



Property rights, entrepreneurship, and economic development

Audrey Redford¹ 

Published online: 2 December 2019

© Springer Science+Business Media, LLC, part of Springer Nature 2019

Abstract

The disparity in economic progress across nations still confound economists. However, economists know that institutions play a significant role in economic growth. The entrepreneurial activity within a society is shaped by the institutional foundation, especially the property rights structure. However, if property rights are not well-defined and well-enforced, the substance of this entrepreneurial activity may not be welfare-enhancing or growth-enhancing. What is still unclear is the mechanism by which better property rights are adapted in order to facilitate more productive entrepreneurship. By synthesizing insights from the literatures on the market process, the emergence of property rights, and institutional entrepreneurship, this paper presents a mechanism, specifically the ‘property rights institutional entrepreneur,’ that is alert to opportunities to introduce, redefine, or eliminate property rights in order to better facilitate market exchange. By characterizing this specific form of institutional entrepreneur, our understanding of the layers of property rights’ definition, provision, and enforcement is clearer. Property rights are grounded in the norms and customs of a society, but they receive feedback from the market. This feedback is a necessary component to thinking about how property rights change occurs and facilitates economic growth.

Keywords Austrian economics · Entrepreneurship · Property rights · Economic development

JEL classification B53 · P14 · O43

✉ Audrey Redford
amredford@wcu.edu

¹ School of Economics, Management, & Project Management, Western Carolina University, 1 University Way, Cullowhee, NC 28723, USA.

1 Introduction

Variations of the question “why are some nations rich while others are poor?” have grinded the intellectual gears of economists for well over two centuries, leading some to publish great treatises, win Nobel prizes, and spur massive, multinational aid projects in the pursuit of an answer. However, we still have yet to reach an all-encompassing answer agreed upon by the discipline. Boettke and Coyne (2003) point out that it is widely agreed that the entrepreneur and the role of institutions are key in explaining why economic progress is achieved in some areas of the world and not others. My present research motivation is similar to that of Boettke and Coyne (2003) in that I am investigating the relationship between entrepreneurial activity and economic development. However, I wish to chiefly focus on how the role of property rights influences the substance of entrepreneurship that in some situations results in economic growth, yet economic stagnation or economic decline in others. I am also interested in the conclusions we can draw from the evolution in property rights during the process of economic growth and its effect on entrepreneurial activity.

Scholars of the Austrian School of Economics have offered innumerable insights into our understanding of the market as a process in which alert entrepreneurs working with imperfect information choose among limited, competing means to achieve their ever-changing ends. In an analysis of the market process, “well-defined and enforced property rights” are taken as a starting point to show how exchange within this institutional foundation leads to welfare-enhancing outcomes as entrepreneurs seek to maximize profits and increase their overall satisfaction. Scholars of New Institutional Economics have shown the importance of institutions in shaping human prosperity and the productive outcomes of society and that not all institutional frameworks lead to prosperity. However, if we take well-defined property rights as our starting point, how do we explain institutional change and its subsequent impact on the market process? If the knowledge problem exists, how does it apply to the evolution of property rights and our classification of these rights as “well-defined” ex-ante? If holes in the current property rights structure present the entrepreneur with a profit opportunity if she is able to better define them, this seems akin to an entrepreneurial endeavor in the Kirznerian tradition since it is an unfortunate reality that property rights are often not well-defined ex-ante (or else such holes would not exist). By integrating these Austrian and New Institutional approaches, the once very fuzzy picture of economic growth becomes a bit sharper. To be clear, the problem I am attempting to tackle presently is not just a question of enforceability of the institutions, but rather a process of figuring out what belongs in the property rights framework as well as how to protect it. This inquiry is certainly not an attempt to undermine the importance of private property rights as a necessary foundation of the market process. Furthermore, I do not wish to explain the origins of property rights as a foundation of the market process. Instead, I am interested in processing how new property rights are adopted into the institutional framework and how property rights arrangements alter in response to new information.

A strong literature (discussed further in Section 3) shows how institutional entrepreneurs play a crucial role in changing the institutional arrangement within which they operate. However, relatively little has addressed the role of the ‘institutional entrepreneur’ in fundamentally changing the substance of property rights within which they are operating. Institutional entrepreneurs are credited for finding better ways to codify/

formalize existing informal institutions, adopting institutional frameworks from other nations into their respective space, and adopting mechanisms that better protect existing institutions. These institutions include property rights. More specifically, institutional entrepreneurs can play a role in bringing forth new property rights that did not previously exist or disbanding property rights that were problematic. If this is possible, what value does this form of institutional entrepreneurship give us in our understanding of the nature of entrepreneurship, development, institutional change, and human flourishing, more broadly? This paper seeks to address these questions and continue a conversation about the link between property rights, entrepreneurship and economic growth. Distinguishing between identifying a need for and establishing a property right and the enforcement of that property right enhances our ability to understand the role that property rights play in shaping market entrepreneurship and development. To put it another way, in diagnosing problematic property rights arrangements, it is important for us identify the source of the problem correctly. Since we do not live in a world in which property rights are always well-defined, and in many cases they may be clearly defined but a highly problematic for the environment in which serve as a foundation, our analysis must not be fragile to these realities.

The analysis that follows will enhance the literature by opening up our ability to model the market process in situations in which property rights may be dynamic and not well-defined. By unbundling the many roles of the institutional entrepreneur, we are better suited to explain the mechanisms of institutional change. Section 2 reviews the literature on entrepreneurship and the market process. Section 3 discusses the role of property rights and institutional entrepreneurship. Section 4 introduces a new type of the institutional entrepreneur as a mechanism to overcome incomplete or poorly-defined property rights. Section 5 positions this new institutional entrepreneur as a factor in economic development. Section 6 offers concluding thoughts.

2 Entrepreneurship and the market process

In his 2001 presidential address to the Society for the Development of Austrian Economics, Peter Boettke emphasized that Austrian scholars' treatment of information and knowledge as distinct components in the entrepreneurial process is among the aspects that make the Austrian School of Economics unique in the discipline. "The Austrians want to emphasize not just the proficient use of existing information, but the discovery and use of *new* knowledge that comes into being only because of the context in which actors find themselves acting" (Boettke 2002, emphasis in original). This is a different conception of market activity that merely involves searching among given, well-specified means to achieve a well-defined end. Instead, information is scattered among many minds and specific situations that requires market actors, in pursuit of their own individual interests, to identify opportunities to make themselves better, and thus transform information relevant to themselves and others into usable knowledge.

The entrepreneur is the catalyst for this equilibrating tendency in the market process. As Kirzner ([1973] 2013) writes, "the entrepreneurial element in the economic behavior of market participants consists... in their alertness to previously unnoticed changes in circumstances which may make it possible to get far more in exchange for whatever they have to offer than was hitherto possible" (12). Through this process of trying to

increase their profit opportunities, entrepreneurs are involved in a process that is constantly reallocating resources to their highest valued use, given the current knowledge and information available which is constantly in flux. Entrepreneurs' alertness, the inclination to see things not previously known but profitable to know, is what allows our understanding of markets to be open-ended and not a closed system (Sautet 2010, 95).

As there are many entrepreneurs operating in markets, competitive forces pull the resources in opposing directions. As Sautet (2010) explains, "in the Austrian approach, the entrepreneurial market process is what competition is about: to compete means to be entrepreneurial" (87). Therefore, a mechanism emerges to convey where the most value is added. "Gradually, competition between the entrepreneurs as buyers, and again as sellers, will succeed in communicating to market participants a correct estimate of the other market participants' eagerness to buy and to sell" (Kirzner [1973] 2013, 12). Hayek (1945) explains that "fundamentally, in a system in which the knowledge of the relevant facts is dispersed among many people, prices can act to co-ordinate the separate actions of different people in the same way as subjective values help the individual to co-ordinate the parts of his plan" (526). From this competitive process, the price system emerges to convey information to buyers and sellers about the relative scarcity of goods and resources at a given time and place. Absent this process, the highest valued allocation of these resources would be unknown.

The market process and the individual entrepreneurial pursuit of profit does not only benefit those entrepreneurs that are profitable. The invisible hand is at play in this process. As Boettke emphasizes:

The successful entrepreneur perceives the imperfection in the current arrangement of affairs more accurately than others, and he acts upon that information to earn a profit and in so acting brings new knowledge into existence... Today's inefficiency is tomorrow's [sic] profit opportunity for those who act to improve the situation and bring the underlying variables of tastes and technology more in line with the induced variables of prices and profit and loss that exist on [sic] the market. (Boettke 2002, 269–270)

By acknowledging today's inefficiencies and discovering a new manner in which to make tomorrow less inefficient, these entrepreneurs, while motivated by profit, also aid in economic progress for their fellow members of society and an order emerges. These entrepreneurs assist in moving the allocation of resources to one that is more highly valued, or to state it differently, these entrepreneurs move resources to situations that help society better cope with scarcity. Without true, undistorted prices, however, the pursuit of profit will not necessarily guarantee the configuration of resources to their most highly valued uses that best aid in coping scarcity at that particular time.

In order for the market process to function, it requires an institutional foundation, of which a key component is well-defined and enforceable property rights. "Private ownership of the means of production is the fundamental institution of the market economy." (Mises ([1949] 2007, 682). We need property rights for rational economic calculation. If the market process is the mechanism that coordinates information and behavior through the price system and facilitates the exchange process that is necessary for economic calculation to take place, then property rights are, therefore, a necessary

component of the market process. The more clearly defined and enforced are these property rights, the more rational is the economic calculation taking place. When property rights are poorly defined and/or poorly enforced, trade is restricted and thus the information generated through the exchange process (prices) is distorted and the movement of resources to their most highly valued uses will be impaired. Therefore, in order to understand the market process's ability to achieve economic progress and growth, we must understand how to discover, acquire, and maintain the necessary property rights within this institutional foundation. Without the appropriate property rights, the entrepreneurial process will be stunted.

3 Property rights and institutional entrepreneurship

The foundation of well-defined, respected, and enforced property rights is necessary for the market process to coordinate positive-sum exchange. In most of the Austrian literature, property rights are taken as a starting point without extensive discussion into what makes a property right. The New Institutional literature on the role that property rights play is highly complementary to that of the Austrian School and allows us to dig a bit deeper into understanding how property rights emerge.

Early on in *Economic Analysis of Property Rights*, Yoram Barzel makes a clear distinction between economic property rights and legal property rights when he writes,

Economic rights are the end (that is, what people ultimately seek), whereas legal rights are the means to achieve the end... I define the economic property rights an individual has over a commodity (or an asset) to be *the individual's ability, in expected terms, to consume the good (or the services of the asset) directly or to consume it indirectly through exchange...* *Legal rights are the rights recognized and enforced, in part, by the government*". ([1989] 1997, 3–4; emphasis in original article)

First, it is worth pointing out that for Mises "the ultimate goal of human action is always the satisfaction of the acting man's desire" ([1949] 2007, 14). Therefore, economic rights, too, are a means by which to achieve man's ultimate end: satisfaction. However economic rights are a necessary means by which to achieve desire, by which legal rights "enhance" economic rights, but are not necessary nor sufficient for the existence of economic rights (see Barzel [1989] 1997, 4). Mises ([1949] 2007, 682) also clarifies that the "catallactic notion of ownership and property rights is not to be confused with the legal definition of ownership and property rights as stated in the laws of various countries." This distinction between the property rights itself as an informal institution versus the enforcement or governance of the property right as a formal institution is important and will be further discussed in Section 4.

In addition to providing the foundation of the market process, property rights serve other functions, primarily to better coordinate behavior. Harold Demsetz (1967) argues that "a primary function of property rights is that of guiding incentives to achieve a greater internalization of externalities" (348). Douglass North (2000) states that "the establishment of such a set of property rights will then allow individuals in highly complex interdependent situations to be able to have confidence in their dealings with

individuals whom they have no personal knowledge and with whom they have no reciprocal and ongoing exchange relationships” (49). David Schmitz (2010) argues that the types of property rights that enable cooperation and prosperity are “... the kind that can evolve to internalize evolving externality problems while securing the opportunity and incentive to produce, invent, and otherwise help society make progress” (92–93).

The New Institutional literature on property rights further emphasizes that property rights (and institutions more broadly) can and do change over time. North (1990) articulates that “incremental change comes from the perceptions of the entrepreneurs in political and economic organizations that they could do better by altering the existing institutional framework at some margin” (8). North (1990, 33) adds, however, that because there are transaction costs associated with property rights, “rights are never perfectly specified and enforced.” Coase (1960), too, implies that rights may not be perfectly specified. Coase suggests that alternative rights arrangements that bring greater production value to those established by the legal system may exist, but the process of acquiring this arrangement through the market may be too high (16). Anderson and Hill (1975) state that as resources become more scarce, “individuals or groups of individuals have attempt to better define their rights to these resources through legal action” (167). Furthermore, Barzel ([1989] 1997) states that “protection, the delineation of rights, and the erection of legal institutions... are some of the basic functions of the state... Given that delineation and protection are costly to produce, however, they are not expected to be carried out to perfection” (87). From this literature, “well-defined and enforced property rights” and “perfectly defined and enforced property rights” are not synonymous. In fact, Barzel ([1989] 1997) explains that “rights that are initially in the public domain become well defined when it is possible to determine who the ultimate owner will be” (86). Therefore, when changes occur that make it no longer possible or clear to determine the ultimate owner, property rights will no longer be well-defined. In reality, it seems likely that such changes could occur, and therefore our model must be robust to such changes.

It is evident from the literature outlined thus far that property rights are exceedingly important in facilitating the market process, coordinating behavior, and aligning incentives. When property rights are well-defined, we can see the beneficial outcomes. However, what is significantly less clear is how property rights, particularly ‘good’ property rights, are recognized as such and established in the first place and the mechanism by which property rights change.

According to Hayek, spontaneous orders emerge as the consequence of rule governed human action: social order is only possible because human beings follow rules, both formal and informal. Formal rules are the abstract rules of law that are enforced by the coercive powers of the government; informal rules are customs and habits of a social group enforced primarily through social approbation or disapproval. In both cases, rules function in two important ways in society. They increase predictability in social interaction and they serve as a repository of knowledge that may not be fully understood by the actors who follow the rules. (Vaughn 1999, 135)

One reason why the answer to this question still puzzles us is that the requirement of “well-defined” property rights as a necessary pre-requisite to market activity. Our discussion is hindered when only discussing entrepreneurship that begins with well-defined property rights if one of our goals is to explain why economic progress is hindered in less developed societies precisely because their property rights are not well-defined. Hayek writes,

That a functioning market presupposes not only prevention of violence and fraud but the protection of certain rights, such as property, and the enforcement of contracts, is always taken for granted. Where the traditional discussion becomes so unsatisfactory is where it is suggested that, with the recognition of the principles of private property and freedom to contract, which indeed every liberal must recognize, all the issues were settled, as if the law of property and contract were given once and for all in its final and most appropriate form, i.e., in the form which will make the market economy work at its best. (1948, 110–111)

Adopting “well-defined” property rights is not a helpful policy prescription in and of itself even if we know that well-defined property rights aid in economic progress. The substance of “well-defined” property rights is what confounds us, beyond simply being able to determine the ultimate owners. Just because the property right is clearly defined, it does not mean, therefore, that the property right is helpful to society. We must dig deeper into our understanding of what makes a property right ‘well-defined,’ and our model of human progress must also allow us to see what happens if the property rights are not well defined or if they are entirely improper for the context in which they have been implemented. In “The Use of Knowledge in Society,” Hayek emphasizes the importance of the institutional foundations that lead to prosperity and that these institutions evolved over time:

We make constant use of formulas, symbols, and rules whose meaning we do not understand and through the use of which we avail ourselves of the assistance of knowledge which individually we do not possess. We have developed these practices and institutions by building upon habits and institutions which have proved successful in their own sphere and which have in turn become the foundation of the civilization we have built up. (1945, 528)

However, in order for these institutions to be improved upon, they had to, at some point, be determined inadequate—something about the property rights structure within society was no longer well-defined to represent the needs of society. Therefore, in order to understand the economic progress, we must understand the process by which the property rights within the broader institutional foundation of the market process change. Thankfully there is an existing literature on institutional entrepreneurship that begins to bridge this gap.

Many of the institutional entrepreneurs referenced in the literature are (1) individuals finding ways to codify existing social norms and informal institutions that have already been identified and defined or (2) individuals discovering new methods by which to enforce informal institutions when the formal mechanisms are insufficient. Leeson and Boettke (2009), for example, distinguish between two tiers of entrepreneurship that are

crucial for economic development. “The lower tier... is concerned with investments in productive technologies that improve productivity (technology) and better service consumer needs (arbitrage)” (2009, 253). This is largely consistent with a Kirznerian entrepreneur operating in a developing world. The higher tier, which they call the “protective tier,” “is concerned with the creation of protective technologies that secure citizens’ private property rights vis-à-vis one another (governance)” (253). Operating on this tier, Leeson and Boettke argue that, “institutional entrepreneurs devise private mechanisms of property protection, providing the security required for productive entrepreneurship to grow,” and they do so because, as is common in developing countries, governments do not or are incapable of protecting individuals from private predation (253).

Here we have a clear explanation of “the institutional entrepreneur’s role in facilitating property institutions’ endogenous emergence... show[ing] that entrepreneurship is not only a product of property rights, but that, critically, it is a producer of these rights as well” (253). To put this in the context of Baumol (1996), just because formal institutions fail, it does not mean the entire society will devolve into unproductive or destructive entrepreneurship. Another option is that entrepreneurs will step in to protect the informal institutional property rights structure that results in productive entrepreneurship. Martin and Thomas (2013) have their own account of institutional entrepreneurs in the political sphere using a “higher tier” to alter the formal institutional structure. Martin and Thomas focus on the role of political entrepreneurs changing the rules of the game, altering formal rules at the pre-constitutional, constitutional, and post-constitutional levels, as a means to exploit political profit. March, Martin and Redford (2016) outline two types of institutional entrepreneurship: destructive and protective. According to March, Martin, and Redford, “destructive entrepreneurship involves undermining the institutional framework that supports productive entrepreneurship [in the Baumolian sense], leading to outcomes like corruption and the dissolution and lack of enforcement of property rights” (2016, 212). March, Martin, and Redford’s definition of protective entrepreneurship is consistent with Leeson and Boettke’s classification—protective entrepreneurship enhances the provision of property rights (213). In all of these cases, entrepreneurs are operating in a space in which institutions and property rights are necessarily unclear and are discovering new methods by which to enforce the institutional framework to achieve their goals. These institutional entrepreneurs are focused on the governance and enforcement of defined and established institutions (some formal, others informal).

The closest conception to the method of institutional entrepreneurship outlined in the next section is from Li, Feng, and Jiang (2006)’s “Institutional Entrepreneurs.” They outline four specific institutional entrepreneurs that brought about significant institutional change in China throughout the latter half of the twentieth century. These forms of institutional change include agricultural reform via the Household Contract Responsibility System, financial reform via the entry of private capital into China’s banking sector, the liberalization of industrial policies, and the liberalization of interest rates (360–361). These individuals recognized significant limitations in their ability to contract, invest, and enter new markets. They were alert to new ways of defining and enforcing existing formal institutions that increase their profit opportunities in the market. I argue in the next section that the institutional change of property rights follows a similar mechanism of change.

4 The property rights (PR) institutional entrepreneur

Institutional entrepreneurship is key to understanding the disparity in wealth, economic progress, and development across nations over time. However, a more complete account of substance of institutional entrepreneurship is necessary. The examples and explanations of institutional entrepreneurship in the previous section, although critical to our understanding of the role of entrepreneurs in changing institutions to foster productivity, begin with an established and known property right or a given institution that these entrepreneurs wish to alter or protect more effectively than the government (or to undermine the formal enforcement altogether). The first step is missing. *What is the process to identify the property right that needs to be changed/added/abandoned?* The process of formally implementing or informally enforcing a property right is distinct from the discovery of the need for the property right to even exist in the first place. That is not to say that these “next steps” are any less important, but if we do not start from the beginning of the process, we will undoubtedly miss important information about the process of institutional change and economic growth. How does a society diagnose and fix property rights that are insufficient? This is also a role of the institutional entrepreneur, but it is a form of entrepreneurship that is tasked with identifying and defining the foundation upon which all other entrepreneurship will take place. This is the role of the property rights (PR) institutional entrepreneur, which is distinct from the market entrepreneur working within a defined foundation or the governance institutional entrepreneur interested in figuring out the best way to enforce and provide already defined institutions.

As Hayek (1948) states it, “our problems begin when we ask what ought to be the contents of property rights, what contracts should be enforceable, and how contracts should be interpreted or, rather, what standard forms of contract should be read into the informal agreements of everyday transactions” (113). A suitable analogy might be that an entrepreneur can recognize that a motorized vehicle could reduce traveling time, relative to the horse and buggy. That is a very different question than figuring out how to manufacture said vehicle after the need for it has been identified. Both of these pieces, however, are important to the creation of the motorized vehicle. Without either component, the recognition of the need and the ability to make the vehicle, the motorized vehicle would not exist. Similarly, both the acknowledgment of a need for a property right as well as a method by which to provide it and enforce it are necessary for the property right to functionally exist and address the problem society faces. The process by which useful property rights are identified is missing its entrepreneur in this literature. Entrepreneurial alertness is required, but it is of a specific kind. Entrepreneurial alertness is context-dependent. Alertness is not a general skill set that the entrepreneur possesses, and entrepreneurs can become more specialized as present discoveries lead to future discoveries (Martin 2011). This form of PR institutional entrepreneur is not alert to the opportunities of “buying low and selling high” the goods and services to which property rights have already been assigned, altering the political rules to implement a known property right, or providing protective services of a known property right. Instead, this entrepreneur recognizes and is alert to opportunities of identifying previously unknown or mis-specified property rights over a particular entity that can result in profit opportunities to the owners of those entities. This entrepreneur,

using insights from the market process, sees possibilities to better define property rights.

I am not attempting to offer an explanation in these pages as to how the spontaneous order of property rights first emerged. As Barzel articulates,

It might be tempting to trace the pattern of currently existing property rights holdings to its point of origin to determine how and why it came about, yet such an effort would be futile. The ability to consume commodities, including those necessary to sustain life, implies the possession of rights over them. Once this is understood, it becomes clear that one cannot expect to discover any evidence of a pre-property rights state, since it is not possible to endow a pre-property rights state of affairs with meaning. In order to gain a toehold on the evolution of property rights, one must start with the simultaneous emergence of life and property rights and then consider a world where some rights are already in place. ([1989] 1997) 85)

It is from this position that I wish to start—to better understand the *marginal changes* to the property rights structure (the addition of a new property right, the redefining of an existing property right, or the elimination of a property right, *not* the origins of the property rights apparatus overall) that enable individuals, through the market process, to engage in “more accurate” economic calculation. Furthermore, by restricting my discussion to the changes in the property rights that are defined and enforced, I am not attempting to explain the emergence of property rights. Kirzner (2000) staunchly opposes the idea that the institutions on which the market process relies can be produced through the market process itself:

Without these institutional prerequisites—primarily, private property rights and freedom and enforceability of contract—the market cannot operate. It follows that those institutions cannot be created by the market itself. The institutions upon which the market must depend must have been created or have evolved through processes different from those spontaneous coordinative processes which we have seen to constitute the essence of the market’s operation. (Kirzner 2000, 83)

The market relies on the institution of private property rights—it is the specific changes in private property rights that I purport are deeply embedded in a process closely tied to the market process, not the institutional apparatus itself.

Oliver Williamson (1998, 2000) describes four levels of social analysis, which included (from top to bottom): (1) social embeddedness, (2) institutional environment, (3) institutions of governance, and (4) neo-classical economics. These levels are connected, according to Williamson, in that the immediately preceding level constrains the activity that takes place in the following level. For example, the institutional environment imposes constraints on the institutions of governance. However, there is a feedback loop that exists between each level. Therefore, the institutional environment level of analysis receives feedback from the institutions of governance level.

This is a helpful heuristic for thinking about the role of institutions in the market order, the market process, and subsequently, economic growth and development. If instead of using ‘neoclassical economics’ as our fourth level of understanding

individual behavior, and instead substitute it out for ‘the market process’ as a more accurate means of understanding the behavior of market actors, we have a clear picture of the relevant tiers (thus constraints) that ultimately influence entrepreneurial behavior. The feedback channels, although not emphasized in Williamson (1998), from the lower level to the higher level, are important to consider when thinking about where institutional, particularly property rights, change comes about. Feedback from the market process tier about opportunities to alter the provision of a property right, better define a property right, introduce a hitherto unknown property right, or adopt an existing property right structure into a new industry, market, or product filter up to the institutional level. The institutional and governance frameworks are constantly updating based on information from the market process. Governance (Level 3) can be provided formally or informally. Using Williamson’s model as a starting point, I offer my own visual model to classify the levels of social analysis and foundation to the market process. My figure (Fig. 1) of the market process and its foundations illustrates the direct channel of constraint the previous level puts on the subsequent level (the solid arrows), but also includes dashed arrows to illustrate the feedback loop in which the actions in the lower level can influence the constraining level.

The substance of PR institutional entrepreneurship resides in Level 2. The definition of property rights is immediately informed by social embeddedness. The importance of

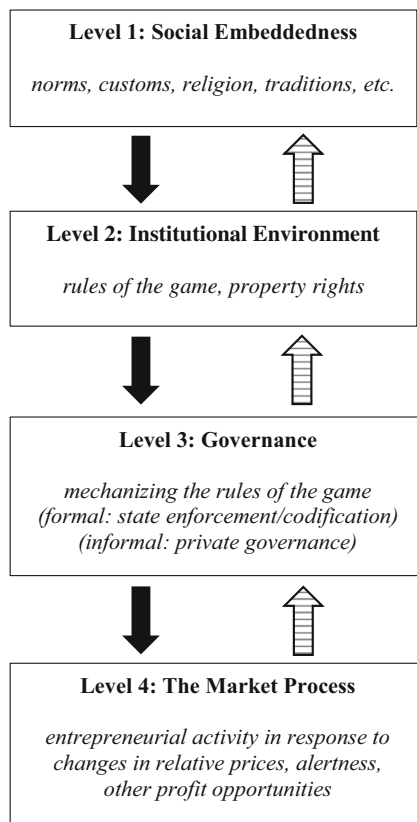


Fig. 1 The market process and its foundations

such institutions being socially embedded will be addressed at length in the next section. However, feedback from the market process level and the governance level inform the definition of property rights. Property rights (in definition and/or enforcement) can fail. This feedback comes from the ability to enforce the property right and the effectiveness of the property right in facilitating market exchange. Furthermore, property rights that could be conceived may not be introduced if the market process provides feedback that the particular property right in question is not needed or if the governance tier provides feedback that the protective and enforcement technology is either too expensive or does not presently exist to effectively enforce the property right.

Governance at Level 3 plays a critical role in this model. If governance is provided informally, there is a clear feedback channel from the market process feedback all the way up to social embeddedness. Because these informal governance institutional entrepreneurs are in touch with the operations of the market process, the knowledge they acquire through profit, loss, and price signals conveys relevant information through the feedback channels. However, when governance is provided formally, and the governance entrepreneurs are no longer directly tied to the market process and only receive feedback regarding market activities via the political system (i.e. voting, lobbying), the signals will necessarily be much noisier and less clear. As a result, the only option these formal governance entrepreneurs will have is intervention.

Interventions in the form of changing the property rights definitions and enforcement without feedback from the market will lead to unintended consequences (see Mises ([1940] 1998). The dynamic process of interventionism could further widen the gap between the formal enforcement of the property right and the intended definition of the property right, leading to additional unintended consequences in the market process. The evolution of unintended consequences in illicit drug markets is one such example (see Redford and Powell (2016) and Redford (2017)). As formally policymakers adopted more punitive measures of enforcing property rights associated with illicit drugs, markets for illicit drugs became more dangerous and violent. By separating the governing approach from the institution itself, we can more clearly identify the source of problematic property right arrangements if they arise. This model illustrates that a breakdown in “well-defined property rights” can either come from the institutional level (the definition of the appropriate property right is problematic) or the governance level (the manner in which the property right is provisioned and enforced is problematic). If “well-defined property rights” has typically implied formal/state recognition and enforcement of property, this could be a considerable source of stagnation if an alternative governance structure would have more effectively enforced the property right.

Perhaps our ability to think about private property arrangements that are unsuccessful or that require change is limited precisely because they failed and were dispensed with. However, we can look to some historical and present situations in which an extension of private property rights, or a lack of clearly established property rights, caused a tension that institutional entrepreneurs (both at the property rights and governance levels) witnessed and attempted to fix. This examples will distinguish between the identification of a needed property right (Level 2) and the governance of the property right (Level 3). In doing so, it is hopefully clear that the process of discovery a property right and discovery of a method of enforcement of said property right are intertwined, but distinct, entrepreneurial processes. I will briefly cover three

examples from the literature and how they fit into the framework I have outlined in this section: property rights during the California gold rush, fishery rights in Nova Scotia, and intellectual property rights during the Industrial Revolution.

Barzel discusses the California gold rush as an example of the formation of property rights in *Economic Analysis of Property Rights*. “Little information was available to determine the precise criteria by which disputes would be settled and ownership ascertained. Rights that are initially in the public domain become well defined when it is possible to determine who the ultimate owner will be” (Barzel [1989] 1997, 86). Although he is writing in the context of establishing enforcement of rights during the California gold rush, enforcement is not the only relevant factor in the process described. Recognition, or *alertness*, to the need for property rights, the recipient of the property right, and the manner in which the property right will be defined are emerging. In this instance, the property right is not well-defined, not to mention well-enforced, absent this determination process. Barzel goes on to say in the context of how legal rights emerge, “Protection, the delineation of rights, and the erection of legal institutions – which are some of the basic functions of the state – are thus seen to be consequences of the quest for private gain” ([1989] 2007, 87). However, the involvement of government to codify property rights that work in the present situation may come at the cost of adaptable flexibility if property rights will need to be altered in the future to better facilitate coordination or if these codified property rights can be used as a tool of extraction by the state.

Elinor Ostrom illustrates an example of the adaptability of small-scale institutional network engaging in cooperative behaviors, even amongst market competitors, in an instance when formal governance failed. Although a brief description, Ostrom (1990, 174) illustrates how some fishers in a small Nova Scotian fishery began using a new catching technology that created problems for other boats in the fishery area. Within five years’ time, the fishers disbanded with this technology. This outcome was not achieved because the netting technology was outlawed in a formally legal setting, but instead via the interactions amongst fishers in a small community within which nested organizational ties are present. The market process provided feedback to the informal governance institutional entrepreneurs that the method of enforcing the property right was causing problems. Because the governance was provided informally, they were able to work with market information and adapt. In fact, the informal institutional structure that governed fishery operations in the area at the time were not even recognized by the Canadian federal government (Ostrom 1990, 175). Ostrom points out that when Canadian policymakers attempted to regulate the coastal fisheries which defined access-rights in a very different way and enforced these access-rights via mechanisms that were inconsistent with the informal institutions, not only was there a lot of pushback in the form of protests, but the viability of the fishery suffered significantly (176–177).

Ostrom notes, “it is doubtful that an national agency can ever have the extensive time-and-place information needed to tailor a set of rules to the particulars of local situations” (177). Furthermore, the entrepreneurs operating in these small-scale institutional networks are situated to be alert to better ways of enforcing, provisioning, and defining these property rights as the nature of the fishery changes over time and less alert to the alternatives that are only profitable in the formal governance sphere, resulting in greater economic progress for the fishers. Formal governance, like the

policies implemented by the Canadian policymakers rely on information attained through the political process and other non-market channels. These noisy channels of feedback will often lead to inferior governance and enforcement methods because they are established external to the market process.

Another area of property rights definition and provision that scholars, policymakers, and entrepreneurs intensely debate is intellectual property rights. This is a fruitful area for future research as the use of technology in the industries such as digital art (Zeilinger 2018), music (Romer 2002), biomedical research (Heller and Eisenberg 1998; Epstein and Kuhlik 2004) increases and more contestations over digital property rights and intellectual property rights arise moving forward. Consider the following quote from Hayek in *'Free' Enterprise and Competitive Order*:

I am thinking here [regarding the extension of the concept of property in certain other fields] of the extension of the concept of property to such rights and privileges as patents for inventions, copyrights, trade-marks, and the like. It seems to me beyond doubt that in these fields a slavish application of the concept of property as it has been developed for material things has done a great deal to foster the growth of monopoly and that here drastic reforms may be required if competition is to be made to work. (1948, 113–114)

Hayek is very clear that the extension of private property rights to 'intellectual property' is 'too far' and a detriment to society because it hinders competition and creates fertile ground for the rise of monopolies. But *how* do we determine that this property right definition is "too far?" Is the issue intellectual property rights overall, the manner in which intellectual property rights have been formally categorized under the law, or the manner in which formal intellectual property rights have been enforced? Furthermore, is it possible for us to claim that this evaluation process happens outside of the market process entirely, without feedback from the market process? These questions bring us to a possible tension in thinking about 'well-defined property rights' as the foundation of the market process and entrepreneurship. Specifically, what does it mean to be 'well-defined' and who is tasked with providing such a definition?

It is important to point out here that the intellectual property rights referenced by Hayek are very clearly defined by the government through formal channels. However, the role of property rights enforcer is a separate tier than defining the property right, if the model constructed above is accurate. Hayek writes,

Patents, in particular, are specially interesting from our point of view because they provide so clear an illustration of how it is necessary in all such instances not to apply a ready-made formula but go back to the rationale of the market system and to decide for each class what the precise rights are to be which the government ought to protect. This is a task at least as much for economists as for lawyers. (1948, 114)

Hayek is describing a process of identifying the need of specific property rights, based off of feedback from the market process, defining them, and establishing the governance and enforcement of said property right. In Hayek's example, although he assigns the government as the enforcer of property rights (thus policymakers acting as the

Level 3 governance institutional entrepreneur), he tasks economists and lawyers with the Level 2 PR institutional entrepreneurship to define what the substance of these rights will be. Despite the fact that there may be significant incentive and knowledge problems with tasking the government with providing the governance component of property rights, Hayek does not assign the role of identifying and defining property rights to the government. Instead, PR institutional entrepreneurs utilize a feedback mechanism by which the entrepreneur can discover more profitable property rights. This feedback mechanism is a critical component. If Hayek is correct, then trademark property rights are not problematic because they are not clearly defined under the law, but instead that they, based on feedback from the market process, are ill-suited in their definition and/or formal enforcement for the market process that they facilitate.

An additional margin to consider is whether or not the definition, provision, and protection of intellectual property rights have achieved the goal of increasing technological progress and human flourishing. Chang (2001) finds “no sound theoretical and empirical backings for the argument that strong protection of *private* intellectual property rights is necessary for technological progress and therefore economic development, especially for developing countries” (299, italics in original article). Mokyr (2009) discusses the complexity of the American and British patent systems during the Industrial Revolution as means of protecting intellectual property rights. The presence of these patent systems, while encouraging some innovation, did come with considerable costs. Mokyr describes how patents were often used in a manner to strategically block research endeavors of competitors and patents created a false sense of quality standards which led some to be ‘duped’ into “fraudulent schemes” (2009, 350). In formalizing the property rights process to foster an environment of innovation, the very costly process slowed down innovation and progress and altered the incentives of the entrepreneurs operating within the institutional framework. This is not entirely dissimilar to findings on how the codification of institutions into formal institutions can erode economic progress (this will be addressed further in the next section).

Mokyr furthermore states that we could argue technological progress could take place if “some property rights had to be extinguishable when they got in the way” (349). In this case, the formalized enforcement of intellectual property rights hindered economic progress, even though the property rights were formally ‘well-defined’ under the patent system. The legal definition of ‘intellectual property rights’ as well as the patent system as a mechanism of protection of ‘intellectual property rights’ was ill-suited for the nature of the market at the time. However, this does not necessarily mean that the overall need for intellectual property rights is non-existent. Alternative methods of enforcing such a property right or a better suited definition of intellectual property rights, following Hayek’s suggestion, could prove to be useful if the enforcement technology is suited for the needs of the market.

5 The institutional entrepreneur’s role in economic development

Peter Bauer points out an important observation about the literature on economic development before the late 1990s. “Had trading activity and its effects been properly appreciated, mainstream development economics would have been radically different” (Bauer 2000, 5). Qualities of economies as well as their institutional frameworks are

important to the path of economic development, but failing to discuss market exchange, and ultimately the entrepreneurial activity in the market within an economy that result from these qualities and institutions misses the substance of the question under investigation. Unfortunately, as Bauer points out, it was not until recently that the literature on developing nations included important information about the role of market entrepreneurship. Economies do not exist in vacuums nor do they do not exist absent the actions of individuals that make up the economy. “In emerging economies the activities of traders promote not only the more efficient deployment of available resources, but also the growth of resources. Trading activities are productive in both static and dynamic senses” (Bauer 2000, 4).

Like Bauer, Holcombe (1998) is also interested in the market activities of entrepreneurs. Holcombe describes ‘the engine of economic growth’ as “an environment in which entrepreneurial opportunities can be capitalized upon... When entrepreneurship is seen as the engine of growth, the emphasis shifts toward the creation of an environment within which opportunities for entrepreneurial activity are created, and successful entrepreneurship is rewarded” (58). Boettke and Coyne (2003) make a similar argument—“... development is caused by the adoption of certain institutions, which in turn channel and encourage the entrepreneurial aspect of human action in a direction that spurs economic growth” (69).

The institutional entrepreneur is the catalyst that powers the evolution of these institutions to better foster market entrepreneurship. The adoption of more effective property rights, both in definition and in enforcement, are a necessary component of this transition. Without effective property rights, market entrepreneurship and value-creating exchange will suffer. In fact, Li, Feng, and Jiang (2006) argue that, “... in comparison with traditional entrepreneurs, institutional entrepreneurs generate more significant, positive externalities for the economy and constitute an important force of economic development and reform... We emphasize that in an emerging market economy entrepreneurs have to help destroy institutional barriers and [sic] in order to establish market institutions” (358). Li, Feng, and Jiang’s conception of the institutional entrepreneur’s role in economic progress is complementary to the one in which I am presenting—inferior property rights must be identified, dispensed with, and replaced with property rights that are better suited to facilitate market activity. Without better-suited property rights, growth will not take place.

Investment is an important aspect of economic growth and development. Acemoglu and Johnson (2005) find that property rights institutions have a positive effect on investment and economic growth. Manish and Powell (2015) explain that while “capital is the proximate cause of growth... institutions are the fundamental cause of growth, because good institutions generate more investment and support freely formed prices that allow economic calculation to create the most productive heterogenous capital possible” (711). Boettke and Subrick (2003) empirically find that “... better protection of property rights and a framework that reduces uncertainty about the future not only improve the human lot by raising incomes, but also improves the meaningfulness of the human experience” (126). Without clear and enforced property rights, investment will not take place if entrepreneurs are uncertain if their property will be taken from them in the future. Absent investment, capital accumulation will not occur, and economic growth will falter (Bauer 2000). Kerekes and Williamson (2008) empirically find that when property rights are well-defined, not only does investment

increase, but long-term capital accumulation increases, leading to economic growth (317). Additionally, Hernando de Soto (2000) finds that when poor individuals and migrants are kept out of the legal property rights system, they struggle to tap into larger trading networks and accumulate the capital necessary to expand their innovative capacities (83–84). Holcombe (1998) argues that investment and growth and positive correlated because “an institutional environment that encourages entrepreneurship attracts human and physical capital” (59). When property rights are unclear and poorly enforced, entrepreneurship and investment are not encouraged.

The ability to trade internationally is an important factor in economic growth. Entrepreneurial decisions, at the market level, the governance institutional level and the PR institutional level, will be shaped by the available information, knowledge, and ideas around them. However, if a society of entrepreneurs was previously isolated from ideas about alternative property rights definitions and mechanisms of enforcement, then engaging in trade with societies that possess these alternative property rights could bring to light new information and possible profit opportunities for institutional change. It is this discovery of new property rights and other institutions through the exchange of knowledge that takes place during trade that is at the core of the ‘contagious capitalism’ phenomenon (see Hall et al. 2011; Leeson et al. 2012). When trade between individuals of different nations is possible, new ideas are exchanged, relative prices change, situations of time and place adjust, and as a result, institutional entrepreneurs in developing countries are exposed to new ideas of property rights, both in definition and methods of enforcement. They will then be alert to new property rights alternatives, of which they were previously unaware, that could result in profit opportunities. When formal governance hinders exchange across national borders, this significantly distorts not only the market process, but economic development as well. Not only does it limit the division of labor and the ability for entrepreneurs to profit by discovering their relative advantages and selling their products and services, but it also limits the information exchange and knowledge acquisition of alternative property rights and institutional arrangements that come along with trade.

Although developing countries can learn about effective institutions via trade with developed nations, this does not imply that the developing country should necessarily carbon-copy the specific property rights definitions and methods of enforcement of the developed country. Even if there are property rights arrangements that work well in the developed society, they may not be suitable for the time and place of the developing society. Because external institutions are necessarily not grounded in customs and norms (Level 1 from Fig. 1) of a society, Boettke, Coyne, and Leeson (2008) argue that “...even if the development community can correctly identify what institutions are required for growth in general terms, it cannot transplant these institutions where they do not exist as a means of promoting development” (343). For this reason, trade is one important mechanism for local institutional entrepreneurs to observe and learn about these institutions and property rights arrangements because it enables them to discover how these property rights can be defined, implemented, and enforced into their local context. Feedback from the market process enables PR and governance institutional entrepreneurs to adopt new property right definitions, provisions, and methods of enforcement that may better serve society and contribute to economic development. “If the *mētis* aligns with the institutional structure, individuals will coordinate around the institutions and they will sustain with little to no external involvement. If, however

mētis fails to align with the institutions, they will fail to stick and operate in the desired manner (Coyne and Boettke 2006, 55–56). In this situation, the PR institutional entrepreneur’s task is to figure out how to take a property right observed exogenously and fit it into the context best suited for their society’s norms and customs.

Institutions that emerge endogenously by members of society are likely to stick and be successful (Boettke et al. 2008). Simply exporting formal property rights arrangements from a developed society to a developing society is unlikely to work because the involvement of the local institutional entrepreneur is absent, and thus the impact the new regime is likely to have on the market process has not been tested or corroborated. To use Boettke, Coyne, and Leeson’s (2008) language—the mētis is missing in such a situation. Additionally, because policymakers are not involved in the markets with which their policies seek to alter, they will not be in a position to fully anticipate all of the consequences of the intervention. Policymakers are not operating as entrepreneurs in the market they seek to alter by changing the property rights, they will be unable to adequately judge whether or not a particular property right is profitable because they are not in the appropriate context to be alert to that information. Therefore, when policymakers *formally* adopt these property rights that do not adequately meet the needs of the individuals living in that society, the codification of these inadequate property rights may distort future opportunities to adjust these property rights because altering the now codified rights raises political costs. As Benson (2015) explains, “[b]ureaucratic enforcement cost will rise as the enforcement apparatus expands to apply these new rules... In every case, the authority has made many changes in addition to the initial transfer rules in an effort to maintain the system. Enforcement and compliance costs rise both to implement the new rules and to control illegal activities” (318).

The policies may be well-defined and effective in other nations, but if they are an incorrect fit for the developing country, and consequently, codification makes it more difficult for institutional entrepreneurs to play an effective role in adapting a more appropriate and effective property rights definition and method of enforcement. As a consequence, institutional entrepreneurship will be channeled toward informal, extra-legal mechanisms of provisioning and enforcing better-suited property rights (protective entrepreneurship) or mechanisms to circumvent the formal, ill-suited property rights regime (evasive entrepreneurship) as discussed in Section 3. Williamson (2009) finds that “the countries that built their formal institutions off of their informal rules are achieving a much higher level of economic development. The countries in which governments have imposed formal institutions without consideration for informal institutions are the poorest” (378). This is consistent with the concerns voiced by Ostrom (1990) regarding the problems that can arise when governments institute formal, less locally-informed policies to fix a perceived institutional failure which undermines the local institutional framework already in place to fix coordination problems in the market.

Many scholars cited in Section 2 assign the role of enforcing well-defined property rights to the government. However, there is evidence to suggest that such formal enforcement of property rights and other institutions could undermine economic development. Williamson (2009) notes that the formalization of informal institutions might, in fact, result in economic decline if the formal institutions enable governmental predation. Williamson explains how her findings, along with Leeson (2005), illustrate

that “the formal institutions were tools of government extortion rather than tools of government constraint,” which is a possible explanation for why countries with strong formal institutions, but weak informal institutions are associated with minimal economic development (2009, 379). Williamson offers an important takeaway from these findings: “in the absence of strong, formal rule, these countries may be able to focus on cultivating their informal institutions and possibly achieving increases in economic development” (379). In many cases, when the government provides the Level 3 governance of property rights, even if they are well-defined at the PR institutional level, the government can use its role as enforcer in ways that undermine economic development and progress.

Williamson and Kerekes (2011) find that “formal institutions have no significant effect on securing property... these results have especially important implications for developing countries with highly predatory governments” (564). Boettke and Candela (forthcoming) investigate the role of state capacity and economic development. “Fundamentally, economic development requires a protective state from which state capacity emerges as a byproduct. If, however, political constraints are not established to limit political discretion, then state capacity will degenerate from a means of delivering economic development to a means of predation” (19). These findings along with an extensive literature on anarchy and private governance suggest that private or informal methods of property right governance may better facilitate productive entrepreneurship and economic growth (see Powell et al. 2008; Leeson and Williamson 2009; Leeson 2014; Stringham 2015). Not only do these informal entrepreneurs possess more relevant knowledge and feedback from the market process, they also face competitive constraints to ensure that predation upon those they protect is limited. However, when the formal mechanisms of enforcement not only lack the relevant market feedback but also present opportunities for formal predation, productive entrepreneurship, and thus economic development, will suffer.

6 Conclusion

The Austrian School brings significant contributions to the discipline of economics by emphasizing how the entrepreneur, in the pursuit of profit, brings about order and coordination. However, this relies on a foundation of well-defined property rights. In present day applications of the role of the entrepreneur in different societies, many places lack the “well-defined” property rights foundation. If we wish to explain why the entrepreneurial outcomes in some societies lead to economic growth and prosperity whereas other instances of entrepreneurial actions, in response to different institutional frameworks, lead to economic stagnation (or worse, economic decline), we are limited in our ability to explain this phenomenon if we cannot conceive of an entrepreneurial process absent well-defined property rights. Furthermore, if we aim to explain how a society can transition from one with poorly defined property rights and economic stagnation to one of well-defined property rights and economic growth, we cannot begin with well-defined property rights. If we know that institutions matter and that good institutions, including well-defined property rights, lead to economic growth, how do we get them? If we take them as only a starting point, we do not have a full process by which societies achieve economic growth. Property rights institutions change and

subsequently impact entrepreneurial behavior, but we do not have a complex enough theoretical foundation to explain this.

By emphasizing the role of a PR institutional entrepreneur, we can begin to answer this question. There are many forms of institutional entrepreneurs, but the important role, for this discussion, is the entrepreneur that is alert to alternative property rights arrangements that result in profit opportunities within markets. We must not address property rights only as given, permanent, or necessarily well-defined. In order for economies to progress, they must, in some sense, have moved from less than well-defined or ideally functional property rights to a 'better' property rights structure that better facilitates productive entrepreneurial activity. The feedback channel between the property rights framework and the market process must be unhindered in order for economic progress to take place. Thus, when new information in the market process is discovered by a PR institutional entrepreneur that would necessitate a redefining of, a change in the enforcement of, the elimination of, or the new creation of a property right, the institutional framework can adjust to better cope with the scarce conditions of time and place that are now more clearly understood. However, when the feedback channel is blocked and the property rights no longer best facilitate the entrepreneurial activity of that time and place, economic progress is impeded. By starting with the assumption of well-defined property rights, our diagnosis of what is hindering economic progress will be misplaced if the source is actually property rights that are ill-equipped to facilitate productive exchange. Additionally, by decoupling the step of identifying and defining property rights from the step of enforcing property rights, we can better conceive of how informal property rights matter for economic progress. Moreover, this approach further illustrates how government provision and enforcement of property rights can significantly deter economic progress when such provision blocks the feedback channels from the market process to the institutional entrepreneur. As government actors receive feedback through political channels as opposed to market signals, they will not be in the best position to operate as PR institutional entrepreneurs and will likely provision property rights incorrectly.

As technological advancement progresses, changes in the definition and enforcement of property rights will continue to evolve. For example, blockchain technology is being used in variety of different industries beyond just cryptocurrencies. Davidson, de Filippi, and Potts (2018) argue that blockchains are a form of institutional evolution that enable economic coordination that was not previously possible. As the ability to enforce property rights has changed with this new technology, PR institutional entrepreneurs are alert to new property rights that were previously not provided because the technology to profitably enforce the provision did not exist. This has significant implications for the debate regarding intellectual property rights discussed in Section 4. The possibilities of blockchains as methods of less costly property rights enforcement highlight that that property rights, absent any change, will now be less than "well-defined" and well-enforced, and could impede economic growth.

Another consideration is celestial property rights. As international treaties prevent government enforcement of property rights in outer space, alternative means of property rights enforcement will have to emerge (Leeson and Salter 2014; Salter 2017). Not only will enforcement cover property rights that have already been defined that will be utilized in outer space, but as celestial resources emerge and change the manner in which property rights are needed to better facilitate market exchange, a PR institutional

entrepreneur must discover this. All of the possibilities of property rights definition and enforcement in outer space are not known prior to the discovery process, just as the correct allocation of resources in a society are not known ahead of the market process. As profit opportunities are attempted in outer space, market actors, governance institutional entrepreneurs, and PR institutional entrepreneurs will acquire feedback, and the property rights will adjust accordingly. Such instances of property rights evolution will create helpful comparative case studies to advance our understanding of institutional change. The role of the PR institutional entrepreneur as the mechanism of property rights change will be a crucial catalyst for these evolutions.

Acknowledgements I would like to thank the participants of the 2018 Wirth Conference on the Austrian School of Economics for their helpful feedback and comments on a previous draft. I would also like to thank Peter Boettke for additional comments, insights, and encouragement. All errors are my own.

References

- Acemoglu, D., & Johnson, S. (2005). Unbundling institutions. *Journal of Political Economy*, 113(5), 949–995.
- Anderson, T. L., & Hill, P. J. (1975). The evolution of property rights: A study of the American West. *Journal of Law and Economics*, 18(1), 163–179.
- Barzel, Y. (1989) 1997. Economic analysis of property rights. Cambridge: Cambridge University Press.
- Bauer, P. (2000). *From subsistence to exchange and other essays*. Princeton: Princeton University Press.
- Baumol, W. J. (1996). Entrepreneurship: Productive, unproductive, and destructive. *Journal of Business Venturing*, 11(1), 3–22.
- Benson, B. L. (2015). The evolution of property rights systems. In P. J. Boettke & C. J. Coyne (Eds.), *The Oxford handbook of Austrian economics* (pp. 296–323). New York: Oxford University Press.
- Boettke, P. J. (2002). Information and knowledge: Austrian economics in search of its uniqueness. *Review of Austrian Economics*, 15(4), 263–274.
- Boettke, P. J., & Candela, R. A. (forthcoming). Productive specialization, peaceful cooperation and the problem of the predatory state: Lessons from comparative historical political economy. *Public Choice*, 1–22.
- Boettke, P. J., & Coyne, C. J. (2003). Entrepreneurship and development: Cause or consequence. *Advances in Austrian Economics*, 6, 67–87.
- Boettke, P., & Subrick, J. R. (2003). Rule of law, development, and human capabilities. *Supreme Court Economic Review*, 10, 109–126.
- Boettke, P. J., Coyne, C. J., & Leeson, P. T. (2008). Institutional stickiness and the new development economics. *American Journal of Economics and Sociology*, 67(2), 331–358.
- Chang, H.-J. (2001). Intellectual property rights and economic development: Historical lessons and emerging issues. *Journal of Human Development*, 2(2), 287–309.
- Coase, R. H. (1960). The problem of social cost. *The Journal of Law & Economics*, 3, 1–44.
- Coyne, C. J., & Boettke, P. J. (2006). The role of the economist in economic development. *The Quarterly Journal of Austrian Economics*, 9(2), 47–68.
- Davidson, S., de Filippi, P., & Potts, J. (2018). Blockchains and the economic institutions of capitalism. *Journal of Institutional Economics*, 14(4), 639–658.
- de Soto, H. (2000). *The mystery of capital: Why capitalism triumphs in the West and fails everywhere else*. New York: Basic Books.
- Demsetz, H. (1967). Toward a theory of property rights. *American Economic Review*, 57(2), 347–359.
- Epstein, R. A., & Kuhlik, B. N. (2004). Is there a biomedical anticommons? *Regulation*, 27(2), 54–58.
- Hall, J. C., Lawson, R. A., & Rogaland, R. (2011). The European Union and economic freedom. *Global Economy Journal*, 11(3), 1–16.
- Hayek, F. A. (1945). The use of knowledge in society. *American Economic Review*, 35(4), 519–530.
- Hayek, F. A. (1948). ‘Free’ enterprise and competitive order. In *Individualism and economic order* (pp. 107–118). Chicago/London: The University of Chicago Press.

- Heller, M. A., & Eisenberg, R. S. (1998). Can patents deter innovation? The anticommons in biomedical research. *Science*, 280(5364), 698–701.
- Holcombe, R. (1998). Entrepreneurship and economic growth. *The Quarterly Journal of Austrian Economics*, 1(2), 45–62.
- Kerekes, C. B., & Williamson, C. R. (2008). Unveiling de Soto's mystery: Property rights, capital formation, and development. *Journal of Institutional Economics*, 4(3), 299–325.
- Kirzner, I. M. (1973) 2013. *Competition and entrepreneurship*. Indianapolis: Liberty Fund.
- Kirzner, I. M. (2000). The limits of the market: The real and the imagined. In *The driving force of the market: Essays in Austrian economics* (pp. 77–87). London: Routledge.
- Leeson, P. T. (2005). Endogenizing fractionalization. *Journal of Institutional Economics*, 1(1), 75–98.
- Leeson, P. T. (2014). *Anarchy unbound: Why self-governance works better than you think*. Cambridge: Cambridge University Press.
- Leeson, P. T., & Boettke, P. J. (2009). Two-tiered entrepreneurship and economic development. *International Review of Law and Economics*, 29, 252–259.
- Leeson, P. T., & Salter, A. W. (2014). Celestial anarchy: A threat to outer space commerce? *Cato Journal*, 34(3), 581–596.
- Leeson, P. T., & Williamson, C. R. (2009). Anarchy and development: An application of the theory of second best. *The Law and Development Review*, 2(1), 77–96.
- Leeson, P. T., Sobel, R. S., & Dean, A. M. (2012). Comparing the spread of capitalism and democracy. *Economics Letters*, 114(1), 139–141.
- Li, D. D., Feng, J., & Jiang, H. (2006). Institutional entrepreneurs. *American Economic Review*, 96(2), 358–362.
- Manish, G. P., & Powell, B. (2015). From subsistence to advanced material production: Austrian development economics. In P. J. Boettke & C. J. Coyne (Eds.), *The Oxford handbook of Austrian economics* (pp. 698–712). New York: Oxford University Press.
- March, R. J., Martin, A. G., & Redford, A. (2016). The substance of entrepreneurship and the entrepreneurship of substances. *Journal of Entrepreneurship and Public Policy*, 5(2), 201–220.
- Martin, A. G. (2011). Discovering the gains from trade: Alertness and the extent of the market. *The Annual Proceedings of the Wealth and Well-Being of Nations*, 3, 65–85.
- Martin, A. G., & Thomas, D. (2013). Two-tiered political entrepreneurship and the congressional committee system. *Public Choice*, 154, 21–37.
- Mises, L. (1940) 1998. *Interventionism: An economic analysis*. Irvington-on-Hudson: Foundation for Economic Education.
- Mises, L. (1949) 2007. *Human action: A treatise on economics*. Indianapolis: Liberty Fund.
- Mokyr, J. (2009). Intellectual property rights, the industrial revolution, and the beginnings of modern economic growth. *American Economic Review: Papers & Proceedings*, 99(2), 349–355.
- North, D. C. (1990). *Institutions, institutional change and economic performance*. Cambridge: Cambridge University Press.
- North, D. C. (2000). Institutions and economic growth: A historical introduction. In J. A. Frieden & D. A. Lake (Eds.), *International political economy: Perspectives on global power and wealth* (pp. 47–59). London/New York: Routledge.
- Ostrom, E. (1990). *Governing the commons: The evolution of institutions for collective action*. Cambridge: Cambridge University Press.
- Powell, B., Ford, R., & Nowrasteh, A. (2008). Somalia after state collapse: Chaos or improvement? *Journal of Economic Behavior & Organization*, 67(3–4), 657–670.
- Redford, A. (2017). This is your entrepreneurial alertness on drugs: Prohibition and the market process. In P. J. Boettke, C. J. Coyne, & V. H. Storr (Eds.), *Interdisciplinary studies of the market order: New applications of market process theory* (pp. 241–261). London/New York: Rowman & Littlefield.
- Redford, A., & Powell, B. (2016). Dynamics of interventionism: The build-up to the Harrison Act of 1914. *The Independent Review*, 20(4), 509–530.
- Romer, P. (2002). When should we use intellectual property rights? *American Economic Review: Papers & Proceedings*, 92(2), 213–216.
- Salter, A. W. (2017). Ordering the cosmos: Private law and celestial property rights. *Journal of Air Law and Commerce*, 82(2), 311–332.
- Sautet, F. (2010). The competitive market is a process of entrepreneurial discovery. In P. J. Boettke (Ed.), *Handbook on contemporary Austrian economics* (pp. 87–108). Northampton: Edward Elgar Publishing, Inc.
- Schmidtz, D. (2010). Property and justice. *Social Philosophy and Policy*, 27(1), 79–100.
- Stringham, E. P. (2015). *Private governance*. New York: Oxford University Press.

- Vaughn, K. I. (1999). Hayek's implicit economics: Rules and the problem of order. *Review of Austrian Economics*, 11, 129–144.
- Williamson, O. E. (1998). Transaction cost economics: How it works; where it is headed. *De Economist*, 146(1), 23–58.
- Williamson, O. E. (2000). The new institutional economics: Taking stock, looking ahead. *Journal of Economic Literature*, 38(3), 595–613.
- Williamson, C. R. (2009). Informal institutions rule: Institutional arrangements and economic performance. *Public Choice*, 139(3–4), 371–387.
- Williamson, C. R., & Kerekes, C. B. (2011). Securing private property: Formal versus informal institutions. *Journal of Law and Economics*, 54(3), 537–572.
- Zeilinger, M. (2018). Digital art as 'monetised graphics': Enforcing intellectual property on the blockchain. *Philosophy & Technology*, 31(1), 15–41.

Publisher's note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.