

Bottom-Up Policies Trump Top-Down Missions



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Abstract Mission-oriented innovation policies are becoming increasingly popular among policymakers and scholars. We maintain that these policies are based on an overly mechanistic view of innovation and economic growth, suggesting that a more bottom-up approach is called for. By invoking an entrepreneurial ecosystem perspective, we point out that innovative entrepreneurship requires many other actors—besides the entrepreneur—whose skills and abilities are necessary to realize an entrepreneurial project. When mission-oriented policies play a large role in the economy, connections between actors in the ecosystem risk becoming distorted. An efficient and well-balanced entrepreneurial ecosystem requires instead an institutional framework that levels the playing field for potential entrepreneurs and encourages productive entrepreneurship. To promote this kind of system, we discuss in more detail eight key areas where appropriate horizontal or bottom-up policy measures can foster innovation and, in the end, the welfare-enhancing productive entrepreneurship policymakers and scholars strive for.

Keywords Collaborative innovation bloc · Entrepreneurial ecosystem · Entrepreneurship policy · Institutions · Public choice

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Introduction

As the European Union, national governments and regional policymakers have been elevated to the forefront of the innovation process, a growing body of policies are being put in place with larger budgets and higher expectations on their net contribution to innovation and renewal. This development has been inspired by what at times is referred to as the third generation of innovation policy.

Over time, the literature on innovation systems has become increasingly concerned with *directionality*, i.e., the idea that governments need not only create conditions for innovation and entrepreneurship but also set the overall direction for effort and resource mobilization. Several scholars have paved the way for the emergence of this approach. Schot and Steinmueller (2016) used the term “transformative change,” Borrás and Edler (2014) wrote about “socio-technical systems,” and Geels (2004) introduced the notion of “system innovation.”

These ideas were synthesized and popularized by Mariana Mazzucato (2018, 2021), who forcefully disseminated the vision of a so-called mission-based economy guided by a proactive state, a message that has received worldwide attention and gained influence among policymakers and economic researchers alike. Her main argument is based on the notion that a sustainable, inclusive, and well-functioning economy requires a potent and committed state that fosters innovations by shaping markets and guiding the economy in ways that aim to achieve bold common goals at the societal level—an entrepreneurial state. By using the term *missions*, she manages to imbue her message with an almost spiritual sense of urgency—government-initiated endeavors are the only way forward for solving the Grand Challenges faced by nations and, indeed, the world.

According to Mazzucato, this is not only the way forward for progressive states in the present day but also the way many Western states through history have acted successfully (before cynical ideologies and theories with questionable agendas cast doubt on the legitimacy and efficaciousness of the political sector). This claim is supported by empirical cases, ostensibly showing the key role the state has played in implementing new successful technologies and extraordinary innovations, debunking the myth of the inefficient and bureaucratic state. Mazzucato’s reasoning paves the way for a more proactive and interventionist state, which steers economic development by means of top-down or vertical industrial policies. Based on Mazzucato’s influence as a worldwide expert, this perspective is now also high on both research and policy agendas.

Until recently, Mazzucato’s ideas remained largely unquestioned. This is no longer the case. Her reasoning and the ensuing policy conclusions are beginning to face serious critique from both a theoretical and empirical point of view (Wennberg and Sandström 2022). Critics have, for example, pointed out that her historical examples are either exaggerated (Yerger 2023) or grossly misleading (McCloskey and Mingardi 2020) or that her underlying vision ignores or greatly underestimates fundamental challenges faced by the political sector, including

knowledge and incentive problems (Muldoon and Yonai 2023; Karlson et al. 2021; Bergkvist et al. 2022; Schnellenbach 2024).

An innovative idea or creative vision that is flawed should of course be duly criticized, but unless a more viable alternative is presented, the flawed idea is unlikely to be phased out. Presenting such an alternative is the prime purpose of this chapter. It thus takes a positive approach, complementary to the critical dissections of Mazzucato's body of work presented in other chapters of this volume and elsewhere.

A flourishing economy requires, and in fact stems from, a well-balanced entrepreneurial ecosystem. Hence, in this chapter we discuss what we consider to be the most important points for supporting a well-functioning ecosystem and identify the key institutions and policy measures that facilitate the emergence of an entrepreneurial economy without relying on an interventionist top-down or even *dirigiste* approach. The pertinent policy measures cover a wide array of issues. More specifically, we will, in more detail, discuss eight important institutional areas and how their design affects the driving forces for productive entrepreneurship. This will be contrasted with Mazzucato's notion of a top-down, mission-oriented approach. Except in extreme cases such as war and other acute existential threats, our conclusion is unequivocal: bottom-up policies trump top-down missions.

Top-Down Missions

Numerous scholars have already reviewed and critically evaluated Mazzucato's views regarding optimally efficient management of the economy.¹ In short, she asserts that society is held back by a flawed ideology ("conventional wisdom") restricting the economic role of the government. Instead, a prosperous future requires the government to assume a more active role in guiding the economy in the "right" direction through a top-down, mission-oriented approach.

Using the traditional political tools—adjusting the total level of taxes, government expenditures, or money supply through fiscal and monetary policy—is said to be "rudderless" and too passive as it has no explicit direction. How the resources in the end will "trickle-down" through the system will, in this case, rely on the spontaneous market process, implying that the end result may be unsustainable and inappropriate.

What is needed is a political sector controlling the direction of the economy in combination with civil servants actively working together with economic agents, shaping new markets, and co-creating value in existing markets. In this way, a more political and planned agenda can, according to Mazzucato, be driven by public-interest consideration rather than profit where growth is better balanced and resilient and where risks and rewards are more equally shared.

¹See, e.g., the contributions in this volume and in Wennberg and Sandström (2022).

The government and public sector must thus be more active, transforming itself into an “innovation organization”—an entrepreneurial state energizing the economy and working as a catalyst for investment, innovation, and collaboration, making it possible to achieve bold objectives and deliver on ambitious outcomes. The state must reclaim its capabilities and privilege to shape markets and guide the economy in ways that target necessary and urgent common goals, i.e., missions. According to Mazzucato, the government can always increase public expenditure to the extent required to achieve the alleged missions—an idea she denotes as the government functioning as an “investor of first resort” in a travesty of the more widely accepted economic idea of “lender of last resort.”²

Thus, Mazzucato can be said to advocate the increased use of vertical—what we call top-down—innovation and entrepreneurship policies targeted toward specific industries, sectors, or even certain companies to encourage innovation in particular fields or areas. By contrast, horizontal—what we call bottom-up—policies apply broadly across all sectors of the economy, focusing on improving the overall conditions for innovation, rather than targeting specific sectors.

Our view of how innovations come about and the role of the state differ in fundamental ways from that of Mazzucato. To expound our view, we will begin by discussing the functioning of the entrepreneurial ecosystem, which enables a better understanding of how the economy creates and explores valuable knowledge. In the subsequent section, we will discuss in some detail a number of key areas where appropriate horizontal or bottom-up policy measures can foster innovation and welfare-enhancing, productive entrepreneurship.

The Entrepreneurial Ecosystem

Developing socially beneficial innovations requires entrepreneurship. But entrepreneurs do not act in a vacuum. The development of entrepreneurship requires an *entrepreneurial ecosystem*, i.e., a system or environment in which entrepreneurs, startups, and growth-oriented businesses can flourish and grow. This system comprises a variety of interconnected elements, both formal and informal, that collectively support and shape the entrepreneurial journey. Several of those elements are either (wholly or partly) financed by the government or a result of government

²This idea is based on the heterodox theory, denoted modern money theory (MMT)—also explicitly referred to by Mazzucato (2021, pp. 183f)—claiming that the government does not have any budget restrictions as it is backed up by a central bank that can “create” any amount of money for the mission at hand. This idea has already been debunked several times by the (mainstream) economics profession. See, e.g., Drumetz and Pfister (2021, p. 355), who conclude that “the meaning of MMT is more that of a political manifesto than of a genuine economic theory.”

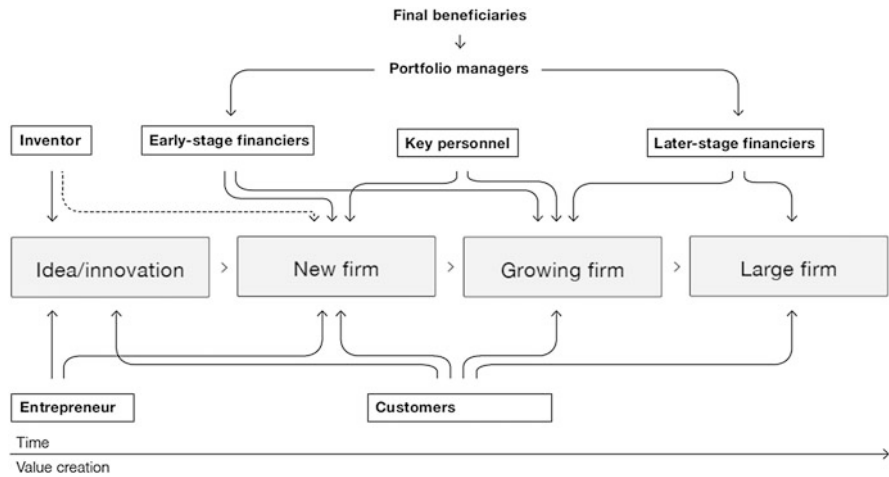


Fig. 1 The collaborative innovation bloc. *Source:* Elert and Henrekson (2021)

decision-making, notably institutions for education, training, and basic research, support organizations, the regulatory framework, and the physical infrastructure.³

The transformation of new knowledge and innovations into real value in new and growing businesses requires private sector agents with complementary skills and resources, what Elert et al. (2017) and Elert and Henrekson (2021) denote a *collaborative innovation bloc*. In addition to the entrepreneur, at least five additional actors with complementary competencies have been identified: inventors, key personnel (managers, R&D specialists, etc.), early-stage financiers (business angels and VC firms), later-stage financiers (buyout firms, institutional investors, etc.), and demanding customers.⁴

If any of the actors or their competencies are missing or are in insufficient supply for some reason, there is a significant risk that innovations cannot be developed to their full potential or perhaps not be realized at all. Figure 1 illustrates schematically what the collaborative innovation bloc looks like—from idea to full-scale industrial production—and how the different actors in the system contribute to the development through the different phases. Although all actors and the functions they perform are needed, the same person may perform more than one function: for example, an entrepreneur may also be an inventor or act as a manager. In order for policymakers and civil servants to design adequate policy measures, they must consider the entrepreneurial ecosystem in its entirety—with all its parts and actors—and try to understand the logic of the system.

³Wurth et al. (2022) provide an in-depth discussion of the various components of the entrepreneurial ecosystem.

⁴Lucas (2019) suggests that the model could be extended with another layer also including those who advocate, write, and enforce the rules that competencies are guided by (such as politicians, regulators, and experts).

It is important to note that no single person “owns” or controls the ecosystem. On the contrary, it is the rule rather than the exception that it emerges spontaneously from below as stakeholders interact on a voluntary basis. No one understands more than a fraction of how the ecosystem works, and no one necessarily feels responsible for ascertaining the efficient functioning of the system. Instead, the development of the ecosystem is highly experimental, and serendipity often plays a role in innovation and subsequent business success.

The opposite approach is to try to resolve Grand Challenges through bold public missions launched by the government where vertical measures tied to the mission are supposed to guide the economy and the various actors toward the desired solution. However, this is not congruent with how an entrepreneurial ecosystem works. In reality, actors search for suitable solutions and forms of cooperation in a trial-and-error process that cannot be efficiently directed from above. It is therefore not possible to ensure a more successful development of innovations by means of top-down command and control measures. The ignorance and uncertainty inherent in all innovation activities are the main reasons why caution and humility are called for.

Hence, the state is rarely better placed than private actors to address failure in the innovation process.⁵ A well-functioning ecosystem simultaneously reduces two related forms of failure (Eliasson 2000). The first type of failure involves rejecting (prospective) winners, often because the entrepreneur or other actors in the ecosystem become too pessimistic. We would argue that the mission-oriented argument draws much of its strength from the fear of this type of mistake—the economy needs a visible hand pushing the economy in the “right” direction that would not take place “spontaneously.” The second type of failure is more subtle and involves allowing failing ventures to survive for too long because of misjudgments regarding competitive conditions and the viability of the innovation. Market forces in the ecosystem tend to systematically eliminate such mistakes because “market experience reveals the unfeasibility of some (hitherto sought after) courses of action and the (hitherto unnoticed) profitability of other courses of action” (Kirzner 1997, p. 71). Collaboration among the actors in the ecosystem is of fundamental importance in identifying and correcting such mistakes early and at the lowest possible cost.

As it is difficult, if not impossible, for politicians and government employees to determine in advance who will be a successful entrepreneur (or what will be a successful business idea), it is misguided to try to support a particular group or a particular type of entrepreneurship. A system based on special benefits and regulations for selected categories also tends to become extremely complicated, with extensive rules, exemptions and exemptions to the exemptions. In turn, significant administration and information costs result, which may make things worse for the very type of company that the measures were intended to benefit. In addition,

⁵ Autio (2016, p. 22) echoes this idea claiming that top-down approaches “build on the assumption that it is possible to identify clear-cut ‘failures’ in the functioning of a given market or an innovation system” and that such failures “can be fixed through top-down intervention.”

cumbersome administrative systems encourage unproductive and destructive entrepreneurship by encouraging extensive lobbying efforts (Baumol 1990). Once politicians begin to grant favors to a particular group, good arguments for increasing the number of beneficiaries will abound.

Hence, it is doubtful whether government early-stage investments can be a recipe for success, as there is no sure method for selecting winners. The evaluation process developed in the private venture capital (VC) industry is complex and relies heavily on tacit knowledge and experience-based judgmental decisions. By contrast, a government agency, which is accountable to its constituents, is not and can never be mandated to act based on tacit knowledge and experience-based judgments. Moreover, VCs have an important screening function and provides management and market expertise (Croce et al. 2013; Landström and Mason 2016). While it is true that, at best, VC actors cannot be said to be more than moderately successful in finding the future winners among all high-risk projects (Svensson 2008; Gompers et al. 2009; Lerner 2020), the VC strategy typically includes investing in many projects to manage this problem.

While it is possible for governments to pool risks as well, the whole purpose of the VC business model is to shift extremely risky projects to a more acceptable level of risk in a diversified portfolio of investments. This harmonizes the incentives for investors, VC partners, and entrepreneurs. If the government is better at pooling risk, it is presumably because it can spread the costs of its failed investments across the entire taxpayer community. While it is unproblematic for private actors to bear high risk, it is difficult to justify, in a democratic setting, that politicians and civil servants take risks with taxpayers' money in the same way. The lack of "skin in the game" also means that the incentives to learn from mistakes are greatly weakened, and a risk that results in "failing to fail" (Lucas 2019).

A far better strategy to tackle Grand Challenges such as climate change is government creation of frameworks that incentivize economic agents to search for efficient solutions. A case in point is a cap-and-trade system for greenhouse gases. Such a system sparks innovation activities across the board to find efficient ways to reduce and eventually stop emissions altogether. In such a system, the crucial selection mechanism remains operative, and a large number of experiments will be made within the framework. Over time, it will become clear which solutions turn out to be most efficient, and none of the original experiments will have been so large that a failure will have disastrous effects (Harford 2011).

At the end of the day, policymakers should, as far as possible, avoid tampering with the market's search process where new ideas are identified, commercialized, and screened. What they can and should do is to design an institutional framework that rewards productive entrepreneurship where a well-functioning entrepreneurial ecosystem is most likely to emerge spontaneously. Next, we will discuss what areas and what policy measures are most likely to be of substantive importance in this respect.

A Bottom-Up Approach

There is no simple and obvious top-down *quick fix* that stimulates and generates more successful entrepreneurial activity regardless of the quality of the ecosystem or the institutional and cultural background. The nature of politics, with its election cycles, tends to encourage campaigns with far-reaching visions based on a proclaimed top-down approach. But the political sector is not guided by an altruistic, omniscient, omnipotent, and enlightened ethos which resolutely aligns its economic policy with the most up-to-date knowledge in relevant areas. Political considerations, knowledge problems, self-interest, and rent seeking imply that society will never attain (or perhaps never even strive for) an ideal world with optimal ways of reaching commendable goals. Moreover, major changes in the regulatory framework will invariably give rise to unintended consequences that are impossible to predict.⁶

Economic reality consists of billions of heterogeneous individuals and firms but lacks an altruistic and omniscient government sector equipped with superior knowledge and forecasting abilities. Therefore, a more bottom-up approach is called for. As it is impossible for private and government actors alike to identify how, where, and when the next successful disruptive innovation will emerge, profoundly altering the development of the economy, the primary objective for policy should be to level the playing field, to ensure that no potential paths forward are unnecessarily blocked, leaving the final selection to the entrepreneurial *society* rather than the entrepreneurial *state* (e.g., Elert and Henrekson 2022; Sanders et al. 2024).

The starting point for this approach is the entrepreneurial ecosystem. Long-term economic development will largely depend on the quality of new entrepreneurial firms and on how well the market selection process works. Entrepreneurship cannot be planned or mandated, but an environment can be created where successful entrepreneurs are more likely to be identified and chosen through a market-like selection process. If politicians and bureaucrats want to increase innovation and entrepreneurial activity, the best way to do so is to create institutional framework conditions that take this into account. Such policies will in general reward

- education,
- knowledge transfer,
- competition, and
- successful productive entrepreneurship,

while penalizing methods of acquiring wealth without contributing to its creation such as corruption and rent seeking, e.g., in the form of lobbying for special benefits and obstructive litigation.

⁶Cf. Lucas (2019), who argues that a discussion about the role of government in the innovation process should include a public choice perspective taking into account the problems and limitations inherent in the political sector.

Below, we will in more detail present a smorgasbord of measures and identify eight policy areas that we consider important for all parts of the ecosystem to promote innovation and entrepreneurial activity.

Rule of Law and Property Rights

Our first policy area involves the legal system itself. An essential condition for the proper functioning of the entrepreneurial ecosystem is the rule of law and protection of property rights. If the rule of law is respected and the judicial system is disinterested and efficient, entrepreneurs will be more willing to invest time and resources on long-term projects, as they can be confident that their assets and potential future profits will not be unduly seized in the future (North 1990; Rodrik et al. 2004). Strong protection of property rights means that potential entrepreneurs and other actors in the ecosystem can expect to keep the lion's share of the surplus they create. Similarly, entering into agreements and carrying out transactions with other parties are less risky. A well-functioning society characterized by the rule of law enables greater specialization and division of labor. Therefore, entrepreneurs can more easily exploit their ideas without having to internalize the entire value chain—in other words, they do not have to do everything themselves. Access to external equity financing and complementary skills can also be gained based on contractual agreements (de Soto 2000).

Without secure property rights, unproductive entrepreneurship develops in the form of crime syndicates and mafia-like organizations that fill the void left by the absence of the rule of law. In such cases there is a significant difference between formal laws and their enforcement in practice.

Taxation

The second aspect involved in a healthy bottom-up approach is the design of the tax system. The taxation of entrepreneurs' income has a major impact on their net worth, but the overall design of the tax system is also important. With all its details, exceptions, and exceptions to the exceptions, the tax system affects the entrepreneur's return in relation to how other actors are taxed and of course also the existence and incentives of the other actors in the entrepreneurial ecosystem.

Tax rates should generally be low or moderate and predictably so. A simple, stable system with few exceptions is preferable to a tax system using targeted exceptions and special rules. For the ecosystem to flourish and for the path from idea to industrialization to work well, the tax system should be as neutral as possible between different ownership categories, sources of finance, firm sizes, and industries.

Taxes should not prevent key employees and entrepreneurs from obtaining a fair stake in the substantial capital value that materializes when a successful business is developed, even if they lack financial resources of their own. This can be achieved through adequate tax rules pertaining to stock options that allow state-contingent contracting and vesting and where capital gains are taxed at a low rate and not until the stock options or the shares received are eventually sold (Braunerhjelm and Henrekson 2024, Chap. 6).

Unless skilled specialists who need to be recruited can receive some of the capital value they are instrumental in creating, they are likely to prefer a career in incumbent firms where salaries are higher and the risk of unemployment is lower. Favorable stock option taxation is also important for the professional VC sector since it provides a much-needed instrument to incentivize both founders and key personnel.

Savings and Capital Formation

The policy debate often highlights the importance of promoting savings and wealth accumulation. However, the type of savings is probably more important than the level itself. Even if there is a high level of savings in the economy, a large part of what is saved in various fund systems is often not available to finance investments in risky entrepreneurial ventures. Many new businesses find it difficult to obtain capital from large institutions and have to rely on other sources (family, friends, personal wealth). Studies often show that the difficulty in accessing capital hampers the entrepreneurial ecosystem (Parker 2018, Chap. 12).

A long-term solution to this problem is to ensure that not all savings are channeled into funds that are barred from investing in unlisted high-risk firms and to allow pension funds (to which a growing share of all savings is channeled) to invest part of their assets in entrepreneurial projects and not only in listed securities and real estate.

As new entrepreneurial firms cannot use debt financing to any significant degree, the regulatory framework should be as neutral as possible between debt and equity financing. Overall, the regulatory framework should encourage private wealth creation and the creation of a dynamic VC sector, especially for early-stage financing.

The public sector may, directly or indirectly, support the VC sector to mitigate the above problems. The state can, e.g., use some of its tax revenues to directly provide the market with venture capital, either through its institutions or together with private actors. However, this type of support presents some cause for concern, as already discussed.

Neither theory nor practice suggests that government agencies will be better able than venture capitalists or business angels to evaluate the future success of a particular firm or a specific project. Existing evidence suggests that public venture capital appears to be less effective at stimulating innovation than private capital or a mix of private and public capital (Bertoni and Tykova 2015; Cumming et al. 2017).

According to Bloom et al. (2019, p. 178), “removing constraints on the development of an active early-stage finance market (like angel finance or venture capital) might be a reasonable policy focus” to stimulate innovation. These sectors have historically faced high barriers in many countries. This was also the case in the United States until a number of reforms around 1980 paved the way for the emergence of today’s VC sector. Without these reforms, the emergence of Silicon Valley would hardly have been possible (Fenn et al. 1995). The reforms that made a difference was, on the one hand, the reduction of both capital gains taxes and taxation of capital gains for stock options in young entrepreneurial firms and, on the other hand, the right of pension funds to invest in high-risk securities including VC funds (Gilson and Schizer 2003).⁷

An appropriately designed tax policy is not the only way the government can support early-stage financing of entrepreneurial firms. For example, public agencies can provide soft loans (loans that do not require collateral or personal guarantees and that, under some circumstances, can be waived) to improve the supply of risk capital in the market. However, the effects of such soft loans are generally disappointing, partly because politicians, for political reasons, may be tempted to establish a number of agencies that are authorized to offer loans that target specific regions and/or industries. A complex maze of terms and conditions, often lacking consistency and encouraging strategic and short-term behavior, thus results.

Based on the reasoning above, it is doubtful whether channeling more government funds into venture capital markets is a successful strategy. VC financing is more likely to be stimulated if the expected returns of innovative projects are higher because of, for instance, reduced corporate or capital gains taxes. The existence of exit opportunities also energizes the VC industry (Da Rin et al. 2006).

Labor Market Regulations and Social Security

The fourth policy area we would like to highlight involves the labor market and financial security for times when workers are not employed. Research shows that labor market mobility is associated with higher rates of innovation (Kaiser et al. 2015; Braunerhjelm et al. 2020). The regulatory framework related to the labor market should be designed to facilitate the recruitment of a suitable workforce with the right skills and not make it unnecessarily difficult to adjust the composition and size of the workforce. High levels of job security, such as strict regulation governing the order of dismissal, make it difficult to recruit key personnel who have secure, salaried jobs in other sectors. Stringent job security mandates also increase the

⁷This view of capital gains taxation can be contrasted with Mazzucato (2021, p. 22), who claims that lower capital gains taxation drives away investments from the real economy, rewarding short-term investment in financial assets.

opportunity cost of switching employers and joining entrepreneurial projects (Ho and Wong 2007; van Stel et al. 2007).

Exempting small businesses from certain employment protection rules may sound like a reasonable measure but will in practice act as a tax on business growth and reduce the willingness of small businesses with potential to grow. Allowing a dual labor market to emerge where temporary workers have no (or greatly reduced) protection while permanent workers have extensive protection is also not a sustainable strategy. Temporary workers with low protection will have weak incentives to acquire firm-specific knowledge and to be loyal to the firm, while those with permanent contracts will be reluctant to change jobs even if it would be socially beneficial. Such dichotomized labor markets tend to be less innovative.

A relatively generous unemployment insurance scheme with extensive retraining opportunities would reduce the need for extensive and strict employment protection (Kreiner and Svarer 2022). Such a “flexicurity” system would facilitate entrepreneurial activity and prevent key individuals or potential entrepreneurs from being “stuck” in a permanent position in an established large firm. In general, social benefits should not be linked to a specific job; instead, benefits should, as far as possible, follow the individual, for example, if he or she leaves a permanent job and becomes an entrepreneur. This would make the labor market more flexible and increase people’s willingness to move between jobs and firms (Audretsch et al. 2002).

Product Market Regulations

Product market regulations and their various forms comprise the fifth policy area which we will address. An extreme form of product market regulation involves granting a monopoly in a market to a specific firm—something that used to be common in the telecom industry and in radio and TV. Other examples include requirements for state licensing, detailed requirements regarding product design, and rules that stipulate which production methods to use. To encourage entrepreneurship, the markets for goods and services must be subject to a regulatory framework that facilitates the search for information and knowledge to discover and create new entrepreneurial opportunities.

Established and dominant market players should not be able to abuse their position, and all markets should, as far as possible, be subject to competitive pressure. This requires that the regulatory framework does not hamper the ability to start new businesses and that protected sectors are opened up to outside competition. Weak competitive pressure reduces the incentives for ecosystem actors to adopt innovations and new technologies. Many rules may create unnecessary barriers to free enterprise, to the detriment of economic efficiency and development (European Commission 2015).

Regulations that reduce the competitive pressure also implicitly blunt incentives to reallocate capital and labor from low-productivity firms to firms with higher

productivity. For instance, such lock-in effects may result from public procurement rules that lock in government institutions and agencies to a specific supplier for extended periods. Because considerable productivity differences exist between firms in a particular industry at a given point in time, high-productivity growth cannot be achieved unless resources can be transferred across firms relatively smoothly. Depending on the industry's composition and the workforce's skills, these effects may vary (Arnold et al. 2011). Nevertheless, growth emanates mainly from churning (firm and job turnover) and restructuring—primarily shifts in production from less to more successful firms within narrowly defined industries, rather than from declining to growing sectors (Caballero 2007).

Insolvency Law

While well-functioning ecosystems minimize the occurrence of mistakes, failures are still both common and inevitable. All entrepreneurial activity is inherently experimental, and it is the rule rather than the exception that some businesses and entrepreneurs end up in financial distress or insolvency. However, entrepreneurial failures need not be seen as a waste of resources; they are a natural part of an entrepreneurial ecosystem built on experimentation, screening, and selection. In fact, they provide important information to the rest of the market about what does not work, i.e., the competitiveness of an innovation or business model. This “process of learning by trial and error [...] must involve a constant disappointment of some expectations” (Hayek 1976, p. 124). Failed businesses must be liquidated as smoothly and quickly as possible so that resources can be transferred to new and better projects (Armour and Cumming 2008). Empirical research shows that faster firm turnover makes the economy more competitive (Brown et al. 2008; Heyman et al. 2019). It also appears that “lowering barriers to failure via lenient bankruptcy laws encourages more capable—and not just more—entrepreneurs to start firms” (Eberhart et al. 2017, p. 93).

There is a difficult balance to strike in the legislation. On the one hand, the regulatory framework must be generous enough to give failed entrepreneurs a “second chance.” Many successful entrepreneurs have experience with unsuccessful projects, giving them valuable knowledge and experience that increases the chances of success with future projects (Ucbasaran et al. 2008). On the other hand, the regulatory framework should not be overly generous, encouraging destructive entrepreneurship, where the entrepreneur uses dubious business restructurings and serial bankruptcies to avoid fulfilling his or her obligations to suppliers and creditors.

R&D and Knowledge Spillovers

Not only Mazzucato but most politicians, regardless of ideology, have often pointed to R&D spending as a route to more innovation and growth. However, R&D expenditure is an input in the production process, not a valuable output. For such spending to result in a welfare-enhancing outcome, it requires a well-functioning entrepreneurial ecosystem that can transform knowledge or inventions into something that is demanded, such as goods and services or more efficient production or distribution methods (Bhidé 2008). This does not happen automatically.

From an entrepreneurial ecosystem perspective, the notion of increased R&D investment to stimulate innovation and sustainable growth appears to be an overly mechanistic view of the functioning of the economic system. Such a notion also neglects other routes to innovation such as learning by doing, networking, and combinatorial insights (Braunerhjelm and Henrekson 2024, Chap. 2).⁸

Significant R&D investments *may* be necessary in a thriving economy but are far from sufficient, and there is no guarantee that policy measures stimulating increased R&D spending will result in more economically valuable knowledge (Da Rin et al. 2006). Spillover effects may also be negative as public R&D can crowd out private R&D. Countries where the share of business R&D expenditure directly or indirectly financed by the government is high have lower R&D expenditure in private firms (Elert et al. 2017). Moreover, public R&D spending comes with a general opportunity cost, since the resources could be used for alternative measures, such as lowering the capital gains tax or investing in other public goods.

Since it is almost impossible for a public agency to “pick the winners,” a spontaneous demand-driven, bottom-up increase in R&D is always better than any top-down designed alternative. Actors receiving public support are also, as already noted, likely to become a politically relevant interest group, using their newfound power to garner resources that could be better used elsewhere.

Instead of focusing on quantitative R&D spending targets or targeting R&D support to individual firms or groups of firms, politicians should create a regulatory framework that makes it easier to start and develop businesses. Much of the societal benefit of R&D arises through imitation and knowledge spillovers, i.e., when ideas and know-how from earlier successful innovations find new areas of application or spread to companies in other parts of the economy (Acs et al. 2009; Klepper 2016). Almost without exception, successful business clusters have emerged spontaneously and cannot be commanded to emerge by means of a centrally issued directive.

⁸Bhidé (2008) even suggests that the process of transforming a prominent idea into a commercially competitive product rarely requires significant R&D.

Incentives for Human Capital Investment

The final policy area involved in our bottom-up approach concerns human capital. Successful entrepreneurs are often highly educated, which underlines the importance of education in facilitating entrepreneurial activity. A well-educated population is also of great importance for the proper functioning of the entrepreneurial ecosystem, as it increases the availability of skilled workers and potential key employees. For companies in high-tech industries, there is a great need for a well-educated workforce, especially in STEM areas (Shavinina 2013).

For the entrepreneurial ecosystem to function as well as possible, learning and acquiring new knowledge must be profitable, whether through formal education or in the workplace. The wage structure and associated tax system therefore play an essential role: it should not be designed to discourage human capital investment at the individual level. The education and training premium varies considerably across nations. Europe's university systems have the advantage of generally low tuition fees, which means that talented individuals are rarely excluded from higher education for personal financial reasons. On the other hand, Europe has few top-class universities (with the United Kingdom being the only real exception).

This educational system should provide incentives for universities and researchers to aim for academic excellence while at the same time, without compromising their integrity, collaborating with industry and adapting their educational offerings to fields for which there is a strong demand in labor markets.

In Sum

An innovation's successful commercialization, production, and industrial distribution require a gamut of complementary competencies. The process is both complex and long-lasting. Obstacles regarding financing and recruitment must be overcome. The entrepreneur plays the key role in this process. Many new firms which initially experience rapid growth fail. However, those that succeed make major contributions to growth, development, and job creation.

Linking the specific skill sets of various agents requires well-designed institutions and policies. Combined with an efficient judicial system, the regulatory framework should efficiently prevent destructive entrepreneurship and fraudulent business practices, preferably without incurring unnecessary costs for firms—costs that become entry barriers for new ones. The legal system must be characterized by transparency, consistency, equal treatment, and swiftness regarding handling of legal disputes between private parties and between the government and individual firms.

Thus far we have, in line with this view, highlighted eight policy areas where appropriate policy can pave the way for entrepreneurial firms by stimulating an entrepreneurial ecosystem that fosters innovation and entrepreneurial venturing—as well as the social welfare it entails. According to our reasoning, this bottom-up

approach is a better and more realistic view than the top-down mission-oriented approach envisaged by Mazzucato.

The framework for economic and industrial policy should promote competition and business activity across the board. It should not be designed to favor certain kinds of firms, industries, or a particular size of enterprise, nor should it legitimize entrenchment and weak competition. The University of Chicago professor Luigi Zingales aptly opines that business policies should be pro-market, not pro-business. Pro-business proponents maintain that the government should encourage and support specific firms and industries through subsidies, tax incentives, or other favorable actions.⁹ Pro-market proponents oppose this view, instead asserting that the government should create a level playing field on which every economic agent can compete on equal terms. When the buyer/consumer no longer decides whether a business succeeds or fails, firms will devote more effort and resources to ensure that they receive benefits from the public sector and less effort in creating value for their customers. Such behavior not only decreases the productivity of a business but also creates fertile ground for corruption and clientelism (Zingales 2012).

Those who doubt that this is a significant problem can consider the Swedish experience with direct public support to stimulate innovation and growth. Gustafsson et al. (2020, p. 439) show that “highly productive entrepreneurs abstain from seeking grants, moderately productive firms allocate a share of their effort to grant seeking, and low-productivity firms allocate most resources to seeking grants.” By contrast, receiving support once had a negative effect on firm productivity, and the negative effect increased for businesses that received support more than once.¹⁰

Unless a significant market failure exists that may be identified and corrected (or mitigated) by economic policy, skepticism toward targeted support is warranted. A policy that aims to promote entrepreneurship should use a broader approach, facilitating the evolution of an economic system that encourages individuals to pursue productive entrepreneurship and business growth. The economic and business policies should, as much as possible, not seek to influence the “natural” development of firm size, growth, or type through targeted subsidies or tax deductions.

It is true that wise public interventions may have spillover effects (or other positive externalities) that benefit all agents in the ecosystem—but there are undoubtedly more ways for this support to fail than to succeed. The failure of most business ideas is, after all, the reason why venture capitalists spread funding across many different initiatives and attempts. The ideas that survive usually do so not because they were perfect from the start or part of a grand mission but because their creators and developers adjusted and customized the project until it became

⁹ A similar argument is developed by Hayek (1948).

¹⁰ A similar result was found by Bergström (2000) in a study of the effects on total factor productivity of public capital subsidies to firms in Sweden between 1987 and 1993. After the first year following the subsidy, the more subsidies a firm had been granted, the worse its TFP growth developed.

competitive in the market and beneficial for society. Providing more (private or public) funding does not change this fact. Without a well-functioning ecosystem, spreading (more) money over the economy will not automatically make missions successful—no matter how noble the missions are.

Mazzucato on the Bottom-Up Approach

Mazzucato is aware of the alternative bottom-up approach and the importance of experimentation and trial and error.¹¹ According to her, this approach is, however, too “narrow” and will not suffice.

One important implication of the bottom-up approach is that policymakers strive to “level the playing field” and avoid distorting the economy in any direction through, for example, favoring specific actors or industries. But the very essence of the mission approach is to tilt the playing field by directing investments to specific areas aimed at fulfilling certain politically determined objectives.

Mazzucato argues that the private VC industry often has too short a time horizon in their investment strategy, thus calling for an active state to compensate for this alleged shortcoming. From an entrepreneurial ecosystem perspective, the “short-termism” of a VC firm is not to be regretted. It is a consequence of specialization and the fact that early (business angels and VCs) and later-stage financiers (buyout firms, etc.) bring different skills and resources adapted to different stages of an innovation-based firm’s development.

One shortcoming of the mission-oriented approach, as discussed extensively above, is the difficulty in picking winners.¹² One likely reason is that government agents base their decisions on political rather than business criteria. Here, Mazzucato maintains that going beyond pure business concerns and profit opportunities is part of the point of mission-driven projects: other considerations should be taken into account. However, the risk of funds frivolously spent on political “pet projects” looms large with this approach.

The fact that the textbook ideal—an economy characterized by perfect competition devoid of externalities—does not exist in reality is invoked by Mazzucato to assert that it is always possible for government policy to improve economic outcomes compared to outcomes resulting from a decentralized bottom-up process. Surely, the business sector may be incomplete and imperfect—but, as we have

¹¹ See, e.g., Mazzucato (2021, p. 178): “[A] theory of innovation needs to be nested in a theory of learning, experimentation and adaption to uncertainty.”

¹² There is some confusion about Mazzucato’s position here. On the one hand, Mazzucato explicitly says that her idea is *not* about supporting specific technologies, firms, or sectors but (only?) about identifying problems and catalyzing and facilitating collaboration across sectors (Mazzucato 2021, pp. 125, 159). On the other hand, she explicitly states that the government and its agencies should “pick winners” (or “pick the willing”) and that the conventional view is too negative to this approach (e.g., Mazzucato 2021, pp. 49ff).

already noted, the same is true for the political sector. Uncertainty and unpredictability are inherent traits of the economy and will not disappear if the economy is subjected to increased political guidance. One might also ask whether citizens in their role as consumers are not better placed than the government to determine what they value.

Mazzucato is, of course, also aware of the public choice literature and its less optimistic view of the political sector. If bureaucrats and elected politicians are assumed to be self-interested utility maximizers, public choice theory predicts, *inter alia*, that bureaucrats may be budget maximizers and that policymakers may be unduly influenced by interest groups and fall into nepotism, cronyism, or corruption. Mazzucato (2021, pp. 32ff) asserts that these notions lack empirical support; they are merely assumed. “Real people” do not optimally react to (price) incentives and are not maximizers of profit or utility. This opens up “a sizeable scope for clever, well-informed regulations” (*ibid.*, p. 142) instituted and directed by the public sector striving for a better world.

Clearly, one can disparage the public choice view as overly negative and lopsided. But in that case one can claim that the opposite “public interest” view, where “policymakers altruistically provide optimal quantities of public goods and create laws solely in the interest of the governed” (Lucas 2019), is just as assumed and unrealistic. In reality, the incentives of government agents and the public-interest seldom coincide, making the entire approach less attractive.

Moreover, as pointed out by Sanders et al. (2024, p. 265), although an entrepreneurial state is not theoretically impossible, it is hard to achieve in practice because of the dynamics of democracy:

Mistakes will be held against the incumbent politicians, weighing more heavily than successes. Political opponents will use state-run innovation failures to criticize incumbent politicians, saying that it is a sign of their incompetence and that they should be replaced. It will rarely suffice for incumbents to point to successes. Or to say that it is normal that many entrepreneurial projects fail. So, what is normal in private markets where private firms and individuals risk their own money, is not equally acceptable in a system that is democratically governed using taxpayers’ money. As a result, it becomes rational for politicians and government agencies to be risk averse.

Of course, this does not entirely inhibit politicians from taking risks (with other people’s money). “However, while they are usually ready to take credit for risky projects when they succeed, they are also ready to blame a scapegoat, usually a bureaucrat, an agency, or ‘the market,’ when projects fail” (Elert and Henrekson 2022, p. 357). This effect adds to our skepticism toward the idea that government agencies can substitute for private agents with “skin in the game” when it comes to entrepreneurial risk-taking and experimentation.

Conclusion

In a diverse and uncertain world with billions of heterogeneous agents possessing complementary capabilities and competencies, lacking an altruistic and omniscient political sector, a system guided by political top-down missions will be problematic. A more bottom-up approach is called for. At the end of the day, fostering innovation and sustainable development of society requires an institutional framework that promotes productive entrepreneurship. When entrepreneurs are seeking to create value, they are greatly influenced by the reward structure they encounter. This structure is primarily determined by the economic system's institutional setup. In this chapter we have discussed the basis for a decentralized bottom-up approach and considered eight key institutional areas and how their design affects the driving forces for innovation and productive entrepreneurship.

We believe that this bottom-up approach, which is about leveling the playing field for potential entrepreneurs and encouraging productive entrepreneurship, is a better and more realistic view of how to organize a society that promotes economic wellbeing. We are keenly aware that our view lacks the grandeur that makes Mazzucato's top-down missions so emotionally appealing as solutions to our most pressing problems. Most likely, our species is genetically predisposed to desire control (Rose 2024). However, the complex market-based economic system that has evolved, which is crucial for our material wellbeing, is totally dependent on a process of decentralized experimentation, selection, and screening to continue to fulfill our needs.

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