations concurrently result from a process of trial and error, where novel paths over time crystalize into customs. Societies differ in their propensity to allow the violation of existing customs required by this discovery process. The Hayekian view includes agents who act as institutional entrepreneurs, although they are not explicitly referred to as such. These individuals actively change the conventions and can be described as “rule-breakers” who end up as “path-breakers” (Hayek quoted in Ebner, 2005, p. 144). Or in Hayek’s (1979, p. 161) own words: “Most of these steps in the evolution of culture were made possible by some individuals breaking some traditional rules and practicing new forms of conduct.”³

As knowledge is decentralized and often tacit, no single individual has access to even a fraction of the totality of economic information. The complexity of knowledge makes future entrepreneurial breakthroughs unpredictable and impossible to “list and file in advance for the use of a central planning authority when the occasion arises” (Hayek, 1976, p. 187). In Hayek’s view, neither technological advance nor the growth of related institutions can be foreseen and controlled, making it impossible to engineer a desired social order.

In short, and as cogently summarized by Diamond (2019, p. 18), for innovations to succeed,

a variety of obstacles must be overcome, possibly including technical challenges, government regulations, uninformed or cautious consumers, and special interests who oppose the innovation. For instance, the main obstacles to the success of Uber are not technical challenges, but consist of government regulations, cautious consumers, and entrenched incumbents.

At times, individual Schumpeterian entrepreneurs also explicitly act as institutional entrepreneurs, but in most cases, they act independently to evade or push the limits of existing institutions in order to promote their business interests, which, in turn, results in a Hayekian emergent order.

³ Hayek did not focus explicitly upon the role of entrepreneurship in explaining the market process. Instead, he emphasized the role of knowledge and mutual learning in general in the course of the market process. Nor does he say much about Schumpeter’s theory of innovation and creative destruction. See Ebner (2005) and Harper (2003) for further details.

4. Schumpeterian institutional entrepreneurship at work: Silicon Valley and Hollywood

So far, we have cited theoretical arguments that the unpredictable and contrarian nature of Schumpeterian entrepreneurship makes it impervious to top-down premeditated policymaking. Yet, radical innovations that have the potential to either drastically restructure an existing industry or create a totally new industry will only fulfill this potential if the institutional setup is sufficiently accommodating. The necessary institutional adaptations and amendments will typically be identified during the business process itself. As a result, Schumpeterian entrepreneurs not only create new firms but often create new institutions as an integral part of the process of restructuring the economy. We will now show that two classical entrepreneurial ecosystems—the venture capital industry in Silicon Valley and the Hollywood motion picture industry in Southern California—evolved as the combined result of institutional entrepreneurship by business entrepreneurs and business experiences that continually improved the relevant institutional setup.

4.1 The emergence of the venture capital finance model in Silicon Valley

One of the most important components of the entrepreneurial ecosystem was the emergence of the venture capital finance model in the postwar era. This era can be traced back to Georges Doriot and the American Research and Development Corporation (ARDC)—founded in Boston in 1946—which is regarded as the first venture capital firm that raised capital from other than wealthy individuals (Ante, 2008; Diamond, 2019). In the case of the ARDC, the investors were educational institutions and insurers. Doriot—albeit he lived and worked in Boston—is customarily considered to be the father of the Silicon Valley venture capital model. However, the legal rules in place barred ARDC from raising money from pension funds and other institutional investors, which severely hampered its ability to raise large amounts of money.

The VC model's center of gravity shifted to the west coast in the 1950s. A major reason was measures taken by Stanford's Frederick Terman, who was charged to help make Stanford into a top-notch institution. Terman saw the government's growing support of research as a major opportunity, and he looked for ways to boost university-industry collaborations. By hiring top-level scientists who could land government grants and contracts, these funds helped paying their salaries as well as provided resources for hiring even more researchers, thus creating a virtuous circle. Stanford's abundant land holdings also made it easy to build a research park as part of Terman's plan to create a community of "technical scholars." Various programs to encourage researchers' collaboration with industry were also devised (Stewart, 2004).

Further impetus to Stanford's central role in the development of Silicon Valley was provided by the arrival of William Shockley from Bell Labs, co-inventor of the transistor and Nobel Laureate, to the Department of Electrical Engineering, and the establishment of a solid-state electronics program, which attracted exceedingly talented young researchers. Concurrently, Shockley set up his own business in Mountain View, Shockley Semiconductor Laboratory, but his failures as a boss unintentionally ushered in a host of spinouts by "the treacherous eight". The fact that they decided to leave and form a new venture caught the attention of Arthur Rock, an analyst at the investment bank Hayden, Stone & Co. in New York. Rock in turn introduced them to Sherman Fairchild, who at that time was IBM's largest shareholder.

Together they created Fairchild Semiconductor in Palo Alto in 1957. Over the years, the departing "Fairchildren" helped creating the semiconductor industry. Between 1966 and 1969, 27 new chip ventures were formed by Fairchild émigrés (Klepper, 2106). One of the eight, Eugene Kleiner, co-founded Kleiner Perkins Caufield & Byers, one of the world's most influential venture capital firms. Development was also fueled by the Small Business Investment Company Act of 1958 (William and Moore, 1959), which was pushed through the Senate by Lyndon Johnson in an effort to seek small business support for his run as the Democratic presidential nomination (Price, 2004). The SBIC program gave tax breaks to private investment companies that targeted small businesses and let them leverage their resources with low-interest loans from the U.S. Small Business Administration (SBA). During the 1960s the program enabled the creation of today's formal venture capital industry by creating hundreds of venture capitalists overnight. These early firms were formed as limited partnerships, with the venture capital company acting as the general partner (Nicholas, 2004). The concept was further developed by other firms, matured into an industry in the 1970s, and achieved rapid growth in subsequent decades (Gompers and Lerner, 2001). But this takeoff would not have been possible without two crucial institutional changes. The so-called prudent man rule forced pension funds and trusts to consider the risk of each investment separately, and risk was often interpreted in nominal terms, which forced them to invest mainly in large-firm stock and fixed-rate obligations with little default risk. Scholars and sophisticated practitioners familiar with modern portfolio theory increasingly called these restrictions into question in the 1970s. They pointed out that risk is correlated with return, unsystematic risk can be diversified away and investment in long-term, fixed-rate obligations is subject to substantial inflation risk (Langbein and Posner, 1976; Longstreth, 1986). The critics were successful and in 1979 a regulatory change was implemented that changed the definition of prudent investment requiring consideration of the role that each investment

plays in the context of the portfolio as a whole. This made it possible for pension funds and trusts to invest in high-risk securities issued by small or new companies and venture capital funds, and within a decade pension funds became the largest investor group in the private equity market.

Two other institutional reforms were also necessary to render possible the dramatic increase in VC-financing during the 1980s and 1990s. The reduction of the capital gains tax in two steps to 28 percent in 1978 and to 20 percent in 1981, and the stock option legislation of 1981 that made it possible to defer the tax liability to the time when the stocks were sold rather than when the options were exercised (Fenn et al., 1995). These reforms made it possible to develop sophisticated contracts that harmonized incentives of all parties involved and to provide high-powered incentives for agents who were commissioned to take entrepreneurial decisions (Jensen and Meckling, 1976).

Venture capital is not merely a source of finance but also combines active support with the use of complex contracts to solve principal agent problems between the founders and financiers (Gompers and Lerner, 2001; Kaplan and Strömberg, 2003; Henrekson and Sanandaji, 2018a). Venture capital financial instruments allocate control rights using contingent contracts in order to reduce the potential conflict of interest in a setting fraught with ambiguity (Kaplan and Strömberg, 2003). In this environment, a set of contracts evolved to successfully mitigate agency problems and align the interests of entrepreneurs and investors. The standard contracts that developed explicitly allocate control rights to venture investors in order to safeguard their investment. The contracts include contingencies, covenants, milestones, and vesting rules in order to resolve a range of common challenges.

Venture capital contracts grew more sophisticated over time through the process of learning from experience—for instance, by automatically giving more control rights to venture capitalists in downturns, as people learned their lesson from burst bubbles. Initially, and in periods with strong growth, the need for mechanisms to deal with these types of contingencies was not as clear. However, over time the venture capital model has become a significant part of the entrepreneurial ecosystem in countries like the United States, with more than half of the firms that are successful enough to achieve an initial public offering being venture capital-funded (Kaplan and Lerner, 2010). The chief compensation form for the founders and key employees of these firms is employee stock options, which fall in a legal gray zone in many countries regarding taxes. Startups tend to lack capital and usually do not make a profit. Instead of paying high wages, founders and key employees are provided with stock options that become immensely valuable in the rare cases where the firm becomes successful, but typically pay no return in the majority of cases when the startup fails.

The other advantage is that this compensation method has proven effective for solving agency problems in entrepreneurship contracts and in attracting capital and talent to this sector (Kaplan and Strömberg, 2003). The advantageous tax treatment of venture capital stock options and other financial contracts was likely a key explanation for the growth of the U.S. venture capital industry, and the role it played for financing the tech sector (Fenn, Liang, and Prowse, 1995; Gilson and Schizer, 2003). By issuing convertible preferred stock to VC firms, a more favorable tax treatment for the entrepreneur, the CEO, and other key employees can be obtained. The latter group is given claims on common stock for which the IRS permits the company to assign an artificially low value at the time of investment. As a result, the employee suffers negligible tax consequences upon granting or exercising the option. The tax liability can be deferred until the shares are eventually sold, and then the low capital gains rate applies. Remarkably, the favorable tax treatment was not part of legislation but rather a convention decided by the U.S. tax authorities in their interactions with the industry (Gilson and Schizer, 2003). Over time, as the convention led to a growth of the compensation form, it developed into an established practice.

The development of this model is a cogent illustration of how institutions and practices are co-created by entrepreneurs and complementary agents through an adaptive learning process, i.e., an emergent Hayekian spontaneous order. An example of how responsive public sector institutions can adapt to the emergence of entrepreneurial ecosystems is the tacit convention developed by the IRS in tandem with industry to tax employee stock options in venture capital-funded firms at favorable capital gains tax rates (Gilson and Schizer, 2003). Other notable changes include allowing pension funds to invest in venture capital funds, as well as tax and employment laws that treated compensation in the venture capital sector as tax-favored capital income.⁴

The U.S. venture capital model was later adopted by many other countries, in similar or modified form. Due to institutional restrictions, the type of well-adapted contracts used in the United States can rarely be copied by other countries, which may have limited the growth of venture capital outside the U.S. Importantly, some countries tax the options as labor income as well and require hefty tax payments when the option is granted (which are not redeemable should the options eventually prove worthless). This practice can make stock options prohibitively expensive. A

⁴ In addition to the venture capital investment, related structures have developed for later stages of expansion where firms raise capital from portfolio investors and other types of later-stage financiers.

comparison of 38 countries suggests that the tax treatment of stock options affects the size of the venture capital sector (Henrekson and Sanandaji, 2018b).

The flexibility of the institutional system in the United States likely played an important role in enabling the emergence and evolution of the venture capital model regard, as it allowed entrepreneurs and venture capitalists to develop new types of financial contracts, employee contracts, compensation systems, shareholder rights, and industry culture. Some of these changes involve formal institutions—such as the tax code pertaining to compensation—while others are informal institutions—such as industry culture and stakeholder practices—yet others can rather be viewed as structural and knowledge capital—such as advanced standard contracts and the experience of how key competencies should be recruited. The line between what constitutes institutions and what constitutes structural and knowledge capital can be somewhat fuzzy, in particular as proven methods tend to gradually crystalize into customs or become embedded in organizations.

Countries with rigid institutions faced great difficulties in developing a venture capital sector. This has turned out to be the case in several European countries. Over time, some countries enacted reforms inspired by the success of the U.S. model, although almost nowhere as successfully.

4.2 The emergence of the Hollywood model in the motion picture industry

In 1919, 80 percent of the world's motion pictures were made in Los Angeles, making Hollywood the preeminent movie cluster (Scott, 2005). However, the history of motion pictures did not begin in Hollywood, but in New York with Thomas Edison's invention of the first moving picture camera in 1893 and a device that enabled the display, for one viewer at a time, of those moving pictures (Silver, 2007). The invention of the projector allowed many people to watch moving pictures simultaneously. Initially, content was secondary; the core business was development and sale of the requisite hardware (Decherney, 2013).

In search of better conditions for shooting movies during winter months, producers came to Los Angeles in 1906, where the first big feature film (*The Count of Monte Cristo*) was made in 1908 by William Selig (Thomas, 1971). A further advantage of this location was its large open-shop labor market propped up by the courts and city council, which sided with employers to deny employees the right to unionize (Pintar, 2001; Ross, 1947). A further contributing factor was the ability to hire Native Americans and cowboys, and to include wild animals in the productions (Bardèche & Brasillac, 1938; Thomas, 1971). Here, institutional and non-institutional factors unspecific to the movie industry made the industry choose Los Angeles.

William Selig established the first permanent studio in Hollywood in 1909 and in three years the number had increased to 17. The incumbent production companies became members of the Edison ran Motion Picture Patents Company, MPPC. This association eliminated the outright sale of movies to distributors and exhibitors, replacing it with rentals, which allowed quality control over prints. MPPC also reached an exclusive agreement with Eastman Kodak, which was the only manufacturer of raw film (Thomas, 1971).

By establishing a uniform rental rate for all licensed movies, selection made on quality was favored, which encouraged quality upgrading (Nowell-Smith, 1996). Although the MPPC managed to end the domination of foreign movies, standardized how movies were distributed and exhibited, and improved the quality of U.S. motion pictures by internal competition, its business practices soon began to stall further development. Its major weakness was its focus on exploiting its hardware patents, which gave it a monopoly on cameras, film, projectors, and ancillary equipment, and incentivized the association to discourage its members from embarking on the far more expensive, but potentially more lucrative, feature film production. Movies were initially limited to one reel in length (13–17 minutes), although competition by independent and foreign producers by 1912 led to the introduction of two-reelers (Thomas, 1971).

It became increasingly difficult for the MPPC to enforce its patents, especially far from its home base in New Jersey. This fact pulled independent filmmakers, who despite the association's efforts controlled from one-quarter to one-third of the domestic market, to California.⁵ MPPC thereby also inadvertently contributed to the emergence of Hollywood.

Following a complaint filed by the independent filmmaker William Fox of Greater New York Film Company, the Eastern District Court of Pennsylvania ruled in 1915 that the MPPC violated the Sherman Antitrust Act. Although the ruling was appealed (the appeal was dismissed in 1918), the area

started to function as an independent agglomeration with its own distinctive production system and local labor market, and with innovative capacities (in terms of both commercial practice and content) that seemed to set it well apart from the more established studios of the Northeast (Scott, 2005, p. 20).

The content changed and longer dramas replaced the short films; the average play length increased by a factor of four during the 1910s (Bakker, 2008). When the entertainment value of movies became

⁵ An earlier attempt to move to Chicago to escape Edison's lawyers had failed (Thomas, 1971).

comparable to live performances, the much cheaper ticket price caused a demand switch and was further reinforced by an income effect. In less than a decade the industry had gone from being driven by east coast technology entrepreneurs like Edison who used movies to sell equipment to being dominated by west coast content entrepreneurs (Jones, 2001). Two factors were crucial. First, the court challenges that gradually undermined MPPC's ability to enforce its patents. Second, the introduction of the feature film. Although first introduced by Selig in 1908, it did not get its definitive breakthrough until 1913 with the Italian import *Quo Vadis* in 1913 (imported by George Kleine, who was still a MPCC member). According to Scott (2005, p. 24), this rise of Hollywood should

best be seen as a consequence of the vigorous system of productive organization that evolved out of the disparate collection of branch plants that had drifted into the area in the six or seven years before 1915.

Eight major companies shortly emerged in Hollywood: Twentieth Century Fox, MGM, Paramount, RKO, Warner Brothers, Columbia, United Artists, and Universal Pictures.

The new feature films made by the independent film companies also revealed that the audience showed appreciation and interest for specific actors starring in the films. Hence, the studios in Hollywood began marketing movies by their actors which were kept in their stable of talent under long-term contracts; the *star system* was born (Decherney, 2013; Scott, 2005).

It soon became apparent that some actors attracted larger audiences than others, which induced content entrepreneurs to start building stables of popular actors. The movie stars "were brands with considerable market power routinely used by the studios to promote movies in the box office" (Lampel, 2011, p. 460). The discovery that specific actors had or could attain star quality led to the development of the star system, where actors under long-term contracts were cast and recast in different roles in order to create, promote, and exploit their stardom (Scott, 2005).

Scott (2005, p. 30) describes Hollywood during the 1920s and 1930s as "a distinctive industrial district imbued with multiple spillover effects flowing from internal transactional orders and the dense, many-sided local labor market that had developed in the urban community around it." Thus, by this time, Hollywood had evolved into a creative ecosystem for content driven movie productions. This movie production cluster developed complex structures and institutions for production, distribution and screening, that came to be known as the studio system (Nowell-Smith, 1996).

One of the institutions that constituted the studio system was the method by which the major studios took partial control over the screening by owning and running their own movie theatres. By owning

the theatres, the studios were able to control what would be shown and closely monitor the success of their movies. When distributing movies to independent movie theatres the studios developed an institution for leasing “blocks” of their own productions, known as *block booking* (Hanssen, 2000; Wu, 2011). Initially, exhibitors had been able to freely choose which and how many of the studio’s movies they wanted in the blocks, and they all came at the same price. The studios then began setting up fixed blocks of movies that was rented to the exhibitors. As it became apparent that some actors attracted larger audiences than others, the studios “began to set up film blocks around popular actors and to charge higher prices for the blocks of the more popular stars” (Hanssen, 2000).

Contracting for more movies also gave the theatres better terms. In the 1920s, the blocks evolved into genre blocks, which were more flexible than the star blocks in terms of quantity. While the early program-system was based upon weekly arrangements, when it evolved into the block booking system the contracts grew longer and more precise regarding duration, eventually covering a full year of the studio’s production. Block booking also started evolving into what would be known as *blind selling* where the exhibitors only knew the title, cast, and director of the movies that they were leasing with no chance of viewing the movies before signing the contracts (Hanssen, 2000). However, the theatres were able to refuse a certain percentage of the movie package once it had been revealed at other theatres that certain movies were unpopular (Borcherding & Filson, 2000; Hanssen, 2010). In general, theatres used this option more seldom than the contracts allowed them to (Hanssen, 2000). By the late 1920s, the contracts had evolved from being merely flat rates to include revenue sharing for high-quality “A” movies (Hanssen, 2010).

In addition to risk sharing, the revenue sharing contracts harmonized the incentives of studios and theatres. More commercially successful movies could then be granted extended running-time since they generated more revenue for both parties (Borcherding & Filson, 2000). Another way to reduce the risk was to produce a very large number of movies, but when it became apparent that there was a close correlation between the production cost and box office success, this strategy became untenable. Instead, it became rational for the studios to reduce risk by revenue-sharing contracts (Weinstein, 1998). Combined with the effect of copyright laws this prevented theatre owners from copying the movies, and from just running the most popular ones.

The use of copyright protection had also changed over time: When Thomas Edison’s Company registered their first movies in 1894, they were copyright protected as photographs. The copyright was based on the arrangement of the pictures not the object by itself or the click of a button. It was not until

the creator had arranged the objects in the photograph that the copyright could be claimed. If copyright hadn't been claimed, Edison and other east coast film producers such as American Mutoscope (later Biograph) and Vitagraph competed by copying and selling the movie as their own (also called duping). This was part of the business idea and as long as no copyright was claimed, it was accepted. Since European filmmakers rarely had claimed U.S. copyright on their works, the east coast firms competed in importing and distributing them as their own. This was an especially important activity considering the relatively high quality of European films at that point in time, and as this was during the silent era, foreign-made films could be displayed in the U.S. without adaptation.

The first court ruling concerning a major movie copyright case came in 1903 when Edison won a lawsuit against the filmmaker Siegmund Lubin, who had copied one of Edison's copyrighted movies. However, this did not make the firms less likely to continue the practice of copying, but the business model of distribution began to shift towards leasing rather than selling movies to the exhibitors. This enabled the producers to "institute restrictive licensing agreements and exerting greater control over their prints" (Decherney, 2013, p. 95).

Initially, the standard practice was that movie adaptations did not infringe on the copyright of a work of another medium, which gave producers full freedom to make adaptations of existing works. This came to a halt following a court ruling in 1911. Movie entrepreneurs now had to seek permission to make adaptations of existing works. From then on signing exclusive rights to make adaptations of books and plays became the way to do business and new independent firms with established connections to publishers and Broadway producers entered the market (Decherney, 2013).

Even though themes and plots were considered common goods during the rise of Hollywood and its golden age, there was always a line that had to be drawn to determine what could be reused.

Although court rulings became increasingly important, Decherney (2013, p. 153) notes that

Hollywood used internal methods of policing the creative flow of ideas ... [t]alent guilds, in particular, preempted legal intervention by registering ideas and scripts, negotiating contracts and settling authorship disputes rather than allowing the courts to intervene.

Thus, institutions guiding movie makers through their creative process have organically evolved over time and Hollywood responded in a self-regulatory fashion regarding copyright in many cases.

Finally, we should mention two key institutions that shaped the Hollywood ecosystem, namely moral guidelines and self-regulation of content. As the content entrepreneurs in the first decades of the twentieth century were making more feature movies, they learned that movies containing sexual

themes and gangsters attracted large audiences (Black, 1989). However, this was not appreciated by everyone and starting in 1911 local censorship boards were established in different states across the country. Based on prevailing local moral standards, these boards censored movies before exhibition (Black, 1989; Mosk, 1997). The releasing and distribution company Mutual Film Corporation challenged this practice in 1915. This resulted in a decision by the Supreme Court not to protect movies under the provision of free speech. Black (1989, p. 169) concludes that

[i]n a landmark decision that was to influence the content of movies until the 1950s, the Supreme Court upheld the right of prior censorship by local communities when it ruled in *Mutual Film Corporation v. Ohio* that movies were not protected under the freedom of speech provisions of either the state or federal constitutions.

In addition to the censorship boards, different religious groups also began to raise their voices and advocate that movies containing inappropriate elements be boycotted or banned. To counter these attacks, film companies producing approximately three-fourths of the films made in the United States created the trade association Motion Picture Producers and Distributors of America (MPPDA) in 1922. MPPDA's task was to handle public relations, including solving arbitrary censorship problems through self-regulation (Black, 1989; Mosk, 1997).

In 1924 the MPPDA president Will Hays introduced "the formula" which was "a series of rules designed to prevent objectionable plays and novels from being produced as films" (Black, 1989, p. 169). In 1927 Hays introduced another document called "Don'ts and Be Carefuls", which constituted the most common demands from the municipal censorship boards (Black, 1989). Hays sent copies of the new document to producers, as well as to every newspaper in the nation. Since it was voluntary, producers only partly followed these guidelines; by the end of 1929, the MPPDA received only about 20 percent of Hollywood scripts prior to production (Leff & Simons, 2001).

A great deal more can of course be said about the evolution of the Hollywood motion picture industry. There are a myriad historical details and events that have induced behavioral adjustments to new conditions driven by political, technological, and economic changes. However, we deem that our brief account suffices to show the key role of actions carried out by the producers themselves to form the relevant institutional setup. Sometimes identifiable entrepreneurs were instrumental, but in most cases institutional changes resulted from a Hayekian process fueled by business entrepreneurs' joint efforts.

4.3 Conclusions from our two examples of Schumpeterian institutional entrepreneurship

The institutional arrangement in the venture capital model is not only a way to enhance entrepreneurial innovation; it is in itself an entrepreneurial innovation. Once this method was developed in the United States, it could be copied by other countries—by attempting to adapt their laws, by emulating U.S. practices, and by direct entry of experienced U.S. venture capital firms. Some countries, such as Israel, Canada and the United Kingdom, developed thriving venture capital sectors based on the U.S. model. Many other countries have failed to implant a venture capital sector—for instance, because they lack promising investment projects or because they do not offer an institutional setup favorable to the sector.

It is noteworthy that common law countries have more venture capital activity as a share of the economy, also when controlling for other factors (La Porta et al., 1998). Several causes have been suggested for this fact, such as stronger shareholder protection (La Porta et al., 1998; Bonini, 2012; Cumming, Schmidt, and Walz, 2010). Another possible explanation based on the discussion here is that common law countries are more amenable to institutional entrepreneurship, permitting entrepreneurs and venture capitalists to develop entrepreneurial ecosystems well suited to local conditions (Pocek, 2020). At the time of its inception in 1946, few politicians envisaged the future sophistication of the venture capital sector.

The ecosystem that evolved in Hollywood was based around a set of institutions that together made the movie industry respectable and restricted entry. Some of them were shaped by the interaction between production companies and various government agencies, whereas others were the result of interpretations of existing laws that were advantageous for the industry. In the case of copyright protection, the production companies first opposed such protection because they wanted to build a market for the technology and make movie adaptations of existing plays or novels. Later their stance was reversed, calling for extensive protection when they wanted to control distribution of their own products.

According to one of the foremost specialist scholars, Allen Scott (2005, p. 24), the rise of the Hollywood motion picture industry can

best be seen as a consequence of the vigorous system of productive organization that evolved out of the disparate collection of branch plants that had drifted into the area in the six or seven years before 1915.

The emergence of Hollywood was also a result of the prevailing technology. In the early days of the development of the ecosystem, movies were silent and thus had a global market. This made it possible for Hollywood to capture some 80 percent of the global market by 1919, a market position that would have been impossible to attain under the “talkie” era when the language barrier made the business more national.

The film industry also differed from most other industries because its beginnings coincided with the introduction of antitrust law. This led to many confrontations between the fledgling industry and the legal system, but there were also many instances where movie producers involved antitrust law in struggles with competitors (Gil, 2008).

Our two examples show that, in some cases, firms were free to develop informal or semi-formal institutions on their own, whereas in other cases the government(s) accommodated them by passing appropriate legislation, which was lobbied for by the business sector. One interpretation of the latter channel would be that public policymakers use private-sector entrepreneurship as a source of ideas on how to create an economic environment conducive to value-enhancing activities in the face of uncertainty (Link and Link, 2009; Leyden and Link, 2015). In fact, institutional change driven by businesses taking action, thereby creating quasi-formal institutions in the form of business practices, is a significant characteristic of emergent fields that develop entrepreneurial ecosystems. These institutions do not become formalized until later.

5. Concluding remarks

Entrepreneurs not only enhance innovation and growth by experimentation with new combinations of productive resources (e.g., Wennekers and Thurik, 1999), they also reshape the economy by altering institutions.

As this paper has illustrated, business entrepreneurs can alter formal institutions indirectly through business activity that shifts the incentive structures of policymakers, by lobbying or by evasive entrepreneurship that circumvents regulations, thereby rendering them ineffective (Coyne and Leeson, 2004; Henrekson and Sanandaji, 2011; Elert and Henrekson, 2017; Thierer, 2020).

Schumpeterian entrepreneurs are not only guided and constrained by existing institutions but can pave the way for institutional change through business decisions which become common practice and over time formalize into or influence formal institutions. This can come about both through purposive action by institutional entrepreneurship by individual entrepreneurs or result from

uncoordinated actions by a large number of entrepreneurs. Hence, Schumpeter's and Hayek's views on institutional change are more alike than previously assumed.

Countries are likely to benefit from allowing entrepreneurs to cultivate new institutional structures and entrepreneurial ecosystems tailored to industry-specific conditions. Such ever-changing institutions are too complex to be designed top-down by governments and their agencies. When possible, the public sector should allow for institutional flexibility for entrepreneurs and their complementary actors to develop adequate rules and institutions pertaining to their ecosystems. This does not imply that governments should refrain from policy initiatives aimed at promoting entrepreneurship, but rather that public policy is more likely to succeed if it is aimed at a fundamental level—such as enforcing efficient and disinterested legal institutions, investing in research and education, and removing regulatory obstacles—as well as when promoting routine non-Schumpeterian entrepreneurs in more predictable environments.

The American legal tradition appears to have benefited from the leeway given to business practices when forming and interpreting laws. This may in part account for the documented tendency of common law countries to outperform civil law countries in generating entrepreneurial startups. This mechanism is distinct from other effects of common law systems, such as stronger protection of property rights.

The role of entrepreneurs in adapting institutions is particularly important when it comes to Schumpeterian entrepreneurship, i.e., for firms and industries based on a radically new innovation. We have explored how this played out in two areas, both located in California: the Silicon Valley venture capital industry and the Hollywood motion picture industry. Similar analyses could be made for other revolutionary innovations such as music streaming, internet-based news delivery, and the automotive revolution.

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