The Entrepreneurial State: An Ownership Competence Perspective

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Abstract Academics, pundits, and policymakers have recently called for a stronger governmental role in the economy to tackle social issues such as inequality and *grand challenges* like global warming. Despite a general recognition among economists and management scholars that government efforts to guide and control innovation or subsidize private entrepreneurs have failed to yield results, these calls also describe an *entrepreneurial state* in which bureaucrats, not entrepreneurs, direct not only basic research but also applied technological development. Building on the notions of *economic competence* and *ownership competence* we argue that even well-intentioned and strongly motivated public actors lack the ability to manage the process of innovation, especially under *Knightian* uncertainty. As stewards of resources owned by the public, government bureaucrats do not exercise the ultimate responsibility that comes with ownership. Moreover, government ownership of firms and labs and government intervention in the management of privately owned assets hampers the competitive process of putting ownership of innovative firms and projects in the hands of individuals and groups with higher levels of ownership ability. We suggest that ownership competence differs systematically between public and private actors, particularly around innovation, with important implications for innovation policy.

Keywords Ownership · Competence · Innovation · Knightian uncertainty · Market for corporate control: Public choice

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1 Introduction

Until recently, most academics, pundits, and policymakers saw the collapse of socialism and the poor record of nationalized firms and industries as evidence that private ownership and market competition were the superior drivers of economic growth and societal well-being. The *neoliberal consensus* held that entrepreneurs with skin in the game, rather than state bureaucrats, should direct productive resources to their highest-valued uses. Instead of targeting particular technologies, firms, and industries for public support, policy should focus on creating a competitive environment in which private entrepreneurship and innovation can flourish (Bradley et al., 2021).

Within the last few years, however, prominent voices have called for significantly more government involvement in the economy. These calls have been prompted in part by corporate scandals perceived to be driven by short-term thinking and unethical behavior by managers, scandals that destroyed value for shareholders and for society as a whole. Enron went through the largest bankruptcy in history after hiding billions of dollars through controlled special purpose vehicles; Lehman Brothers collapsed due to its exposure to subprime mortgages; Volkswagen faked emissions data to pass environmental rules. While details of these cases were complex (and the result of regulatory failure as much as *unfettered capitalism*), they suggested to many that the government has been playing too passive a role and needs to intervene more actively to curb abuses by private actors.

Many of these calls focus on social issues such as inequality and health care, as well as *grand challenges* like environmental protection, but governments have also asked to play a stronger role in managing the innovation process. The public sector has long been involved in funding basic scientific research, typically through government-owned national laboratories and research institutes, as well as grants to public and private universities. Applied research and the development of commercial technologies was thought to be the realm of the private sector. That line is increasingly blurred, however, with writers such as Mariana Mazzucato (2011) arguing that state support lies behind the most important new commercial products, firms, and markets and that, therefore, the state should play a more active role in financing and directing these developments. In the United States, the *neo-Brandeisian* school of antitrust (exemplified by new Federal Trade Commission chair Lina Khan) envisions a more vigorous role for government experts in managing the competitive process, particularly in the tech sector. Support for market solutions seems to be waning, with the *entrepreneurial state* playing a stronger role.

Such arguments must confront the well-known incentive and information problems facing public actors. Government decision-makers lack the high-powered incentives and access to the specialized knowledge held by market participants, those whose livelihoods depend on creating economic value. The differences in incentives between private-sector entrepreneurs (who seek to maximize profits) and government officials (who seek to maximize influence) and politicians (who seek to maximize votes) have been explored in detail in the property rights, rent-seeking,

and political economy literatures, most recently from the perspective of agency and incomplete contracting theories (De Bettignies & Ross, 2009; Laffont & Tirole, 1991; Schmidt, 1996a, b). Also relevant is the poor performance of government-led innovation programs (Krueger, 1990; Kwerel, 1977; Le Grand, 1991; Levy & Peart, 2015; Winston, 2000). Projects such as Minitel (in France), Solyndra (in the U.S.) and Universal Credit (in the U.K.) are three salient cases out of thousands of examples (Datta-Chaudhuri, 1990; Helm, 2010; Keech & Munger, 2015).

While most research has highlighted incentive and property-rights problems of government ownership and control of resources and projects, here we also focus on a different issue: Even the best-intentioned and most strongly motivated directors and managers of state-run programs tend to lack the *ability* to play an ownership role. Ownership itself is an economic, as well as legal, function that can be exercised with greater or lesser ability (Foss et al., 2021). Ownership involves taking ultimate responsibility, or exercising residual decision-making authority, over resources deployed in productive uses. The ownership function is distinct from management, leadership, and similar functions. Those can be exercised on behalf of others, while ownership per se—the right to make decisions about the use of resources under conditions not specified by prior agreement (Hart, 1995)—cannot be delegated to non-owners. Competence arguments for value creation are different from incentive arguments because even owners with strong incentives to increase value may lack the competence to do so.

From an ownership competence perspective, the benefit of markets and market competition are not only that private ownership mitigates agency and moral hazard problems, but also that the market process tends to place ownership titles (the right to exercise ownership) in the hands of individuals and groups with higher levels of ownership ability (those using privately owned resources to create value) (Pelikan, 1993). This process is hampered, or entirely absent, in parts of the economy dominated by public ownership or with a strong state role in the management of privately owned assets.

The idea that government actors often lack ownership ability appears in popular discussions of the failures of "state capitalism" (e.g., The Economist, 2014), but is almost entirely absent from the academic literature (Musacchio & Lazzarini, 2014). For instance, state-owned banks in China and India display much lower valuations than their private peers, not to talk about the fall of state-owned telecommunications operators like China Mobile (The Economist, 2014). One of the main reasons is that private owners were "invited" by the state to play a subordinate role in the management of those companies, with the state holding a golden share or other forms of control mechanisms, which results in misallocation of capital, bad debt, and sometimes liquidation. While these problems certainly have an incentive dimension, they also have a competence dimension: the owners hand-picked by the state are unlikely to be those best positioned to innovate and create value. More generally, we suggest that ownership competence differs systematically between public and private actors, particularly around innovation, and that this difference has important implications for innovation policy.

Our reasoning about the competence of government owners builds on Pelikan's (1989, 1993) notion of "economic competence," developed in the context of comparative economic systems, and Foss et al.'s (2021) concept of "ownership competence," developed in the context of strategic management. Pelikan (1993) defines competence as the ability of owners to assign managers to firms and tasks and points out that different institutional rules (e.g., private capital markets versus state-controlled resource allocation) can be understood as alternative mechanisms for matching owners to competence. Foss et al. (2021) dimensionalize ownership competence into decisions concerning *which* resources to own (matching competence), *how* to create value by owning these resources (governance competence), and *when* to own them (timing competence). These decisions take place in situations with significant levels of ("Knightian") uncertainty. Under uncertainty, decision-makers typically lack, or cannot agree upon, meaningful probabilities they can assign to future events. Instead, while they may rely on formal routines or procedures such as scenario-planning, mental experiments, and the like, decision-making under uncertainty ultimately involves intuitive, subjective *judgments* about the future (Foss & Klein, 2012).

As we argue below, this kind of decision-making is particularly difficult for public actors who, as stewards of resources owned by the public (Klein et al., 2010), cannot exercise the ultimate responsibility that comes with ownership. We use these ideas and augment them with public choice arguments to better understand the effects of government (in)competence in markets and businesses.

We begin with a brief review of Mazzucato's arguments for the entrepreneurial state. We next show that, unlike competitive capital markets, democratic processes for assigning public actors to act like owners of public resources do not select for ownership competence. We show how a political party's true competence may be very different from that perceived by the median voter (Murtinu et al., 2021). Thus, by manipulating voters' rational inattention (Sims, 2003, 2010), incompetent politicians are often in place, and their incompetence leads to the implementation of (too) expansionary policies, which materialize via a massive presence of politics in firms and in markets.

Next, we show how government ownership is conducive to an inefficient market for corporate control for two main reasons. One is that the pursuit of political goals leads to horizontal agency costs, that is, conflicts between principals (private owners and government owners) who have different interests, preferences, and objectives. For instance, government owners may push for the appointment of controllable managers who are not the most economically competent but who are politically aligned with the government agenda. Another reason is that government owners are less capable than private owners of selecting competent managers because of a lack of high-powered incentives, more red tape, inefficient compensation schemes, less talent, and a lack of independence in decision-making.

2 The Myth of the Entrepreneurial State

In the last 40 years, free markets have brought millions of people (especially in developing and underdeveloped countries) out of absolute poverty. Openness of trade and financial markets gave emerging economies (e.g., China between the mid-1990s and the first decade of the twenty-first century) the possibility to attract foreign capital. Foreign direct investment helped to bring about a technology catch-up toward advanced economies. Free-market policies allowed production inputs like capital and human resources to move freely, with money being invested in the most productive investments and capable people choosing the country where the synergy between their individual competences and a country's resources is maximized. Despite such demonstrated successes of free-market policies, many economists increasingly call for a return to older, more interventionist models with massive government involvement in the economy. Economic disruptions such as the 2008 financial crisis and the recent Covid-19 pandemic, despite their different causes and dynamics, are described as instances of market failure that call for preventive or corrective activity by government. Inequality, the rise of tech-based superstar firms, and what some see as a global ecological crisis are also used to motivate increased government intervention. More government control over research and development (R&D) and innovation is argued to be necessary to handle a number of these challenges simultaneously. Policymakers, journalists, and some academics argue that more government involvement here can both curb the dominance of the tech superstars (Dans, 2021), reduce inequality (Keeley, 2015), and provide needed research into how climate change is best handled (Pew Research Center, 2020).

2.1 The Entrepreneurial State

Mazzucato's (2011) account of the "entrepreneurial state" starts from the well-known idea that private companies are often reluctant to invest in technologies with long-term, highly uncertain returns. State actors, free from the profitability requirements imposed by private capital markets, can pursue a variety of innovative projects unattractive to market participants. Sometimes, those investments can pay off, at which point private players enter the arena and manage the technology development process to commercialize the technological outcomes and monetize the investment. In other words, some commercially viable technologies typically emerge out of prior government investment in nascent projects that were not attractive to private investors.

It does not follow, however, that state investment in particular technologies generates net gains; for that, we would need a systematic analysis of the entire portfolio of state projects rather than sampling on the dependent variable. Nonetheless, examples popularized by Mazzucato such as the internet, GPS, and nanotechnology have been used to promote a more general, activist role for the state in

innovation. Mazzucato (2011) calls for government, not decentralized market players such as startups and unicorns, large firms, or venture capital funds, to be the driving force in the development of innovations and technological progress. According to Mazzucato, only the state can play this role because it (properly) socializes the risk of long-term technological investment. The state can invest in whatever technologies it likes because it has access to the taxpayer's bottomless purse. By contrast, private investors operating in competitive markets risk their own money and entrepreneurs are accountable to their financiers, who can withhold future support in the event of poor performance.

In Mazzucato's account, when innovative entrepreneurial firms contribute to societal improvement by means of new products, new organizational processes, and other innovations (Audretsch, 2009), the state deserves credit for providing—at least indirectly, via initial high-risk investments—entrepreneurial firms with the necessary resources and assets to challenge incumbents. Moreover, the state needs to regulate these profit-seeking big players who, in this interpretation, "do little more than free-ride on government-funded research and development activities" (Mingardi, 2015).

It is certainly true that innovation requires long-term, high-risk investments, many of which fail to deliver the intended benefits. Conventional market-failure arguments, as inspired by Walrasian assumptions, suggest that, because private actors often cannot capture the spillover benefits from basic scientific research, they will not invest enough in fundamental breakthroughs (Nelson, 1959; Arrow, 1962); this is the usual justification for public funding of basic science. Mazzucato goes much further, however, insisting that government should guide and direct applied research and development, with state funders displacing private angel investors and venture capitalists in providing resources to innovative companies and projects. There are several problems with this argument, however. First, Mazzucato conflates invention with innovation (Karlson et al., 2021); while the former (an engineering concept) can be performed by a variety of actors, the latter (an economic concept) only makes sense with respect to subjective entrepreneurial judgments and beliefs—about future consumer preferences, market conditions, the value of alternative uses of resources, and so on (Foss et al., 2007; Foss & Klein, 2012)—and the activity of entrepreneurs in combining and recombining resources and assets with the final aim to maximize consumer experience and value (Bylund & Packard, 2021).

Moreover, analysis of alternative means for promoting innovation should be comparative; while Mazzucato focuses on alleged market failures arising from information and incentive problems, she does not address the potential policy failures that also arise from public funding and execution of research and development projects which are also plagued with information and incentive problems—which are likely substantial given the lack of evidence for the success of industrial policies for innovation (Karlson et al., 2021).

2.2 Policy Ineffectiveness

Evidence on social welfare programs such as transfers, government consumption, and public investment is mixed (Brückner & Tuladhar, 2014; Hansson & Henrekson, 1994). Consider universal basic income: In developing countries, Banerjee et al. (2019) show that while several cash transfer programs had positive impacts, targeted measures to reduce extreme poverty were unsuccessful. In the case of Sweden, Bergh (2016) argues that state-sponsored cash transfers for sickness, family allowance, and unemployment reduced relative poverty and income inequality, although Ahmed (1986) shows that government spending in the United Kingdom crowds out private spending and produces negative wealth effects (see also Yuan & Li, 2000). Moving to taxation, income taxation has negligible or negative effects on investment in human capital (Trostel, 1993). Corporate income taxes negatively affect entry into entrepreneurship (Djankov et al., 2010; Gentry & Hubbard, 2000; Keuschnigg & Nielsen, 2003, 2004) and the efficiency of global value chains (Foss et al., 2019), while capital gain taxes are negatively correlated with both entrepreneurial entry and the supply of venture capital (VC) financing (Gompers & Lerner, 1998), although the exact mechanisms are complex and vary with firm characteristics (Henrekson & Sanandaji, 2016). At a more macroeconomic level, Afonso and Furceri (2010) show that both government revenue (indirect taxes) and spending (social contributions, public consumption, subsidies, public investment) are detrimental to the growth of OECD and E.U. countries.

The bottom line is that, in general, investment of public money in unproductive projects leads to higher deficits and debt without a positive impact on aggregate productivity. This translates into a stagnant productivity in the long run, a reduced sustainability of debt (that is, a country needs to pay higher interest rates to refinance its debt, with then fewer resources to be spent on public goods), and to less cash to be used in the case of negative shocks like the recent Covid-19 pandemic.

The microeconomic evidence on government attempts to help innovative entrepreneurial firms is also mixed. Bianchi et al. (2019), Colombo et al. (2011), and Grilli and Murtinu (2012, 2018) find a positive, partial equilibrium effect of direct innovation subsidies. Many other studies reach opposite conclusions. Wallsten (2000) shows that government-funded commercial R&D in the form of Small Business Innovation Research (SBIR) grants fully crowds out privately financed R&D spending. Other studies found small effects of R&D subsidies net of the crowding-out effect (see Zúñiga-Vicente et al., 2014). Paff (2005) shows that R&D tax credits in California targeting biopharmaceutical and software firms did not stimulate contract research with universities and nonprofit research centers. Cappelen et al. (2012) show that the Norwegian tax credit scheme SkatteFUNN does not contribute to new products for the market or enhanced patenting activity. As in the case of R&D subsidies, other studies find more positive effects of tax credits (e.g., Agrawal et al., 2020; Czarnitzki et al., 2011). Interestingly, Kong (2020) shows that being headquartered in states characterized by increases in government spending

is detrimental for firms, because these firms display a reduced innovation output in terms of patent production and patent citations.

2.3 The Effects of Government Ownership

In modern industrial economies, governments typically play a substantial role not only as regulators of private activity but also as owners of firms and industries. For example, the Chinese government has recently taken a stake and one board seat in Beijing ByteDance Technology Co. Ltd., a company that controls the platforms of ByteDance, which owns the popular video service company TikTok. Besides the conventional rationales for government ownership, such as national security, natural monopoly, and so on, public investment has also more recently been justified as a means of providing stable, long-term ownership to firms. Because government has access to the deep pockets of taxpayers, it is less likely than private owners to be constrained by short-term cash requirements and it can take large stakes, held for long periods. This size and stability can, in principle, support the monitoring of managers and lead to effective corporate governance (Chen et al., 2007; Ferreira & Matos, 2008; Shleifer & Vishny, 1986). Moreover, political owners may have key information about future policies, which can reduce the uncertainty faced by firms (Murtinu, 2021).

However, government ownership can also stymie firm performance (Megginson & Netter, 2001) because political owners pursue political goals that are detrimental to firm value (Shleifer & Vishny, 1994). Indeed, the involvement of politicians in firm ownership and government, particularly when they play an active role, likely leads to actions and decisions that do not maximize value creation, even considering that government actors may prioritize different objectives from those of private actors. In technology industries, government ownership can also be used to control technological development and as a form of regulation, pushing firms to adopt technologies and business models that serve the state's objectives instead of the firm's. Regulation can also encourage state-owned or partially state-owned firms to engage in illegal shortcuts and corruption (Mudambi et al., 2013) to recover part of the value lost to excessive regulation and government intrusion (Zeume, 2017).

The overall evidence suggests that government ownership is associated with low governance quality (Borisova et al., 2012). Moreover, when government ownership translates into active governance (for example, in the form of golden shares), governance quality is further reduced. A recent example is given by the effects of robots on manufacturing productivity and employment in China (Jia et al., 2021). While robots lead to productivity and employment growth in private firms, this relationship does not hold in government-owned firms, which fail to make the necessary complementary investments in human and physical capital. Another negative example of government ownership is public venture capital investments. Previous studies on government equity investments in entrepreneurial firms show the inefficiency of public venture capitalists as owners in fostering portfolio

companies' performance (Cumming et al., 2017; Grilli & Murtinu, 2014, 2015), unless they syndicate with private financiers and leave them the leadership and the due diligence of portfolio deals.

In sum, despite some theoretical arguments suggesting advantages of government ownership, the evidence suggests that making government a shareholder, especially when it takes an active role, is not conducive to improved firm governance and performance. For this reason, any purported national or social advantage deriving from government ownership must consider the expected harm to firm performance, including investments in value-creating technological and organizational innovations.

3 Ownership Competence

How does ownership competence inform the debate about the role of the state in guiding entrepreneurial and innovative processes? It is well known that ownership provides incentives to create economic value (Erturk et al., 2010; Villalonga & Amit, 2006) and that problems arise where property rights are ill-defined or costly to trade. The property-rights approach to the firm shows how, by assigning residual claims and control rights, ownership provides incentives for monitoring (reducing agency costs), improves coordination, and stimulates investments in resources that support team production.

However, as emphasized in the recent work by Foss et al. (2021), the ability of owners to create economic value depends not only on their incentives for doing so, but also on their ability. Because ownership conveys residual control over resources (Hart, 1995), the owner's unique idiosyncratic competence drives their ability and efficiency to access resources, invest them in productive projects and activities, and creatively combine, deploy, and recombine resources to maximize value creation. Thus, different owners display different levels of ownership competence (Alchian, 1961). Different categories of owners show a different distribution of competence levels (Bennedsen et al., 2007). What is the direct consequence of this nonuniform distribution of competences? The consequence is that the above advantages about ownership vary across owners and owner categories, such that a key decision for an organization or economic system is *who the owners should be.*

The decision of whom to allocate ownership translates, as theorized by Foss et al. (2021), into a decision about who is most competent at figuring out (1) *which* resources to own (matching competence), (2) *how* to own them (governance competence), and (3) *when* to own them (timing competence). These arguments are particularly important under Knightian uncertainty, when it is impossible to decide in advance how resources will be allocated under various contingencies. When the future is known (or predictable), parties can write detailed contracts that specify actions and responsibilities under different circumstances. Under uncertainty, these decisions must be made after the fact, and someone has to make them. Ownership can thus be defined as the right to make decisions about the uses of resources in

conditions not specified by prior agreement, what Hart (1995) calls "residual rights of control."

This understanding of ownership has led to a flourishing of theoretical and empirical work on how firms are organized and contracts are written. A key claim is the idea that, to maximize value creation, ownership rights should be assigned to those parties whose marginal effort has the greatest influence on a project's positive outcome (Grossman & Hart, 1986; Hart & Moore, 1990). This provides an explanation, not only for vertical integration or horizontal consolidation of production, but for which individuals or groups should own the joint production process. However, following Foss et al. (2021), we argue that the property-rights approach to the firm can be expanded by considering not only the incentives of various parties to use their ownership rights to create value, but their competence in doing so—which the Grossman-Hart-Moore approach assumes to be the same for everyone.

Are government bureaucrats or elected officials likely to be competent owners? Government actors face Knightian uncertainty and unforeseen contingencies as much as private actors (and can create Knightian uncertainty for the latter in the form of erratic economic policies; Higgs, 1997). In the next section, we shift the above arguments from the corporate world to politics and look at the interaction of ownership competence in politics with markets and businesses. As Pelikan (1989, 1993) points out, the process by which ownership is matched with ownership competence—in a market economy, via competition in product and factor markets and by the market for corporate control—is a critical issue in overall societal organization.

How do political processes, democratic or otherwise, allocate ownership and control of productive assets to particular individuals and groups? In democratic systems, public agencies and state-owned enterprises are run by elected officials, civil servants, or bureaucrats appointed by elected officials. As Klein et al. (2010) point out, these government actors are not literal owners, but stewards of resources in principle *owned* by citizens or taxpayers. For simplicity, we focus on elected politicians and their staff and political appointees.

How are politicians selected, and according to what criteria? The behavioral political science literature observes that "the people who are called upon to make reasoned choices may not be capable of doing so" (Lupia & McCubbins, 1998): Simply put, politicians are often incompetent and not up to the tasks to which have been appointed. Moreover, voters face information asymmetries when judging the competence of politicians (Martinelli, 2001). Thus, incompetent politicians can manipulate such asymmetries and sell themselves to voters as talented and capable with respect to, for example, administering the public budget. This manipulation can get those politicians into office. For instance, politicians may announce a loose fiscal policy, which is financially unsustainable in the long run. However, being that most voters do not allegedly understand inter-temporal budget constraints, incompetent politicians can convince those voters about their ability—which is poor but sold to voters as high—to implement loose fiscal policies and, at the same time, assure budget sustainability to future generations. This lie cannot be captured by voters

because of the above information asymmetries (Rogoff & Siebert, 1988; Rogoff, 1990).

The above arguments do not hold for all voters. Certain voters are endowed with better individual cognitive abilities and are then better equipped than others to collect and process information on proposed policies, thus inferring more precisely the competence of politicians (which is never fully observable). The announced policies represent a signal through which politicians aim to oversell their abilities in a specific policy domain. This signal is surrounded with noise, which is larger for voters with lower cognitive abilities. Thus, politicians can exploit and shape such noise to manipulate (certain) voters' beliefs about their competencies.

For example, in the case of fiscal policies, Murtinu et al. (2021), inspired by the financial literacy literature (Lusardi & Mitchell, 2014; Fornero & Lo Prete, 2019), suggest that the relevant cognitive ability is the voter's mastery of economic knowledge. Even if this "noise mechanism" does not work for all voters, what matters for a politician to be elected is the vote of the median voter (for a review of the median voter model and its implications, see, for instance, Congleton, 2004). Thus, assuming that half of the voting population is not capable of accurately inferring the (unobservable) (in)competence of politicians through the announced policies, it is rational for politicians to engage in manipulation. As shown by Murtinu et al. (2021), politicians "attempt to manipulate the inference on their ability through excessively loose platforms."

The incompetence of politicians thus leads to the implementation of (overly) expansionary policies, which materialize via a massive presence of politics in firms and in markets. Politicians can create uncertainty in markets for two reasons. First, frequently changed regulation makes it more difficult for firms to estimate future returns, thus reducing investments. Second, politics in markets leads to ill-functioning markets for corporate control, which makes the matching between competent managers and firms less efficient. For example, policy uncertainty, as measured by the Economic Policy Uncertainty Index,[1] increased substantially after April 2020 as lockdowns, school and business closures, travel restrictions, and other new rules emerged at the start of the Covid-19 pandemic.

4 Government Incompetence in Markets and Firms

A further problem with an active state role in entrepreneurship and innovation is that a state's interventions interfere with private ownership competence. First, by increasing uncertainty, they make it more difficult for owners to exploit their governance, matching, and timing competences. Second, by interfering with market competition, they distort the process by which owners and their competence are matched with firms.

[1] http://policyuncertainty.com

The theoretical premise of top-down innovation policies, which lie at the core of Mazzucato's advocacy of the *entrepreneurial state*, is that imperfect markets fail, and only the state can provide a solution to such a failure. According to this argument, market failures mean R&D investments are too low because private players, knowing they cannot appropriate all the value they create, lack the incentives to invest "enough" in innovation (Klette et al., 2000). As Baumol (2002) noted, if these private actors are competing with each other, it only requires a few to stimulate substantial R&D investments. Moreover, who knows the optimal level? How is it possible to calculate the social optimum?

Especially under Knightian uncertainty, there are no answers to those questions. Thus, a policy change under Knightian uncertainty contributes to even more uncertainty for entrepreneurs, with negative backlashes for investments. Under Knightian uncertainty, the identification of future scenarios is far from unanimous across market agents and comes from the exercise of entrepreneurial judgment. In these situations, centrally planned structures like the state are very inefficient in collecting and processing the information necessary to appraise and assess profit opportunities, new technologies, etc., and then in implementing effective policies. By contrast, it is competition in decentralized markets that makes knowledge available to innovative entrepreneurship (Hayek, 1945; Schumpeter, 1934).

An example of the inefficiency of top-down innovation approaches is provided by comparing the commercialization of university intellectual property in the United States and Sweden (Goldfarb & Henrekson, 2003). Sweden's policies are typical of those in most European countries, depending on direct government action to create mechanisms for technology transfer that foster commercialization. The United States, by contrast, relies on a decentralized model in which academic institutions experiment and search for the best way to commercialize their research outputs. Goldfarb and Henrekson (2003) find a noticeable lag in the commercialization of academic research in Sweden, suggesting the advantages of a decentralized approach.

Besides possibly creating further uncertainty in already uncertain markets, political intervention in markets may make the market for corporate control less efficient. Building on Alchian (1950) and Winter (1971), Pelikan (1989, p. 281) argues that the market for corporate control strongly influences the efficiency through which firms select managers and executives on the basis of their economic competence, defined as "the competence to receive and use information for solving economic problems and taking economic decisions." Economic competence is tacit (Polanyi, 1962) in the sense that it can be thought of as a form of informational capital or cognitive ability to use and process information, which is intrinsically attached to the manager. Economic competence is then not directly observable, and a firm's owners need to use cues or signals (e.g., a manager's background or previous performance) to select the most suitable manager. Thus, *owners need to be competent to select an economically competent manager*. Indeed, it is not (only) a matter of incentives: The same incentives given to two managers equally motivated to maximize the same utility function produce different outcomes on the basis of their different economic competence.

A well-functioning market for corporate control—that is, *a market in which ownership titles tend to flow into the hands of owners and ownership groups with higher levels of ownership competence*—can replace a lazy or incompetent manager, thus pushing managers to maximize a firm's shareholder value because of the threat of takeover or replacement. Given that the economic competence of managers is a scarce resource in the market (Mackey et al., 2014; Pelikan, 1989), it is vital that the process through which managers are matched with firms is efficient, so as to bring the economic system to a new configuration characterized by a higher dynamic efficiency. The key question here is "is it the competence of private owners or the competence of the government that leads to the best matching between managers and firms, that is, the best matching between the economic competence of each manager in the market with the task required by each firm?" (Heiner, 1983).

Here we are not interested in the institutional features that hamper the most efficient matching between firms and managers, such as government restrictions on private ownership and transferability of capital; by contrast, we theorize why government ownership is conducive to an inefficient matching process. The focus is placed on government ownership because, at the firm level, political involvement often means that governments become owners targeting firms in need of equity capital. As suggested by Murtinu (2021, p. 280), in principle "government equity capital is more patient than private equity capital, and this is especially important in the context of technology ventures where private investors may look for short term gains, thus targeting only projects with shorter time horizons and closer to the market." Hence government ownership has potential advantages for firms, such as the availability of short-term cash, which is necessary for investments and access to resources (Chen et al., 2007; Ferreira & Matos, 2008; Shleifer & Vishny, 1986). Another advantage is the possibility for political owners to convey information about future policy shifts (Murtinu, 2021) that may help the firm to better organize its production function and its strategies.

However, government owners will typically not seek to maximize value (Shleifer & Vishny, 1994; Megginson & Netter, 2001) due to conflicts of interest (1) between owners, (2) between the government and government owners, and (3) between government owners and managers. First, government owners are typically politicians or agents placed by politicians that aim to pursue political goals in addition to, or sometimes in substitution of, economic goals. This may lead to horizontal agency costs, also called principal-principal conflicts (Colombo et al., 2014; Young et al., 2008), that is, conflicts between principals (private owners and government owners) who have different interests, preferences, and objectives (Connelly et al., 2010; Walsh & Seward, 1990).

Second, political ownership may exert pressure (for instance, on the board of directors) to appoint managers who are not the most economically competent but who are politically aligned with the governmental agenda. This means that different from private owners, government owners prioritize the control of the appointed manager—for instance, via (tacit) promises of future appointments in other government-owned firms or entities—and not their competence; thus, government

owners may be less likely than private owners to both give ownership rights to the appointed manager and select managers on the grounds of competence.

Finally, government owners are less capable than private owners of selecting competent managers for three main reasons, all of them related to contracts and individual talent. Let us take the example of a particular class of owners: (private and public) venture capitalists (VCs). First, public VCs are less capable than private VCs of incentivizing the appointed manager not to engage in perk consumption, empire-building strategies, and other non-value-maximizing behaviors. For instance, De Bettignies and Ross (2009, p. 358) argue that, "[p]rivate development can dominate public financing through more efficient termination decisions for bad projects, resolving soft budget constraint problems." Indeed, government ownership may be characterized by more red tape than private ownership. Second, the difference in compensation between public and private VCs is huge. While private VCs "typically are structured with a 2% fixed fee (based on committed capital) and a 20% performance fee, with hurdle rates and clawbacks in the event of poor performance" (Cumming et al., 2017, p. 441), public VCs receive a fixed wage. Third, because of these compensation issues, more talented people self-select into the private sector, or leave public VC funds in favor of private funds. This difference in talent between private VCs and public VCs is also due to the impossibility of public VCs taking independent decisions once owning a company. Indeed, most managerial or administrative decisions of public VCs as owners depend on the government's goals and need to operate in a framework of politics.

A further reason that government ownership typically lacks competence in the selection of competent managers is provided by the incomplete contracts approach to privatizations (Schmidt, 1996a). As suggested by Dixit (1997, p. 378), "Government agencies and public enterprises are generally thought to perform poorly because their managers and workers lack the high-powered incentives that are believed to prevail in private firms. This belief motivates many attempts to privatize public services."

In sum, while there may be heterogeneity across and within countries, the incompetence of politicians and bureaucrats as effective owners, taken together with their pursuit of noneconomic goals to meet their constituencies' preferences so that they themselves can remain in office, is likely to orient government owners toward inefficient projects, select less competent managers for such projects, and generally play the role of venture capitalists with taxpayers' money in ways that are not in the long-run interest of those taxpayers.

5 Concluding Remarks

Mazzucato (2011) deserves credit for reinvigorating the discussion of the role of the state in the innovation process. As she correctly points out, innovation is a complex and messy process, with many fits and starts along the way, and historically state agencies and state funding have played important roles in promoting technological progress. Moreover, some of the most successful recent commercial innovations,

particularly in information technology, relied on discoveries and developments from state-funded projects.

However, we think this evidence does not suggest a stronger role for the state in promoting entrepreneurship and innovation, much less a fundamental rethinking of the cumbersome, bureaucratic, politicized governmental apparatus as a praiseworthy *entrepreneurial state*. States fund a lot of R&D projects and, inevitably, some will end up being commercially (and socially) beneficial. But this is simply the law of large numbers! The relevant question is whether heavy state involvement gives us better innovations than we otherwise would have had, and here both theory and evidence are less persuasive.

Specifically, we have argued here that the case for the entrepreneurial state rests on an undertheorized and superficial view of the state itself, one that discounts what we know from property-rights economics, public administration, technology strategy, and public finance about how state funding and intervention can harm market performance. In particular, we have pointed to the *ownership competence* perspective as a missing element in these discussions. When considering the relative competence of private and public owners, the case for government intervention in markets for technology becomes even weaker. Private ownership and competition tend to direct ownership titles into the hands of those with the highest levels of ownership competence (Foss et al., 2021), and these are likely to be private entrepreneurs and firms, not state bureaucrats. Entrepreneurship, not state action, is the key to successful innovation, economic growth, and improvements in overall well-being.

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