— Doctoral Thesis —

Political Philosophy, Innovation Policy and Market Shaping

Lukas Fuchs

Institute for Innovation and Public Purpose,

University College London (UCL)

January 2022

A thesis submitted in partial fulfilment of the requirements for the degree of Doctor of Philosophy at University College London, United Kingdom.

Declaration

I, Lukas Fuchs, confirm that the work presented in this thesis is my own. Where information has been derived from other sources, I confirm that this has been indicated in the thesis.

This thesis consists of 61,038 words (excluding front matter and bibliography).

Lukas Fuchs
St. Pölten, Austria
January 2022

Abstract

Should politics be concerned with innovation? Should the state play an active entrepreneurial role to change markets? The aim of this thesis is to establish the political philosophical grounds on which the state may legitimately pursue policies aimed at promoting innovation, shaping markets and driving growth. It constitutes an attempt to base ideas about the role of the state in the economy — deriving from certain strands of economic thinking — on a normative foundation in contemporary liberalism. Forging a synthesis between liberalism and innovation policy faces the problem that liberalism has often been understood as imposing boundaries on which government action is legitimate. How can ambitious economic policy be reconciled with the interests, rights or freedoms of individual citizens?

I argue that liberal theory is not merely compatible with the pursuit of ambitious innovation policy; it poses demands on institutional design that translate into an imperative for state innovation. Innovation policy that results in the creation of markets may enable individuals to fulfil their responsibilities to society. Such market shaping does not constitute a heavy-handed version of economic policy. It is possible to carry out such policy without interfering with the personal sphere of individual citizens and without disturbing the epistemic role of markets in society.

The nature of innovation, growth and markets in a society is not merely given, but is subject to our collective agency. Liberal political philosophy can benefit from adopting such an institutional understanding of economic life. This methodological insight will allow us to tackle new questions in political philosophy. We can move on from asking which excesses in economic life are immoral and should be curtailed; instead, we can ask what kinds of markets would be beneficial and should therefore be created by policy and by individuals able to contribute to the reshaping of the economy.

Impact Statement

The enormous challenges facing society require us to rethink which policy proposals are both effective and compatible with views about the boundaries of legitimate state action in a liberal society. Both the European Union and the United Kingdom have adopted elements of an innovation policy in which the state plays an active entrepreneurial and mission-oriented role. However, the normative grounds on which such state action can be undertaken have not been adequately explored and discussed, be it in academic, policy or public discourse. This thesis advances a systematic political philosophical defense of such policy and thus contributes to the debate about its legitimacy.

The ideas advanced do not justify all and any type of ambitious innovation policy. It explores various constraints on the pursuit of such policy. Policy makers and public administrators may benefit from a clear understanding of the role and limits of the state in economic change. This thesis is not a standalone project, but a contribution to a wider effort to develop a policy view defined by ambitious views on the role of the state in economic change. The contribution of this thesis to this larger effort is the assurance that such views about innovation policy have a solid grounding in philosophical views about the role of the state that embody deep liberal ideas about political legitimacy.

By engaging both with political philosophy and the economics of innovation, the thesis may open new grounds for both the questions that political philosophers can address, as well as the methods they employ in order to tackle such questions. Stronger engagement with the literature from institutional and evolutionary economics, as well as recent thinking on the role of the state in innovation, may initiate a rethinking of many philosophical ideas about politics and economics.

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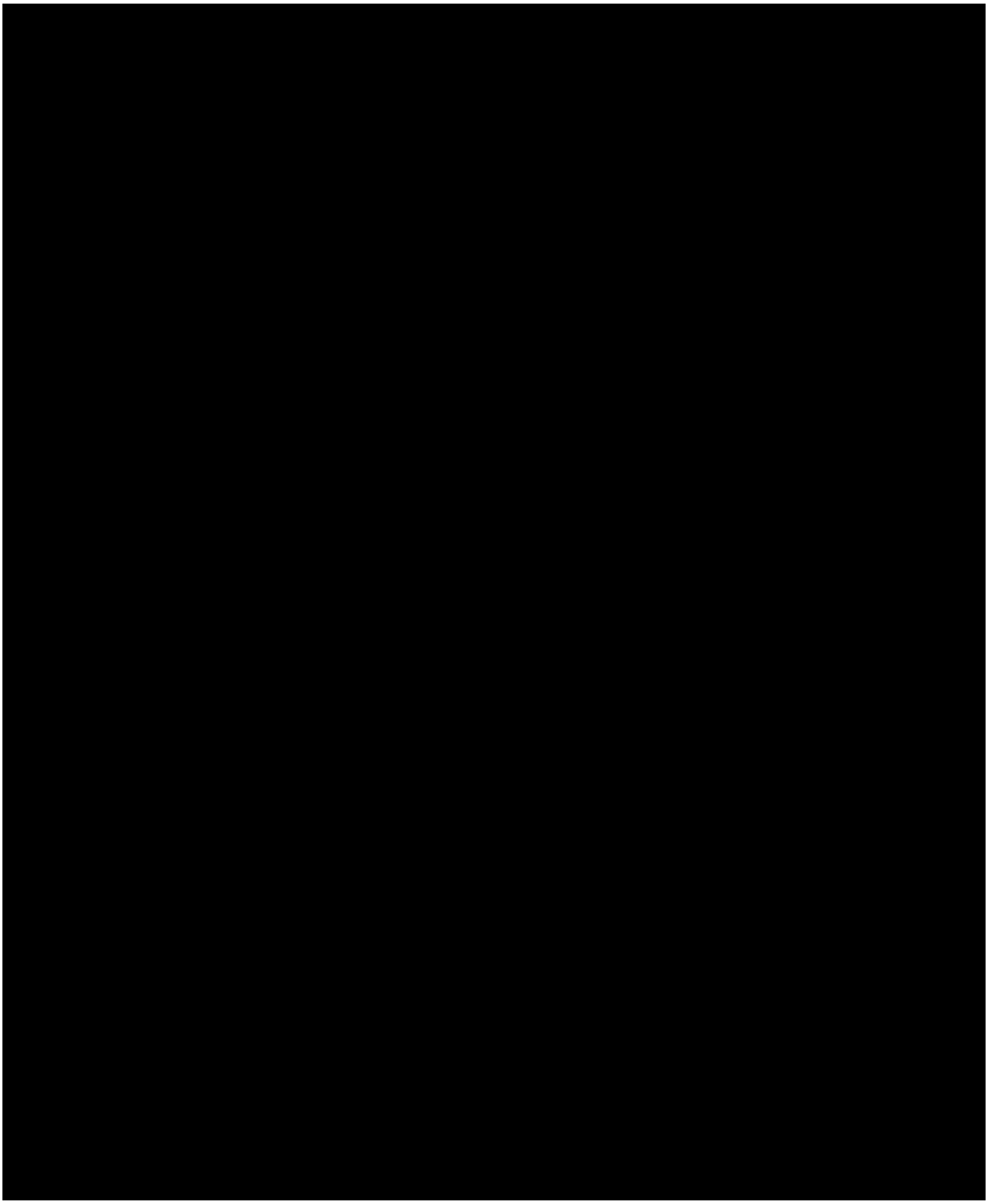
“pessimistic views about a thing always seem
to the public mind to be more ‘profound’ than optimistic ones”

Joseph Alois Schumpeter (1954: 546, n. 5)



A Woman peeling Apples (c. 1663)
Pieter de Hooch (1629 – 1684)
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Acknowledgments

My first expression of gratitude must go to Mariana Mazzucato, who first proposed the idea of such a PhD project at a meeting at the European Forum Alpbach in 2016. She supported this thesis as my primary supervisor, institutional enabler and intellectual visionary. Many thanks also go to my other supervisors Véronique Munoz-Dardé and Rainer Kattel for their support.

The Institute for Innovation and Public Purpose (IIPP) at University College London (UCL) was a most unusual yet fitting institution for me as a "philosopher-in-residence". In various ways I benefited from Antonio Andreoni, Geert Bouckaert, Jose Coronado, Francesca Froy, Henry Li, Martha McPherson, Carlota Perez, Kate Roll, Josh Ryan-Collins, June Sekera, Damon Silvers and Ville Takala. I learnt a lot from my fellow PhD students, especially from Rosie Collington, David Frayman, Simone Gasperin, Keno Haverkamp, Tamsin Murray-Leach and Asker Voldsgaard. The *IIPP Theory Reading Group* gave me the chance to discuss ideas and I am happy to see the group thrive. Many thanks go to all IIPP professional service staff, especially Tania Alcantarilla, Helen Crane and Isha Reid.

Venturing out, I found many academics willing to ask questions, share ideas or give feedback. I wish to thank Alice Baderin, Vincent Blok, Merve Burnazoglu, Claire Chambers, Matthew Clayton, Sonia Cruz Dávila, Paolo Gerbaudo, Kalle Grill, Till Grüne-Yanoff, Geoffrey Hodgson, Zachary Hoskin, Jeffrey Howard, Anna Klieber, Christian Koutny, Julian F. Müller, Vida Panitch, Theo Papaioannou, Charles Pidgen, Paul Podosky, Ingrid Robeyns, Huei-Chun Su, Adam Swift, Nikhil Venkatesh, Cosmin Vraciu, Albert Weale and Han van Wietmarschen. I received helpful written feedback from Simon Blessenohl, Rosie Collington, Çağlar Dede, Jack Hume, Kasim Khorasanee, Xenia Knoesel, Simon Okholm, Georg Schmerzeck and Cain Shelley.

As part of my PhD, I did a 3-month internship with the Observatory of Public Sector Innovation (OPSI) at the OECD. I am grateful to Chiara Bleckenwegner, Angela Hanson and Piret Tõnurist for this valuable experience. I also tried my hand on some teaching and benefitted greatly from the excellent MPA students at IIPP, particularly Jakob Kofler. At King's College London I gathered important experience teaching undergraduate students alongside Roberto Fumagalli and Carmen Pavel.

The Covid-19 pandemic meant that part of my time as a PhD student was spent nomadically. I thank Luis Enrique Camacho Arroyo for our time in Costa Rica, my family for their hospitality on their farm in Lower Austria and Siyue Chen for helping me make Eindhoven my new home.

Very special thanks go to Wolfgang Drechsler and Darja Irdam who gave assistance and encouragement when it was most needed. Jonathan Krude and Valentin Wiesner both played a decisive role in making the inception of this PhD project possible. Kasim Khorasanee, Jonathan Krude and Ute Schreiner formed the core of my *Shut up & Write!* group. Ben Abrams has been a fantastic long-time advisor for all aspects of academia and beyond. Thomas Kaiser's friendship is my most reliable source of continuity in unsteady times. Lastly, two friends and mentors died all too young. Fritz Fassler first introduced me to philosophy and Giulio Regeni first introduced me to political economy. I dedicate this book to them.

Let me add two personal notes about my development and my goals in writing this thesis. Work on this thesis shaped my relationship to academic life. I started off somewhat disappointed with what I perceived as aloofness of much of contemporary analytic philosophy. I read political economy and was convinced that philosophy was lagging and could not be made compatible with what I thought were important policy views. With time I saw that the theoretical ideas in political philosophy were actually sufficiently amenable or convincing in their own right. I gave up my initial rejection and instead started to synthesise.

I set out three goals for this PhD thesis. The first goal is that it supports an optimistic, action-guiding political vision, without being blind or naïve. Second, it should successfully link abstract normative considerations with a concrete policy view, without falling for formalism or political fashion. The final goal is that it combines the clarity of analytic philosophy with the worldliness of the economics of innovation, without losing the audience of either field. The success of this thesis will depend on whether these goals materialise.

To Fritz and Giulio

Chapter I. Introduction:
The Philosophy, Politics and Economics of Innovation Policy

0. Abstract

This introductory chapter first sets out the motivation for, content of and theory behind a policy view that assigns the state a primary role in innovation. Second, it reviews literature in liberal political philosophy and notes the absence of engagement with innovation policy. Third, it lays out the content of the remaining chapters of this thesis and how they will contribute to the overall conclusion. Finally, the chapter remarks on the limitations both regarding the content and the methods of this thesis.

1. The Political Economy of Innovation Policy

Challenges, Innovation and Missions

How can our societies face complex challenges like the need for climate protection, economic inequalities, or the automation of the workforce? What kinds of transformative changes can make economic life not only compatible with, but also aid in tackling these challenges? While these questions are by no means new, there has been a shift from accepting them as conditions to be lamented towards viewing them as problems to be addressed. Changes in normative views — that such challenges pose morally inacceptable problems — are coupled with more ambitious views about the scope of collective agency. The 17 Sustainable Development Goals were developed by the United Nations and constitute a shared global commitment to addressing societal challenges. Much discussion in academia and policy circles is based on the recognition of such societal challenges and the need to orient research and policy towards them. I also take the need to address grand societal challenges as the motivation and starting point and will frequently refer to the example problem of climate mitigation.[1]

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[1] Scholars have identified these problems variously as *Wicked Problems* (Rittel & Webber 1973), *Super-Wicked Problems (*Levin et al. 2012*)* and *Grand Challenges (*Ferraro et al. 2015*)*. Their causes or their required solutions make them qualitatively different from ordinary policy problems: for instance, the lack of central authorities to tackle them, the limited time to avoid catastrophe or the fact that all solutions appear to be non-ideal. Political philosophers have been sceptical of these concepts. Gardiner (2011)

This re-orientation to grand societal challenges has impacted many policy areas that concern the role of the state in the economy, including development, financial regulation or infrastructure. The presence of such challenges introduces clear goals for collective action and thus raises questions about the relationship between the state and other economic actors. Should policy be limited to "levelling the playing field" — ensuring all private businesses face the same conditions — or may it play a more active role of "tilting the playing field" in order to encourage certain outcomes (Mazzucato 2018a)? Similarly, may states enter special partnerships with private businesses in order to advance public purposes? What are the restrictions or conditions for choosing companies to cooperate ("choosing winners" or "picking the willing")? The decades since the 1980s have seen efforts to downsize the role of government, which went along with a retreat of ambitious political goals in economic policy. This *retreat of the normative* can be traced in the sphere of economics (with the demise of neo-classical welfare economics), as well as in political philosophy where liberal theories of political legitimacy have often been interpreted as justifying government inaction. The task for philosophy, economics and policy is to interpret, critique and expand existing theories of economic policy in the light of new societal challenges.

In this thesis, I will do so by focusing on *innovation policy*, which I intend to use in a broad and general sense. Through innovation policy, states may directly or indirectly bring about economic change by introducing "new combinations" (products, methods, materials) into the market. This broad account of innovation policy allows that a great variety of policy mechanisms may form part of it, such as regulation, subsidies, investments, industry partnerships, public research projects, missions, challenge prizes, setting up state-owned enterprises or infrastructure work.

Previously, the role of innovation policy was seen as restricted to the promotion of economic development. The focus on societal challenges has introduced an additional rationale for innovation policy: to produce new technologies aimed at solving these challenges (Mazzucato 2018a; Schot & Steinmueller 2018). It aims for "big science deployed to meet big problems" (Ergas 1987: 193).[2] Uyarra et al. (2019) have referred to this change as a "normative turn" in innovation studies and policy.

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criticised Rittel and Webber's (1973) definition of wicked problems. Gardiner has proposed his own concept, calling climate change a "perfect moral storm".

[2] Edler and Fagerberg (2017) survey the rationales for and mechanisms of innovation policy.

This challenge-orientation of innovation policy was accompanied by the generation of normative frameworks to assess innovation with a view to such challenges. The first of these normative approaches, *responsible research and innovation*, focuses on the concept of responsibility and regards the grand challenges as the normative anchor point for the evaluation of innovation.[3] Von Schomberg (2013: 63) defines responsible research and innovation as

> "a transparent, interactive process by which societal actors and innovators become mutually responsive to each other with a view to the (ethical) acceptability, sustainability and societal desirability of the innovation process and its marketable products (in order to allow a proper embedding of scientific and technological advances in our society)".

The second normative approach appeals to *public value*, a concept adopted from public management literature and is a conscious attempt to propose an evaluative framework that can assess value generated by and for the public, but which is different from economic value.[4] For Mazzucato (2018b; Mazzucato & Ryan-Collins 2019), public value encompasses the value that actors, including the state, can contribute in the economy and society, especially with a view to innovation and grand challenges.

This new rationale for innovation policy — namely to view it directly in the service of grand challenges, as opposed to economic development narrowly construed — is connected to the development of a different way of pursuing innovation policy. *Mission-oriented Innovation Policy* was first identified as a policy model in the military industrial complex of the postwar US (Mowery 2010) and was popularised through the example of the Apollo 11 mission ("putting a man on the moon"). Recently, there have been calls to use this policy model in the pursuit of the sustainable development goals and in tackling grand challenges (Mazzucato 2021). Here, missions should help define concrete targets and the public sector plays a leading role in achieving these (Mazzucato 2018a). These targets are derived from the grand challenges and the role of innovation is seen in reaching these targets. This mission-oriented mode of policy is notably different from market-led innovation policy, in which the role of the state is restricted

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[3] Key publications in responsible research and innovation include von Schomberg (2013), Stilgoe et al. (2013), van Oudheusden (2014) and Blok & Lemmens (2015).

[4] The most relevant publications in the emergence of the public value literature are Moore (1995), Bozeman (2007) and Bozeman & Sarewitz (2011).

to fixing market failures and where the state does not aim to achieve targets directly through innovation (Kattel & Mazzucato 2018). There is widespread acknowledgment that 21st century missions should be markedly different from post-World War II missions (Mowery et al. 2010).[5]

The shift towards challenge-orientation, value-orientation and mission-orientation in innovation policy has been proposed, among others, by Mazzucato (2018c) and adopted by the European Commission in recent years. Horizon Europe is the research and development scheme of the European Union for the period 2021-2027, with a budget of €95.5 billion. It includes five mission areas, including "adaptation to climate change including transformation" and "healthy oceans, seas, coastal and inland waters" (European Commission 2021). Similarly, the United Kingdom's "grand challenge missions" include, for example, "clean growth", with the goal to "at least halve the energy use of new buildings by 2030" (UK Government 2021).

These developments in innovation policy indicate significant transitions in policy and political economic thought. Despite the widespread adoption of this new policy paradigm, it has been subject to rather little philosophical exploration. While the widespread adoption of this policy paradigm is the cause, it is not the object of this philosophical investigation. My concern will rather be with abstract arguments for why such policies may be or may not be politically legitimate. However, even abstract argument takes place against a societal background and the presented arguments are most immediately concerned with these policies.

There are many open questions about Mission-oriented Innovation Policy and the great wealth of related publications in recent years shows that it is a fruitful research agenda. The present investigation focuses on a relatively small aspect, namely the political philosophical evaluation of the economic consequences of such policies. Missions are connected to certain views of economic change and of the scope of policy to give a direction to this change. Missions are hoped to result in innovation, the shaping of markets and the generation of economic growth. These goals and ambitions of the missions approach to innovation policy will be the central focus of this thesis. The next section will introduce the underlying economic theory.

[5] Brown (2021) is a critical examination of Mission-oriented Innovation Policy.

Institutional and Evolutionary Economics

Besides this introduction to innovation policy as a field of policy discourse, we must also turn to the academic discussion on the nature of the economy and especially the economics of innovation. This section starts with a short historical overview of relevant "heterodox" economic theories and will culminate in the discussion of recent theoretical developments. It also highlights departures from "orthodox" economic theory.

Academic books at the intersection between political philosophy and political economy typically include a literature review that sketches the development of political economy from philosophical sub-discipline towards emancipation, mathematisation and value-neutrality. Such a review of "orthodox" economic theory usually starts with Adam Smith, the founder of modern economics, who held the chair of moral philosophy at Glasgow and whose ideas intertwined philosophy, politics and economics. Smith and other classical economists (Ricardo, Malthus, Marx) developed theories of objective economic value; a concept rejected by the marginalists around 1870 in favour of individual preferences and the market mechanisms of supply and demand. The latest developments in neo-classical economics include the post-war turn to mathematisation and the stalling of welfare economics after Amartya Sen's critique of Pareto efficiency.

In addition to this well-rehearsed canon, there are now many critiques of neo-classical welfare economics. The most relevant criticisms for us are that this school aims to explain economic phenomena solely by reference to economic concepts, such as supply and demand and treats other — social — concepts as exogenous. The institutional tradition in economics aims to correct this weakness and supply a sociological understanding of economic phenomena. The second key criticism is that by focusing on the "static" concept of equilibrium, neo-classical economics lacks the conceptual resources to explain long-term economic and technological change. The evolutionary school of economics has placed innovation and long-term economic change at the centre of analysis. These two insights — the sociological view of economics and the analysis of long-term change — are key to understanding the attractiveness of the innovation policy view put forward in the previous section.

Thus, in this thesis, I will also rely on a different tradition of economic theory, one that has continued to view economic phenomena as social processes and eschewed mathematical and axiomatic approaches with the aim of developing a more nuanced understanding of the relationship between state and market.[6] The German historical school of economics in the 19th century stands for such a different understanding, with Werner Sombart and Gustav Schmoller as its leading proponents. The unifying themes of this school were the rejection of deductive or axiomatic methods in favour of empirical and statistical ones; the rejection of universal laws in favour of context-sensitivity to social institutions; as well as the rejection of laissez-faire economic policy in favour of a nuanced understanding of the role of the state in the economy. Somewhat overlapping, institutional economists in the USA, such as Thorstein Veblen and John Commons, spearheaded a sociological or institutional understanding of economics. Similarly, in the middle of the 20th century, Karl Polanyi (1944) argued that market society was the result of political forces and required continual state action for its maintenance.

In recent years this institutional tradition has highlighted the important insight that there is not just one form, but rather *Varieties of Capitalism* (the book title of Hall and Soskice 2001): there are important differences between capitalist economies and appreciating these requires understanding of the differences in legal, social and political institutions. Critical realists, such as Tony Lawson, have advocated a different ontological and methodological basis for economics (Lawson 1997). John Searle, the philosopher of social science, has applied his concept of "institutions" to the field of economics (Searle 2005). Geoffrey Hodgson is perhaps the contemporary economic theorist with the most advanced conceptual framework for an inter-disciplinary attempt to understand economic life (Hodgson 2015). The key insight from this tradition for the argument of this thesis is that the nature of markets in a society are amenable to social and political forces. Innovation policy will be discussed as a way to shape and create new markets and this requires a view of the nature of the market that is markedly different from that in neo-classical economics.

Evolutionary economics is another strand of economic theory, putting innovation and long-term change at the centre of analysis.[7] Joseph. A. Schumpeter (1911) understood innovation and entrepreneurship as fundamental processes in economic life. For him, innovations are "new combinations" and the role of the

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[6] Reinert (2007: 33) drew the family tree of the "other canon" in economics.
[7] "Typically, evolutionary economists do not take institutions or technology as given: they treat them as costly to produce and focus on how they emerge and develop" (Hodgson 2019a: 1).

entrepreneur is to introduce them into the market. Innovation can consist in new products, production methods, markets, materials or types of organisation (Schumpeter 1911). Schumpeter's seminal discussion of innovation has served as the basis for subsequent analyses of long-term change. In this thesis, I adopt Schumpeter's definition of innovation. In section 5 of this chapter, I discuss further the implications of adopting Schumpeter's concept of innovation.

Evolutionary economists (or "neo-Schumpeterians") have expanded Schumpeter's insights. Richard Nelson and Sidney Winter (1982) developed a full theory of changes in firms and industries and developed a systematic critique of neo-classical economics, criticising its inability to account for long-term technological change. Christopher Freeman (1995) and Bengt-Åke Lundvall (2007) understood innovation as the outcome of national innovation systems, of which private companies, research institutions and the public sector are part. The most important implication of this concept was that innovation was the product of a collective effort, and not just of private entrepreneurs. Finally, Carlota Perez (2002, 2010) developed a theory of technological revolutions and the way these shape long waves of economic development. She combines neo-Schumpeterian concepts of innovation with Polanyi's contention that the state needs to re-embed market forces in the context of technological revolutions and experimentation phases. The insight of these neo-Schumpeterians — that Schumpeterian innovation may also result from collective efforts — is highly relevant because it raises questions how best to foster innovation in a society. While the picture of the individual entrepreneur may support innovation policy that incentivises private businesses, such a systemic view highlights the need for other institutions and organisations.[8]

The most important advances in understanding the role of the state in the economy have for some time been made under the heading of the *Developmental State*. This concerned the role of the state in industrial development. Scholars like Amsden (1989), Wade (1990) and Chang (2002a) studied the rapid development of East Asian economies, such as Taiwan and South Korea, and found — against economic orthodoxy — that their respective states played an active role in pursuing industrial strategies. Peter Evans (1995) distinguished different roles that the state may play in

[8] Papaiouannou (2020a) reflects on the evolutionary literature and identifies two strands: one treating innovation as value-neutral, and one treating it as political. Compare this with Sen's (1999) identification of the ethical and engineering traditions in economics.

industrial development and argues that in addition to regulator and producer, the state has also acted as developer and leader of industrial development. The focus in this thesis will be on developed countries tackling grand challenges, such as climate change. The insights from this developmental literature may therefore have only limited applicability. What makes this literature relevant for this thesis is its clear understanding of the various roles the state may play vis-à-vis private businesses and constitute a collection of successful cases where the state has acted as a developer.

The most recent development in the literature on the economics of innovation was the identification of the state as a key player in innovation, and hence the realization that the generation of innovation (and not just its consequences) is a highly political process. The anthology by Fred Block and Matthew Keller (2011) on the *State of Innovation* and Mariana Mazzucato's (2013) concept of the *Entrepreneurial State* spearheaded this view. In these publications, the state is identified as a key driver of the development of new technology and products, along with their introduction into the market. The state does not merely act as an enabler for other actors to be entrepreneurs, but also acts as a strategist, identifying and exploiting opportunities, setting expectations for other actors and steering economic development. The US military, with research institutions like the Defense Advanced Research Projects Agency (DARPA), serves as a prime example for this concept.[9] The identification of the role of the state in innovation made the need for a systemic normative engagement with the politics of innovation most pressing. Innovation is not just the outcome of an ensemble of institutions and organisations (as in the case of the "national systems of innovation" view), but the state can lead this process and push for the development and introduction of new combinations into the market. Innovation is therefore not a development on which politics can have only a mediated, indirect influence. Innovation may be directly subject to policy: innovation is political.

The final step in the emergence of this literature was the turn from a merely descriptive notion of the entrepreneurial role of the state to a normative one. The fact that states have in the past generated innovation is not only an interesting descriptive insight, but also serves as a basis for a normative model. In the face of societal challenges, the state is to take an active role in bringing about new innovations,

[9] One way of framing Mazzucato's (2013) argument from an entrepreneurial state is to point out that Schumpeter's (1911) theory of entrepreneurship is a theory about the entrepreneurial function and that this function can be fulfilled by agents other than individuals, such as the state. For an exegesis on Schumpeter, entrepreneurship and the state, see Burlamaqui (2020).

introducing them to the market and thereby shape and create markets and drive growth. The normative development of the concept of the entrepreneurial state therefore forms the theoretical basis for the above-mentioned mission-oriented innovation policy (Mazzucato 2018a). The key idea is that innovation and growth can be given a "direction" by social and political forces (Perez 2016). The fact that innovation has not only a rate, but also a direction opens space for new possibilities for policy.[10] Innovation policy as market shaping implies the insight of evolutionary economists that the rate and direction of innovation can be subject to political forces. Furthermore, it also rests on the institutional insight that the nature of markets is not merely given, but can be shaped by policy.

This rapid overview of key developments in institutional and evolutionary economics contains an insight that will form the central empirical premise in the arguments subsequently developed in this thesis. Economic arrangements in a market-based economy are contingent: its institutions and its concrete shape are subject to social and political forces. In particular, the state can give a *direction*, or steer economic development, and this goes beyond a merely regulatory view of the role of the state. The kind of innovation and economic development experienced in a society is partly determined by policy and is thus a political variable, a moving part, that philosophers can and should include in their political theorising. This expanded view of what is politically possible will help understand what is politically desirable.

Comparison with other Proposals

The previous two sections characterised the policy view under consideration in this thesis from two perspectives. The first subsection identified it as the latest stage in the evolution of innovation policy and as a response to the need to directly address societal challenges. The second subsection surveyed the economic literature that informs this approach, with a particular focus on the political contingency of innovation and institutional variability of economic arrangements. This subsection will further sharpen the view on this policy view by contrasting it to other paradigms of policies aimed at fostering innovation. We can identify two further families of policy views about the role

[10] And this directionality is a question of politics: "the key insight is that this direction is neither pre-determined nor automatically defined" (Perez 2016: 197).

of the state in economic change.[11] These views combine theories of state-market relationship with normative policy proposals. It must be stressed that these families are broad categories and gloss over important differences between positions within these families. My purpose in identifying such families is not to ignore such details, but rather to bring out more clearly what distinguishes the policy model under consideration.

To characterise the three policy families, I will use Evans's (1995) distinction between different roles the state can play in economic development.[12] Evans distinguishes between the role of *custodian*, *demiurge*, as well as *midwife* and *husbandry*.[13] First, the role of custodian is regulatory. Regulatory states provide "caretaking in the sense of protection and policing. They prevent proscribed behavior" (Evans 1995: 78). Second, "[w]hen the state decides to play demiurge, it becomes directly involved in productive activities, not only in ways that complement private investments but also in ways that replace or compete with private producers" (79). The concrete embodiment of this role is a state-owned enterprise. For Evans, both the role of custodian and demiurge imply a negative judgement about the capability of private capital, as requiring restraint (custodian) or as incapable of entrepreneurship altogether (demiurge). However, "[m]ore optimistic assumptions are also possible. Capacities of the local entrepreneurial class can be seen as malleable instead of given. Greater optimism about the vitality of private capital leads to different roles" (80). The other two roles, midwifery and husbandry, consist in assisting "in the emergence of new entrepreneurial groups and to induce existing entrepreneurs to take on more challenging endeavors" (ibid.). Husbandry goes beyond this and consists in "cultivating, nurturing, and prodding the entrepreneurial forces that have been awakened" (78).

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[11] Throughout the thesis, I will use the term "economic change" broadly to refer to long-term changes, such as changes in the social, political and cultural institutions on which economic life depends, as well as changes in societal wealth and markets. While "economic change" is used in a neutral tone, the term "economic development" is used with a positive valence.

[12] Note that Evans distinguished these roles of the state in the context of developmental states. I extend them here to apply more generally, even in the context of developed economies.

[13] Evans further characterises these four roles here: "What roles might achieve this goal *[growth of industrial capacity]*? Regulating production is a classic option, and there are a variety of ways to play the role of regulator. Alternatively, the state can make and sell goods itself, taking on the role of producer. Or the state can focus on 'maximizing induced decision making' by trying to draw private entrepreneurial forces into a new sector, which I call playing the role of midwife. Having helped bring new entrepreneurial groups into a sector, the state can focus on nurturing them and promoting their further evolution. I call this process of cultivating, nurturing, and prodding the entrepreneurial forces that have been awakened 'husbandry'. Together, midwifery and husbandry create the social foundations for new sectors" (Evans 1995: 77-78).

The three policy families contrasted in the rest of this section will be characterised as focusing on one of these roles of the state in economic development (the third family encompasses the last two roles identified by Evans). Let us discuss these three families in greater detail.

Custodian: The first family of policy views regards the market as the primary institution in political economy and the key driver of economic development. Left on its own, the market is expected to produce Pareto optimal results in ideal competitive circumstances. This is the conclusion of the two theorems of neo-classical welfare economics. When markets do not work optimally, market failures arise and there is a (defeasible) reason for the state to help mitigate or address them. Yet the role of the state is seen as mostly auxiliary to the market. State action is economically legitimate only if done with reference to failures in the market. The nature of markets is given and any state action in the economy is conceptualised as *intervention*. The word "intervention" suggests that the state interferes with an otherwise autonomous sphere of society and that the state does not have a role in the long-term development and shaping of economic life (Block 2018: 34-35).[14] Economic policy is mostly restricted to regulation and taxation; thus privileging Evans's first state role: the custodian.[15]

Demiurge: The second family advocates for the state to play the role of demiurge. Beyond mere market failures, these views identify substantial shortcomings with private businesses and advocate that through state-owned enterprises or other economic arrangements the state make direct decisions about production and investment. There are various ways to argue against private initiative. First, Marxist arguments may establish that private ownership leads to exploitation and alienation of workers. Second, neo-classical welfare reasoning may identify tremendous market failures due to private ownership. Third, there may be reason to believe that private entrepreneurs will not have the capacity to drive fast economic change in the context of societal challenges such as climate change (see Green and Robeyns (unpublished manuscript) for a recent proposal along these lines).

[14] To clarify this point, consider the semantic difference between "intervening in a child's education" and "shaping a child's education".
[15] Galbraith (1973: 19) provides a critical examination of the view of the state as merely regulatory. Medema (2009) offers an illuminating history of economic thought that is restricted to this policy family, covering the classical economists, J. S. Mill, H. Sidgwick, the marginalists and public choice theorists.

Midwifery/husbandry: The third family takes state and market as equal players in shaping economic life.[16] It advocates midwifery and husbandry as appropriate state activities in economic development. Private initiative is taken as reliable and ambitious, but as requiring coordination, confidence, support or political direction. Midwifery means to "cajole" private businesses to move into sectors that they would not otherwise move into (this is also referred to as "crowding in", Mazzucato 2018a). Husbandry is more ambitious by inducing private businesses to rise to global markets or tackle technological challenges that they would not tackle otherwise. Proponents of this family of policy views often reject the semantics of state "intervention". There are two ways in which the state may encourage the development of new sectors, products or businesses. First, it may support or incentivise private businesses to move into new sectors or develop new products. Second, the state may take an even more active role (for example, in the form of state-owned enterprises) and carry out economic projects on its own. The underlying picture of an otherwise autonomous economic sphere does not hold. Markets are partly shaped by policy and their concrete nature is variable and subject to social, political, as well as economic forces (Chang 2002b, Chang & Evans 2005, Mazzucato 2016). The policy view I wish to defend in this thesis fits squarely into this policy paradigm.

Having distinguished these three families, it should be clarified that these policy views merely privilege one of the roles, but need not categorically exclude the others. For example, the midwifery position may regard state-owned enterprises as an important instrument for developing a new sector or market. Similarly, regulations might form an integral part for spurring private entrepreneurs.

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[16] One historical predecessor to this view was *Kathedersozialismus* in Germany at the end of the 19th century. This statement by Gustav Schmoller, one lead representative, is typical: "The right man in the right place, the great statesman and reformer, the far-seeing party chief and legislator can here accomplish extraordinary things, not directly, not immediately, but through a wise and just transformation of the economic institutions they can greatly influence the administration of incomes and property. Of course, the theory which sees only natural processes in all economic life admits this as little as those who from the standpoint of certain class interests, from conviction of principle, or even from mere shortsightedness constantly recur to the impotency of the State. Statesmen of a lower order also talk with eunuchs' voices of the inability of the State to interfere anywhere; they mistake their own impotency for that of the State. All these adverse opinions forget that the State is and must be the leading intelligence, the responsible centre of public sentiment, the acme of existing moral and intellectual powers, and therefore can attain great results in this direction" (Schmoller 1894: 39). The rhetoric may be quaint, but *Kathedersozialismus* was influential in setting up the forerunner to the modern welfare state in Bismarck's German Empire. Drechsler (2016) surveys *Kathedersozialismus*, as well as its relationship to the aforementioned German Historical School.

A Word on the State

The concept of *the state* — perhaps more than any other respectable political idea — was disfigured over the course of the last 100 years. It bears scars from sociological debate, political ideologies and philosophical scepticism. Nowadays, many political philosophers abstain from talk of "the state" as much as possible, preferring terms like "social and economic institutions", "legislation" or "policy". In this thesis, the concept will play a pivotal and non-reducible role and some clarificatory remarks are therefore in order.

First, consider Max Weber's (1922) definition of the state as an organisation "that (successfully) claims the monopoly of the legitimate use of physical force within a given territory". This expedient definition matches the use of the concept in ordinary language. Given that this definition is appropriate, any state (as long as it exists) possesses such a monopoly of legitimate force. However, the fact that this definition is accurate does not mean there are no other functions and characteristics of the state. The accuracy of this definition of the state focusing on physical force does not imply that the state does nothing else, that all its actions are uses of force (or serve its own power) or even that this is the most relevant aspect of the state. In addition to the administration of force in the form of armies, police and law, states have come to assume many functions in recent centuries and decades. For example, with the development of the welfare state, states came to care for citizens' economic prosperity. Similarly, the developmental state literature identifies countries in which the state played a key role in driving industrialisation. To conclude, the definition of the state needs to be kept apart from the various roles it can assume.

Second, there is scepticism about how meaningful it is to speak of a "state" given that the modern state is a collection of organisations, such as government ministries, state-owned enterprises, schools, universities, prisons, statistical offices, police or the army (Abrams 1988). The modern state is a large entity, consisting of a great variety of organisations. For my purposes this merely poses a challenge of coherence: do these many different entities act in a way that is coherent enough to warrant talk of "the state"? Some states at some times will be in certain respects more coherent than others. Political philosophers have recently advanced credible and nuanced views about the conditions of collective agency (List & Pettit 2011). These accounts may be used to analyse when states are successful cases of collective agency. Thus, while there is a challenge of coherence, there is no fundamental ontological problem for the nature of the state.

Third, the "state" must be differentiated from "government". Government is part of the state, it passes laws, issues directives and designs policy. The executive government, together with other branches of government, is in charge of steering the state machinery. However, the state includes organisations and public administrators that are not part of government. Prisons and schools are part of the state, without being part of government. The actions of the state are not the same as the actions of government. Government typically works through issuing directives and laws. The public administrators who administer state action in particular circumstances are bound by laws and directives, but they have significant discretion in exercising them. Sometimes this discretion is an essential element in maintaining bureaucratic creativity, as in the case of university researchers. The fact that the state contains more parts is the reason why it plays a central role throughout this thesis. The pursuit of ambitious innovation policy assumes a role of the state that goes beyond regulation and legislation. The various parts of state, such as universities and state-owned enterprises, can play decisive roles in effective innovation policy. It therefore seems necessary to consider the state as the relevant agent in the context of innovation policy, as opposed to leaner concepts such as "government".[17]

Fourth, when discussing the role of the state in the economy, we must assume that the state possesses a certain degree of autonomy. Only a state with such autonomy can be credited with economic achievements. Following Marx and Engels (1848), Marxist scholars have regarded the state as the "committee for managing the common affairs of the whole bourgeoisie". Such a picture — where the state is merely instrumental to the interests of the ruling class — would deny the state the necessary agency to pursue any policy in tension with the interests of the ruling class. In the Marxist debate about the theory of the state, Block (1977, 1981) has gone furthest to carve out space for an autonomous sphere of the state. Evans (1995) described certain successful cases of industrialising states as *embedded autonomy*. While the administrative

[17] This necessity to consider the thicker concept of "the state" also connects the current discussion with the identification of various public administration paradigms. Pollitt and Bouckaert (2017: ch. 6) classify three such paradigms: *New Public Management*, *Neo-Weberian State* and *New Public Governance*. Torfing and Triantafillou (2016) focus on the connection between innovation and such paradigms. Most relevant in the present context is the connection between Weber's ideas on bureaucracy and innovation (Kattel (2015), Drechsler (2005) and Kattel et al. (2019)).

bodies of these states were "embedded" in the structures of (private) economic decision-makers, they remained nevertheless sufficiently "autonomous" to act coherently over time and avoid being captured by interest groups. An important political question about this assumed autonomy of the state concerns its connection to democratic deliberation.[18] How can a state have the required autonomy for long-term economic policy whilst being accountable to the public and subject to democratic decision making? While embedded autonomy may be an ideal that is difficult to achieve, we must at least assume its possibility. Without a modicum of autonomy, states would not be able to carry out long-term economic plans and pursue them consistently over time in the face of resistance from other parts of society.

Fifth, there is great variation between states and not all possess the capabilities to engage in state entrepreneurship. For instance, many post-colonial states are predatory, serving the interests of a small group. Even in rich countries, state capabilities to pursue plans over time may be weak. The call for innovation policy assumes a well-established state structure with a disciplined body of public servants willing to work for public purpose (or at least for private purposes that happen to be aligned with public purposes). This factor is crucial in determining whether particular states can be expected to pursue such economic policies. Hence, I assume that the state possesses disciplined civil servants and state capabilities. As mentioned before, it is beyond the scope of this thesis to offer a verdict on the suitableness of this policy approach to particular cases. For this reason, the following chapters of this thesis will continue to deal abstractly with "the state", which is an ideal type organizational arrangement, rather than one particular country's state.

Innovation: A Passing Fad?

Novelty is not necessarily good. Recently authors, most prominently Vinsel and Russell (2020), have argued against the idea of innovation in public discourse as an "overused buzzword". Innovation, these critics argue, should be distinguished from "innovation-speak" that currently permeates many areas of society. The call for "disruptive innovation" or to "move fast and break things" are, quite plausibly, passing fads of Silicon Valley emulators. At worst, such innovation-speak may express "the ideology

[18] Take, for instance, Landemore's (2020) proposal of an "open democracy".

for change for its own sake" (Vinsel & Russell 2020: 15). Instead of idealising the new, so the argument goes, we should divert our attention to the maintenance of existing infrastructures, be they in politics, organisations or our personal lives.

This warning must be taken seriously. First, I do not defend the view that all innovation is good innovation. Chapter 2 focuses on the connection between innovation and economic prosperity and chapter 5 considers the value of innovation that helps in the effort to tackle climate change. There may be many types of innovation that do result in prosperity or aid in tackling climate change. Second, I shall stay away from the worst excesses of "innovation-speak". Third, in this thesis I examine the normative grounds for innovation policy in the context of grand challenges, such as climate change. It is important to highlight that I do not defend the view that it is such innovation policy on its own that can solve such challenges. Indeed, most likely successful action will require a policy mix, of which innovation policy only forms part (albeit a central one).

This concludes our review of innovation policy from the perspective of political economy. The next section will turn to political philosophical engagement with innovation policy.

2. Towards a Political Philosophy of Innovation Policy

The most direct call for philosophical engagement with this innovation policy paradigm is found in Papaiouannou (2020b). He questions the political-normative foundation for Mazzucato's (2013) concept of the entrepreneurial state. Papaioannou considers a variety of possible political regimes that engage in this kind of entrepreneurial activity, for example an authoritarian state, a liberal state primarily concerned with liberty and private property or a utilitarian-welfarist state.[19] Given that all of these political-normative foundations are conceivable, Papaiouannou stresses the need to establish the political purposes and the political constraints within which such economic policy can legitimately be pursued. Similarly, Schubert (2013) calls for the establishment of an "evolutionary welfare economics" that takes into account novelty and changing preferences.

[19] Papaiouannou (2018) also elaborates the connection between social justice, incentives and innovation.

Notwithstanding these direct calls, there has been little direct engagement of philosophers in the liberal tradition with questions of state-led economic change. In order to start such a debate, I will consider the implications of key arguments and developments in political philosophy for innovation policy. The following review starts with an assessment of the implications of John Rawls's philosophy of political economy on innovation policy. Then it considers arguments that have been adduced from liberal theories of political legitimacy to argue for a restriction of the role of the state in the economy. Finally, I will survey the recent debate about the moral standing of markets and the implications of climate change on political economy and individual responsibility.

The Philosophy of Political Economy after Rawls

John Rawls's (1971) account of justice is the most sophisticated exposition of liberalism and the central reference framework for many philosophers of political economy. Rawls's methodology has shaped much of later theorising and this section focuses on the implications of his methodology for discussions of innovation policy.

Rawls formulated principles of justice with which a basic structure for society can be justified. Rawls envisages these principles of justice to pertain not to individual policies, but instead to the totality of institutions in that basic structure. The most relevant principle for our discussion is the *difference principle*, which expresses special concern for the least well-off in society: "[s]ocial and economic inequalities are to [...] be to the greatest benefit of the least-advantaged members of society" (Rawls 2001: 42-43). This preference for holistic theorising privileges the discussion of economic institutions as part of their wider structure, as opposed to piecemeal evaluation. In this way, it is particularly useful for considering ideas such as an entrepreneurial role of the public sector, without reference to the consequences of particular policies. However, given the generality of Rawls's account, it may not be able to illuminate morally important features or changes that occur in particular markets. As mentioned before, Rawls's principles of justice pertain to the basic structure of society; and this has the upshot that institutions that are not "basic", such as particular markets, may not be evaluable according to Rawls's framework.

A second methodological choice in Rawls's work is the focus on distribution. Rawls identified *primary social goods* — goods which everyone would reasonably want to have more of — and starts with the observation that there is scarcity of these goods. Given this scarcity, Rawls asks: What would a just distribution of these primary social goods look like? This question is answered by Rawls's two principles of justice, which in turn guide the choice of social and economic institutions. Rawls is often read as offering a theory for how fixed amounts of wealth should be distributed. One might note that, at face value, there is a tension between such a distributive approach — where existing goods are distributed — and the idea of economic policy that results in changing markets and increasing wealth. One of the primary social goods identified by Rawls — income and wealth — is most directly affected by changing levels of economic prosperity in a society.[20]

The implications of Rawls's normative framework on the choice of political economic arrangements have been a contentious issue. In the foreword to the revised edition of *A Theory of Justice* (Rawls 1999) and in his *Justice as Fairness* (Rawls 2001), he rejects *laissez-faire capitalism* and (more surprisingly) *welfare-state capitalism*. Rawls argued that welfare-state capitalism is not acceptable to the weakest in society, as they would be heavily dependent on redistributive measures and thus most vulnerable to welfare cuts (Rawls 2001: 137–138). Until the publication of these two books (which occurred just before his death), Rawls was taken by many to be a defender of postwar US welfare-state capitalism. With the rejection of capitalism and the advocacy of *property-owning democracy*, the question of the institutional implications of Rawls's normative programme has become more salient. For Rawls, property-owning democracy includes elements of predistribution, with strong emphasis on equitable education and restrictions on campaign financing.[21] In Rawls's work, these measures were meant to prevent accumulation of capital that could lead to disproportionate influence on political decision making. The anthology by Martin O'Neill and Thad Williamson (O'Neill & Williamson 2012) started off the systematic debate on Rawls's critique of capitalism, as well as on the prospects and details of a property-owning democracy. Rawls's arguments and his sketch of property-owning democracy raise several questions regarding innovation policy.

First, what are the grounds for Rawls's rejection of capitalism and what exactly does he reject when he rejects "capitalism"? Rawls's rejection seems to focus on the

[20] Chapter 2, section 3 discusses the implications of technological and economic change on income and wealth as a primary social good.
[21] Rawls takes the term "property-owning democracy" from Meade (1964). More recently, Jacob Hacker (Hacker et al. 2013) developed the idea of "predistribution".

idea of capitalism as private ownership of the means of production, along with the presence of markets as primary allocative mechanism. Inequality in the means of production leads to divergent political power which threatens the political stability of society. Instead, capitalism can also be characterised as a mode of economic development (following Schumpeter 1942). Yet Rawls also seems to reject that kind of economic development when he rejects the necessity of growth in the basic structure.

Second, in Rawls (1971), he lists *four branches of government* (of a property-owning democracy) and sketches the economic responsibilities of these branches. Recalling Evans's distinction between the different roles the state may play in economic development, Rawls was not explicit about his view of the state vis-à-vis the market. His description of the four governmental functions suggests that Rawls saw the role of the state in economic affairs mostly as a regulator (or "custodian" in Evans's terms). This raises a further set of questions: Is this Rawlsian view of the state as regulator necessitated by deeper normative reasons, or does it merely mirror the political economic fashion of his time? Is the view of the state as a driver of innovation and market shaper in principle compatible with Rawls's proposal of a property-owning democracy?

One of the most notable applications of Rawls's normative principles in the field of political economy did not aim to develop the idea of property-owning democracy, but rather rejected it. Jason Brennan (2007) and John Tomasi (2012) both argued that Rawls's normative principles actually support economic regimes that sustain high growth rates over long periods of time. This is in contrast to Rawls's own rejection of growth (and hence of economic regimes on the basis of growth). This debate is relevant for the question of the legitimacy of state-led innovation policy with the intention of sustaining high growth rates. Chapter 2 of this thesis will discusses the implications of Rawls's political philosophy, namely by focusing on the debate on the relevance of growth in the basic structure of society.

Liberalism and Laissez-faire

In the liberal tradition, theories of political legitimacy have appealed to the nature and interests of individuals, as opposed to appealing to a social group or class, a nation or

God.[22] In this tradition, individuals are endowed with interests, rights, freedoms or conceptions of the good life and the role of the state is to respect or even promote these. Historically, there has been a strong connection between liberal theories of political legitimacy and an aversion against state action in the economic sphere. Such an aversion may be described as "economic liberalism" or "economic individualism" (Lukes 1973). Let me illustrate this connection by reference to Mill and Hayek.

In *On Liberty (1859)*, John Stuart Mill defended the *harm principle*, according to which it is impermissible to interfere with a person's liberty even if this interference is done in order to promote the person's interest. The only exception to this rule is interference carried out with the intention of averting harm to third parties. Granting such liberty to individuals, Mill argued, promotes the development and expression of individuality. The experimentation with different lifestyles will lead to greater utility. A similar idea seems to underlie Mill's position in his *Principles of Political Economy (1848)*, where he holds that the default position is laissez-faire non-interference by the state. Only in situations in which individual action can be expected to lead to sub-optimal results — and Mill identified a comparatively long list — is there a prima facie justification for interfering with markets.

Furthermore, Mill's discussion of the harm principle surfaces today as concern about state *paternalism* in discussions about inducing behavioural change in the market. The study of behavioural economics yielded a set of instruments — referred to as *nudges* — by means of which people can be influenced to act or choose one way or another (Thaler & Sunstein 2009). Placing apples on the middle shelf in the supermarket makes it more likely that they are chosen. Nudges have become increasingly common, with a range of governments establishing "behavioural science units" to help study and advise on their implementation. This trend, however, has been met with a backlash in liberal societies. While it seems that Mill's harm principle is by and large respected —freedom is not restricted — concerns of paternalism are still present. Why should it be the state's business to help people make healthy choices? The relevance of Mill's notion of paternalism in debates about the ethics of nudging is only the tip of the iceberg. This concern — whether state action interfering with private action is impermissibly

[22] Grouping authors such as Mill, Hayek and Rawls under the heading of "liberalism" may well be controversial and ignores important distinctions, such as that between "classical" and "high" liberalism (Freeman 2011). I use the term loosely in this thesis, highlighting the common focus on the individual in this tradition.

paternalistic — surfaces in many economic debates, for example whether it is permissible to block problematic market transactions.

I will engage with concerns about individuals in the context of economic policy in chapter 4. Innovation policy will be treated as a policy towards behavioural change and will be compared to alternative policies with such aims, such as nudging. Is innovation policy that seeks to generate new markets and thereby change individuals' behaviour subject to the concerns about freedom or paternalism that Mill and others have raised?

Friedrich August Hayek (Hayek 1960, 1973) built on Mill's understanding of liberty and spelt out the implications to freedom in the market. His argument from spontaneous order holds that market processes are (and should be) the result of human action, but not of human design. Granting individuals the freedom to pursue their individual ends in the market will allow people to exploit knowledge to the fullest and advance their purposes. The resulting market order will be maximally complex and most able to reflect and make use of the available knowledge in society. Through changes in prices, signals can be sent about the supply and demand of goods (Hayek 1945). Knowledge is transferred and used, knowledge that would not be comprehensible to a single planner. The conclusion of this argument from spontaneous order yields an argument against the issuing of commands by the state. This is yet another philosophical argument that seems to support a restriction of the role of the state in the economy.[23] Hayek's resulting view of the role of the state fits most closely to that as a mere regulator ("custodian" in Evans's classification).

Chapter 3 of this thesis will engage with this kind of epistemic account of the role of markets and will try to disentangle it from Hayekian political philosophy. The key question for innovation policy as market shaping is whether it constitutes an interference in the process of spontaneous order. In this context, innovation policy will be treated from the perspective of the epistemic role of market and policy processes.

These two arguments against limiting the state's influence on markets — from Mill and Hayek — are far from the only arguments to this end. However, they are among the most prominent examples of how liberal reasoning has been used to

[23] It is also in the context of such an epistemic argument against state action that a contemporary political philosopher explicitly rejected the pursuit of industrial policy: "The epistemic argument against socialism, though it is certainly not a conclusive argument against *all* forms of government intervention in the economy, is certainly a powerful one against an industrial policy that aims to guide the economy as a whole" (Gray 1992: 79).

advocate a restriction of state action in the economy. A key challenge is therefore to consider whether and to which extent such arguments affect the call for ambitious state-led innovation policy.

The Moral Standing of Markets

There is an extensive literature that seeks to defend market institutions in society.[24] The aim of this literature is broad-scale, namely a defence of market economy in general, which takes the market to be the default distributive device of economic goods[25] in society. These defences make use of knowledge (Hayek 1945), property (Nozick 1974), autonomy (Gray 1992) or economic liberty (Tomasi 2012) as normative ground on which market institutions are defended.[26] On the other hand, Rawls's rejection of laissez-faire and welfare-state capitalism or Marxist arguments that market economy is inherently exploitative call the legitimacy of market economy into question.

Next to this high-level debate about the choice of entire political economic regime, the last decade or two have seen a stronger focus on evaluating individual economic policies. The previously mentioned debate about policies aiming for behavioural change belongs to this field of ethics and public policy. Another field in this literature deals with markets. Here, the focus is not on questions about the legitimacy of market economy as an economic regime as a whole, but rather on the ethical and political acceptability of concrete markets, such as markets in body parts or social goods such as friendship (Anderson 1993, Sandel 2012).

The understanding of the role of the state in shaping markets remains nonetheless limited to that of the regulator, that is as giver and enforcer of rules. The market is seen as an independent economic sphere into which the state can only "interfere". The freedom to exchange market goods is taken as the default, natural condition, into which the state can only enter as an obstructive force. However, such a view of the market as dis-embedded from politics and society is not the only one available. In the moral limits of markets literature, Debra Satz (Satz 2010) comes closest

[24] The (German) editorial texts in the anthology by Herzog and Honneth (2014) give a clear account of the debate on the political and moral significance of the market.
[25] Throughout the thesis, the term "goods" should be read to encompass all marketable things, such as products, services or knowledge.
[26] See Buchanan (1985) for an introduction into defences of the market from various normative considerations.

to understanding markets as constructed institutions in society, amenable to policy and other forces. However, neither Satz nor others in this literature have explored the full implications of such an institutional understanding. If we accept that the state can also shape and create new markets, then the role of the state can expand from obstructing to enabling market transactions. Of course, many theorists acknowledge the role of the state in enabling markets by enforcing contracts, a crucial legal institution for functioning markets. What distinguishes the proposal defended in this thesis is that states go beyond such enabling of markets to deliberately create entirely new markets for specific goods. This opens the space of philosophical discussion from problematic markets (that should be blocked) to beneficial markets (that should be created or shaped).

Views of the market as subject to questions of value often come under the heading of *moral economy* (Booth 1994). Aristotle's view of market relationships in his *Nicomachean Ethics* (Aristotle 2014) and his *Politics* (Aristotle 1996) focused on their embeddedness in the social and political context. Aristotle's theory of just prices, for example, demonstrates that for him the economy (and its mechanisms of supply and demand) should not be a separate sphere of society. Markets and other economic arrangements must be assessed with a view to the self-sufficiency of the city state. Karl Polanyi's reading of Aristotle highlights this value-centric aspect of Aristotle's understanding of the market (Polanyi 1957). Polanyi's own theory must also be understood in the tradition of the moral economy, seeing the market as *embedded* in social and political institutions, requiring the continual maintenance by political forces.[27] In the context of Polanyi's grand history of society's transformation to market economy, there is another point relevant for the proposal that markets should be created or shaped. Markets are always being shaped by political and social forces; thus, the present proposal should not be understood as doing something which was not done before, but rather doing it consciously and doing it with a clear view to political and societal goals.

Looking ahead, it will be crucial to connect the notion of the value of markets to grand societal challenges. The question of the moral standing of individual markets in society is of paramount importance for the justification of innovation policy seeking

[27] The relevance of this "embedded" view of the market ("market as institution") is discussed in more detail in chapter 3, section 2.

to create new markets. Chapter 5 will discuss the moral limits of markets literature and argue that another approach towards assessing the value of markets is needed.

Climate Change and Responsibility

Climate Change poses the most significant challenge to thinking about economic arrangements. Much attention has been given to questions of distributive justice: Given the need for climate mitigation, adaptation and compensation, what would be a just distribution of the resulting burdens (and benefits) (Caney 2018a)? To a somewhat lesser extent, the question of the distribution of obligations to act has been raised. Here, obligations are forward-looking duties, in the sense that those who have them are morally required to mitigate, help adapt or compensate.

Given my focus on questions of legitimacy of economic policy, the question of individual responsibility becomes relevant. The actions and inactions of individual citizens have only very limited causal impact. Can individual citizens really make a difference and do they have an obligation to adjust their behaviour? This problem is referred to as the "inefficacy problem" (Nefsky 2018). It is somewhat assumed in this literature that new technology, especially in the form of renewable energy, must be developed and rolled out by policy. However, this process is hardly made explicit and the connection to questions in the philosophy of political economy are barely made.

Simon Caney distinguished between first-order and second-order responsibilities in the face of climate change (Caney 2014). First-order responsibilities are those to tackle the problem directly, for example by reducing one's greenhouse gas emissions. Second-order responsibilities, by contrast, are those to make it more likely that someone else fulfils their first-order responsibilities. For example, subsidizing green products may incentivise individuals to fulfil their first-order responsibilities. Pursuing innovation policy might be an important way for states to fulfil what Caney identified as second-order responsibility. By creating new markets (such as markets for electric cars or train connections) states may create the institutional conditions for individuals to pursue their life plans in a way that is compatible — or actively supportive of — the effort to mitigate climate change. Stressing this role of the state in bringing about such economic conditions in which individuals can fulfil their own responsibilities also brings into focus the question to which extent individuals can contribute to this process of bringing about such markets. Chapter 6 will consider the role that individual obligation plays in the context of market shaping.

3. Thesis Overview

The individual chapters of this thesis are variations on a common theme. Liberal theories of political legitimacy may not seem compatible with ambitious views about the role of the state in innovation and market shaping. As the individual chapters will argue, there are good reasons for believing that liberal theories are not only compatible with such ambitious state action, but sometimes even demand it.

Chapter 2 discusses innovation policy as economic growth policy. Economic growth has received attention in political philosophy in debates about the proper way to realise the difference principle in the basic structure of society, following John Rawls. Recently, some political philosophers have argued that continued pursuit of economic growth can ensure that the least well-off in society have their prospects maximised. Thus, according to these writers, considerations of the difference principle would lead us to adopt an economic regime that promises to maximise growth. The chapter accepts these philosophers' strategy to satisfy the difference principle via growth. It parts with them on the institutional implications of such a strategy. While for these philosophers, market-centric laissez-faire processes promise to deliver on this, the chapter maintains that the best strategy is state-led growth.

This then carries us to the argumentative heart of the thesis: a triplet of chapters discussing innovation policy as the shaping or creation of markets. Chapters 3, 4 and 5 consider the proposal that the state take an active role in bringing about new markets through innovation that may be valuable for individuals or society.

Chapter 3 focuses on the idea of spontaneous market order and the epistemic account of the role of markets. Hayek argued that we must understand and leave economic processes as catallaxy, that is the result of human action, but not of human design. Such an order will allow people to exploit to the fullest their knowledge and advance their purposes. This results in the most complex order. The question of the chapter will be to which extent the idea of spontaneous order is compatible with market shaping by the state. Surprisingly, I find that there is space for the idea of market shaping in an epistemic account of the role of markets. Hayek's argument only seems to go against versions of the role of the state which exclude private initiative. Against such usual interpretations of spontaneous order, I argue that it allows for the state to shape and maintain economic order.

Chapter 4 considers a range of possible objections to the state creating new markets in such a way. The objections considered range from concerns of freedom, autonomy, paternalism and property. The chapter argues that market creation is possible without infringing on any of these individualist values. In this way, the creation of markets may be a form of behavioural change that is *softer* compared to alternative forms of behavioural change, such as coercion, incentive or nudge.

While the previous chapter counters possible objections, Chapter 5 advances a positive reason for market creation. It seems that existing accounts of market value, especially those concerned with the moral limits of markets and those that identify market value in their propensity to promote wellbeing, do not fully account for the value that new markets may have. My argument will establish that markets can enable individuals to make market choices that are compatible with climate-related responsibilities they already have. In this way, the creation of markets is the creation of an institution that makes the pursuit of a moral life not just more likely, but also feasible in the first place. In addition, the market preserves the agency of the individuals. It is consumers who ultimately make certain market choices.

Chapter 6 continues on this theme of responsibility and climate change. It draws conclusions from the proposal of state-led market shaping to individual obligations in this process. To which extent do individual citizens have a duty to engage in (economic) behaviour that can plausibly be expected to contribute to a green restructuring of the economy? The conclusion is that as part of the strategy to transform the economy, individual consumers have moral obligations to promote certain markets over others. They may have responsibilities as voters, investors, consumers and users. This last chapter represents a break from the previous chapters insofar as it explores the role of individuals, as opposed to public policy, in shaping markets.

4. Beyond Innovation as Market Failure

In this thesis, I treat innovation as a political issue. Political deliberation should be concerned with the rate and direction of innovation and political action should directly or indirectly ensure its occurrence. An important challenge to this assumption is the view that innovation should be mainly left to the market. After all, if innovation is needed in society, then this will be materialised in the preferences of consumers who are ready to engage in new markets. As a result, private entrepreneurs would have the ability to find out about this need (given the preferences of individuals) and would have the incentive to act accordingly (given the expected returns).

There are three types of response to this type of reasoning. First, one might identify market failures in delivering innovation. Second, one might question the picture of human wellbeing which underlies the view that individual preferences are revealed by market behaviour. Third, one might deny that justifying innovation policy requires identifying inadequacies in the market in the first place. Let us explore these three types of response more closely.

Market Failure: The first response argues that in the case of innovation, we are faced with a market failure: markets on their own fail to provide an efficient level of innovation. Due to certain inherent failures in market mechanisms, we can expect underinvestment in innovation. The argument that *basic research and development* is such a market failure has been advanced by Nelson (1959) and Arrow (1962). Private investors cannot anticipate whether and how basic research (for example, in chemistry) will be translatable into new products and profits. Those who generate new knowledge may not be those who can use it. As a result, the allocation of resources for invention may be suboptimal. This reasoning is economistic, in the sense that it treats the optimal state of innovation as given and investigates whether the market on its own will produce that optimal state.[28]

Wellbeing: The second response, by contrast, is to challenge the account of human wellbeing on which the theory of the optimal allocation of resources is based. Neo-classical welfare economics takes the revealed preferences of consumers as the basis for human wellbeing. Yet alternative accounts of human wellbeing might identify other ways in which markets do not lead to optimal welfare outcomes. Consider alternative accounts of human wellbeing, such as hedonism, informed preferences or Nussbaum's (2011) objective list capability approach. Such accounts of human wellbeing open the possibility that individuals are mistaken about which decisions will maximise their own wellbeing. In the context of innovation, this possibility seems to be exacerbated given the lack of knowledge about future products and their impact.

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[28] Dosi et al. (2006) survey key developments in this area since Nelson's and Arrow's pioneering work.

There is also a more fundamental way of spelling out such a response to the idea that innovation should be left to market mechanisms. Instead of starting with individuals' lack of knowledge for optimizing their preference satisfaction, we may focus on the variability of their preferences themselves. Let us explore this option more closely by considering another debate in which the notion of market failure has been central, namely the debate on subsidies for the arts. In an influential article, Dworkin (1985) considers why the state should have a role in subsidizing high art, such as opera, which would not be profitable if left to market forces. Dworkin identifies several problems for treating art as a public good, for example the fact that long-term time horizons would mean that investors cannot reasonably expect to yield a high return on their investment.[29] But even more importantly, Dworkin writes that

> "[i]n conventional examples — military defense and clean air — economists have difficulty devising techniques for identifying *[individuals' preferences]* once the market has been dismissed as inaccurate. But they are encouraged to search for these techniques because they assume, reasonably enough, that the community as a whole does want military security and clean air at some substantial price. The difficulty is one of accuracy and refinement. The parallel assumption needed for a public-good argument for art — that the community wants a popular or general culture of a certain character — is not only problematical; it may well be incoherent. *The intellectual culture of a community exerts such a profound influence over the preferences and values of its members that the question of whether and how much they would prefer a different culture to the one they have becomes at best deeply mysterious.*" Dworkin (1985: 226- 227; my emphasis)

What holds for the intellectual culture may also hold for technology and markets. What kinds of goods and services are available has a profound impact on our judgment of what we want. This concerns the impact on our preferences, but it goes beyond that. The question whether we would want to live in a society with different markets — markets in which, for example, solar panels and electric cars are more widely available

[29] Public goods are goods that are nonrivalous and nonexcludable. Markets often undersupply public goods and supplying them is therefore traditionally seen as a core task of government (Anomaly 2015). In philosophical discussion, public goods are the most discussed type of market failure.

at an affordable price — might be equally mysterious from the point of existing preferences.[30]

The type of reasoning that takes the provision of goods through the market as default relies on the idea that the market is an efficient way of satisfying people's preferences. We have pointed out that innovation and policy can shape markets and markets themselves shape individuals' preferences. By showing the institutional and economic basis of individual preferences, we have left the debate whether markets produce optimal results and we raised a deeper question about what kind of society we want to live in.

Politics First: These kinds of arguments lead to a third type of response to the idea that innovation should be left to the market. The type of reasoning that requires that policy needs justification with reference to market failure implicitly accepts the market as the primary institutional arrangement in society, with the state being only a subsidiary actor. Yet theorists are not forced to follow this type of market fundamentalism. Instead of a *market first* approach to innovation — where state action is justified by reference to market failure — I will adopt a *politics first* approach. Following the picture of the state as an agent equal to private market actors, we may instead identify reasons for the state providing such innovation, without reference to the market. Now, one may object that identifying such political reasons without reference to the market would go against the grain of liberal thought. Of course, respect for the individual is one of the fundamental tenets of liberalism and the requirement to justify policy by reference to a failure in the market seems like a good way to acknowledge that kind of respect. However, reference to market failure is not the only way how to express this concern for the individual. Chapter 5 will show this by considering the value of innovation for individuals without considering failures in the market in bringing about such innovation.[31]

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[30] Consider Hodgson's idea that markets have a constitutive impact on people. He argues that "through 'reconstitutive downward causation' institutions affect individuals in fundamental ways" (Hodgson 2000: 318). Elster (2016) also pointed out the difficulties in evaluative comparisons after preference change has occurred. Compare also Rawls: "an economic system is not only an institutional device for satisfying existing wants and desires but a way of fashioning wants and desires in the future." (Rawls 1999: 229).

[31] Rawls (1999: 249-251) develops an argument against funding for public goods based on individual conceptions of the good. For example, consider public funding for museums that is justified on the ground that acquaintance with classical antiquity is highly valuable (as well as the economic reasoning that markets would undersupply such museums). Given the diversity of conceptions of the good in society, there will be some who reasonably reject this high regard for classical antiquity. If public funding is nevertheless provided, a particular conception is imposed on this minority, who thus appear to be treated paternalistically. For Rawls, this constitutes an argument against the public provision of public goods on the basis of conceptions of the good (given the absence of unanimity on the matter). The discussion on

5. The Economic Concept of Innovation

The term "innovation" has a specific (and some may say: *narrow*) meaning in this thesis, namely a techno-economic one. The concept of innovation is the concept identified by Schumpter at the beginning of the 20th century. The scholarly understanding certainly has its roots before Schumpeter's work (most importantly in Marx[32]), but the clear conceptual formulation must be credited to Schumpeter. Innovation is understood as new combinations introduced into the economy, for instance in the form of products, production methods or materials. The technological aspect in innovation is only secondary. Innovation may be incepted by the invention of new technology, but it need not be. Schumpeter distinguishes between "invention" (new technology) and "innovation" (realization of new combinations in the economy). That is the reason why the question of new technology — or technology in general — plays a secondary role in this thesis. New technology is only one factor, among others, that drive innovation.

This distinction between invention and innovation makes it clear why this thesis analyses innovation policy through its economic consequences. This is not primarily a thesis about technology. There are methodical reasons why focusing on economic institutions is more fruitful than on technology. Technology itself is difficult to evaluate. The impact that technology has on human life is always mediated through institutions that shape the distribution, meaning and use of technology. By treating innovation policy as growth policy or market policy, I incorporate this focus on the institutional expression of technology in the analysis.

With this distinction in mind, it is possible to reject another criticism against innovation policy as (part of the) solution to grand challenges. Some argue that placing hope on innovation policy is an instance of techno-solutionism, of hoping to solve political and social problems solely through new technology (Ziegler 2020). By contrast, the innovation policy proposal I defend in this thesis accepts that political and social problems require political and social solutions. The role of new technology is crucial, but only subsidiary: new technology may enable us to deliver new political and social solutions, but these solutions go beyond merely new technology.

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whether the public provision of public goods is paternalistic has recently been continued by Quong (2011) and Kramer (2017: ch. 2).

[32] Schumpeter discusses his intellectual relationship to Marx in the first part of Schumpeter (1942). Cohen's (2000) reconstruction of Marx's view of history is clear and builds mostly on Marx (1859). Schumpeter (1935) contains a useful overview of his own views.

The historian of innovation Benoît Godin traces the development of the concept of innovation throughout the ages and holds that the present techno-economic one is a highly recent phenomenon (Godin 2015). For example, in the past innovation has been understood as new religious doctrines or political reform. I stayed away from such a broader concept of innovation. In particular, I do not consider the idea of social innovation (for example, new social relationships), political innovation (for example, constitutional reform), bureaucratic innovation (for example, reforming civil servants' career prospects) or democratic innovation (for example, citizens' parliaments).[33] The fact that "innovation" was given such a narrow meaning in this thesis does not imply the rejection of such other — non-economic — types of change that can be grouped under that term. Instead, I hope to show that this focus on economic innovation offers enough to discuss for a whole thesis.

6. Further Qualifications

With this first qualification about the meaning of "innovation" in mind, two further sets of qualifications pertaining to the whole thesis are required. The first is about the delineation of the view that is defended and the second is about the comprehensiveness of the argumentation offered.

I defend the view that the state should take an active role in innovation policy. It is left open what level of state organisation these arguments address. In this thesis, "the state" need not necessarily be understood as "the nation station". Innovation policy, market shaping and driving growth may be pursued by multinational organisations (such as the EU), nation states, federal states, metropolitan areas, cities and perhaps even local municipalities. No principle for allocating responsibilities among various organisational levels — such as the subsidiarity principle — is offered or defended.[34]

A further qualification is that there are very different purposes for which state-led economic development may be required. The literature on developmental states and industrial transformation, from which I take the concepts of the roles of the state (Evans 1995), focuses on the efforts of developing countries to catch up, develop

[33] Von Schomberg and Blok (2021) are critical of the techno-economic focus in the responsible research and innovation literature.
[34] Wanzenböck and Frenken (2020) discuss subsidiarity in the context of innovation policy.

industrial capabilities and industrialise. A philosophical investigation of an active role of the state in the circumstances of economic deprivation would merit a thesis-length treatise by itself. The strikingly non-ideal circumstances of countries that industrialise would make this very interesting. By assuming that industrialisation is state-led, interesting political philosophical questions may arise. For example, one may ask whether long-term economic goals, such as industrialisation, are politically legitimate. The double challenge of fighting climate change whilst fighting poverty is of course highly relevant for many developing countries. However, poverty is a non-ideal circumstance from which this thesis abstracts. My focus will be on countries developing their economy to tackle other grand challenges, with a particular view to climate change.[35] The defence of innovation policy offered is contingent on the presence of grand societal challenges.[36] It is at least conceivable that at some point in the future no further economic change is required.

It is important to highlight that the scope of my thesis is restricted to advancing political philosophical arguments for innovation policy. There may be significant problems in areas other than political philosophy. For example, it may turn out that the state is, as a matter of fact, inadequate at driving innovation and introducing new products into the economy. This may be found to be a general economic fact or it may appear to be true for particular political arrangements. Some states may simply not have the bureaucratic capabilities or political consensus to carry out ambitious long-term policy. Some of these policies may be too easily susceptible to political capture by elite interests. It may be found that in some countries the policies advocated are not politically feasible. Perhaps there is too much opposition, or it may be somewhat incompatible with the historical tradition of that country. My aim is to show the strong connection between political philosophical considerations in the liberal tradition and the idea of active innovation policy. The thesis contributes philosophical reasoning, but a full defence requires insights from other disciplines.

What is the role that political philosophy plays in public deliberation? Howard (2019: 25) argues that the role of ethics in public policy is "to assist citizens and policymakers in their actual deliberations about public policy". This role seems plausible, but it should be extended to the public administrators as addressees of

[35] Climate change will be treated as a relevant case study for a grand challenge, but the findings are intended to be broadly applicable to other such challenges.
[36] Only the argument of chapter 2 is not premised on the threat of such "external" grand challenges, but instead on the economic prospects of the least well-off in society.

political philosophical advice. As discussed earlier, innovation policy requires the commitment of parts of the state beyond government, such as state-owned enterprises or universities. They, too, may use these ideas in deliberation about how to best use their discretion for societal purposes.

My intention in advancing this thesis is also to give advice and offer assistance in political deliberation, by offering ideas, arguments and clarifications. Philosophical argument can only cover a limited space of reasons that may be advanced in political deliberation. The philosopher can therefore play only a limited, yet crucial, role in advising and assisting. Let us highlight the necessity of this division of labour by considering the most influential characterisations of the personalities of the professional politician, the entrepreneur and the philosopher. The point of considering these crude psychological characterisations is to point out that there are different requirements on the character of these different roles. Thus, the role of the philosopher (or academic) in political or entrepreneurial life will at least be somehow riddled with difficulties.

First, Max Weber famously argued that it takes a certain personality to be a politician (Weber 1919). Achieving good political ends, Weber thought, is often coupled with morally problematic means and the possibility that negative unintended consequences follow. Hence, the politician must be comfortable in making such decisions and take responsibility for their outcomes. Thus, politicians must follow what Weber calls an ethics of responsibility (*Verantwortungsethik*). The politician must be ready to take responsibility for what "becomes of him" under the pressure of ethical paradoxes and "diabolic powers". This highlights the difficulty of moral action in the political realm, as the professional politician has to make decisions under non-ideal circumstances.

Second, Schumpeter advanced a psychology of entrepreneurship (Schumpeter 1911: ch. 2). The entrepreneur is led by the joy of creation (*Schöpfungslust*) and the desire to compete with others and to "found a private kingdom". The entrepreneur must be able to handle the difficulty of acting outside the "accustomed channels", lacking relevant data and rules of conduct. This characterization of the entrepreneur illustrates the need for creation and action, especially in the absence of a clear picture of how future innovations will materialise.

By contrast, Thales of Miletus, the first Greek philosopher, is said to have wondered around watching the stars at night, when he suddenly fell into a pit. A witty Thracian maiden observed the scene and remarked that Thales "was so eager to know the things in the sky that he could not see what was there before him at his very feet" (Plato 1990: 174a). Light pollution means that few philosophers can be stargazers anymore and the story is hyperbolic. Nonetheless, it expresses the important insight that scholarly reflection keeps a certain distance to everyday life, creation and to moral action.

The role of philosophical reflection in the politics of innovation must remain humble. Philosophical reflection has the advantage of remaining sufficiently abstract to keep the big picture in mind. Yet — as the story of Thales suggests — there remains a certain distance. Philosophers (in their role as philosophers) are no technological visionaries.[37] The non-ideal, time-constrained circumstance of real politics also pose important limitations on the idea of the philosopher as a politician. This is perhaps part of the reason why Plato's vision of "philosopher kings" is justly ridiculed. The aim of the thesis is by no means to provide a manual for a "philosopher entrepreneur" or a "philosopher politician".

There is also a second story about the philosopher Thales, which points us in a different direction. One day people mocked Thales, arguing that philosophy is a useless endeavour. Thales wanted to prove them wrong and looked into the stars in order to predict the weather. He anticipated good weather in the summer for olive trees and therefore booked all the oil presses ahead of the summer. When his prediction turned out true, Thales was faced with high demand for his oil presses and could rent them out to a very high price. He made a fortune and proved "that philosophers can easily be rich if only they wanted to" (Aristotle 1996: 1259a). The story exaggerates as much as the first, but perhaps we should adopt some core lesson nevertheless: there is no ground for hiding as a philosopher. Ideas must be advocated with confidence and must be pursued in the real world in order to assess their viability.[38]

[37] In a brilliant and funny text, Woody Allen (Allen 1966) demonstrates the discrepancy between the world of invention and philosophical reflection. He imagines the (purely fictional) story of Lord Sandwich inventing the modern sandwich. Allen documents the various stages of Sandwich's discovery process in which philosophers help him. "After four years of frenzied labor, he *[Lord Sandwich]* is convinced he is on the threshold of success. He exhibits before his peers two slices of turkey with a slice of bread in the middle. His work is rejected by all but David Hume, who senses the imminence of something great and encourages him. Heartened by the philosopher's friendship, he returns to work with renewed vigor". Later, Sandwich has fruitful exchanges with Voltaire on the topic and the German philosopher-poet Hölderlin speaks with undisguised reverence at Sandwich's funeral: "He freed mankind from the hot lunch".

[38] It is no wonder that the first story of "philosophical entrepreneurship" concerns olives. The first mythological report of market creation, too, concerns the olive tree in ancient Athens. The myth is introduced in chapter 5, section 1.

To conclude, the role of the thesis is to supply ideas, views, arguments and conceptual clarifications. In particular, its aim is to assist those participating in deliberative bodies and those in positions of responsibility. With these qualifications in mind, let us now turn to the discussion of the legitimacy of innovation policy understood as growth policy.

Chapter II. The Difference Principle and State-led Growth

0. Abstract

Growth has been proposed as the best strategy for satisfying the difference principle (DP). This strategy has been taken to justify market-centric regimes, with their presumed superior growth rates. This chapter accepts the pursuit of economic growth, but challenges the idea that it is best achieved through government inaction. After analysing the value of innovation for the income and wealth of the least well-off in society, the chapter advances reasons for pursuing state-led growth: states can drive innovation, manage the accompanying transformative processes and ensure growth is inclusive. Embracing growth as a strategy for satisfying the difference principle is therefore not the sole privilege of the proponents of laissez-faire.

1. Introduction

In the past two decades, political philosophers have debated whether economic growth is a suitable strategy to achieve social justice and in particular to satisfy the difference principle (DP). John Rawls's DP states that "[s]ocial and economic inequalities are to [...] be to the greatest benefit of the least-advantaged members of society" (Rawls 2001: 42-43). According to Rawls, the DP is one of the principles of justice adopted in the original position that help choose between different economic and social institutions for the basic structure.[39] The DP becomes relevant once the other principles are satisfied (they have *lexic priority* over the DP).[40] The vast literature on the DP has mostly operated under the assumption that the institutional arrangements that are legitimated by this principle are incentives, taxation and redistribution. However, recently theorists have argued that the pursuit of long-run economic growth — as opposed to redistribution — is the most promising strategy to maximise the long-term prospects of the least well-off. Brennan (2007) claims that long-term growth, provided it is distributed equally, would ensure that the life prospects of the least advantaged in society are better than

[39] For Rawls the DP applies when choosing between different institutional frameworks for the basic structure and not to individual policies.
[40] This is an assumption that the surveyed literature follows and the proposal advanced in this chapter also assumes that the lexically prior principles are already satisfied.

those in a similar society with slow growth. Thus, according to Brennan (2007) and Tomasi (2012), growth is an ideal strategy to satisfy the DP, despite Rawls's (2001: 159) own rejection of this claim.

The stakes in this debate are high. For liberal egalitarians (such as Rawls), the DP has been the most powerful weapon against opponents of public interference in economic affairs. If the "Right-wing Rawlsian critique"[41] of Brennan and Tomasi is right and the most effective way to aim at the DP is via growth, then redistribution (or *pre*distribution) may require a different theoretical justification. What's more, Brennan and Tomasi combine these normative arguments with the empirical claim that the best way to pursue high growth rates is to allow a laissez-faire market-centric economic regime, with low levels of taxation and no policy instruments to ensure widespread distribution of property. The appearance of this alternative way of interpreting the DP is a radical turn in the debate.

This chapter is a reply to this recent critique by Jason Brennan and John Tomasi. It will argue that — given their own normative commitments — they should prefer state-led growth, with strong inclusion of political and social institutions such as the welfare state, as opposed to market-led growth. Three limitations to this discussion of the institutional implications of the DP should be noted at the outset. First, it will only consider the DP, not other principles of justice (such as fair equality of opportunity). Tomasi (2012: ch. 8) has argued that these other principles also require economic growth.[42] Second, this chapter only considers the application of the DP on the domestic level. Questions of global justice — albeit highly relevant — cannot be addressed here. Third, the chapter only views growth as a strategy for maximising the prospects of people presently alive. Questions of intergenerational justice and the just savings principle are therefore bracketed. Note that the restriction to present and domestic concerns aligns with the focus of Brennan and Tomasi.[43]

Section 2 reviews the current dialectical situation in the debate between Rawls, Brennan, Tomasi and their critics. Section 3 argues that innovation-led growth is the

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[41] This is Arnold's (2013) terminology.

[42] There are other, non-Rawlsian, accounts of the value of growth. Friedman (2006) defends growth on the ground that it guarantees tolerance, stability and democracy. In addition, Rose (2019: 11-14) considers a defence of growth on the ground that it guarantees innovation and so protects society from future risks.

[43] The chapter engages with authors who defend growth, but disagrees about how best to understand growth and how to bring it about. As a result, the chapter remains silent about the important challenge from those rejecting the need for further growth for environmental or other reasons (Jackson 2009). Jacobs (2012) describes the notion of "green growth".

kind of growth that is attractive to the least well-off in society. Section 4 maintains that state-led economic development is more likely to produce this kind of growth, citing recent literature in the political economy of innovation. Section 5 considers the mechanisms such an alternative economic regime may employ to generate growth that is inclusive. Section 6 concludes.

2. From Rawls to Growth

Rawls's DP combines the concern for the least advantaged members of society with considerations of economic efficiency. Rawls allows social and economic inequalities because (and to the extent that) they improve the situation of the least well-off. This raises the question about the implications on the structure of social cooperation: what leads from these inequalities to greater economic prosperity? How can inequalities benefit the least well-off? There are three statements to this end in Rawls's writing, each mentioning incentive, but each statement includes another element.

In his *A Theory of Justice* the other element is innovation:

> "Their better prospects act as incentives so that the economic process is more efficient, innovation[44] proceeds at a faster pace, and so on" (Rawls 1971: 78/1999: 68).[45]

Later he adds a concern with who has resources for investment:

> "I assume that these *[better prospects for some]* are necessary, or highly advantageous, for various reasons: they are required to maintain and to run social arrangements, or to serve as incentives; or perhaps they are a way to put resources in the hands of those who can make the best social use of them; and so on" (Rawls 1975a: 257).[46]

Finally, in *Justice as Fairness*, he adds their role in paying back previous expenses in training and education:

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[44] This is the only occurrence of the word "innovation" in *A Theory of Justice*.
[45] Rawls remained indifferent as to whether that mechanism actually works. The next sentence reads: "I shall not consider how far these things are true" (Rawls 1999: 68).
[46] Van Parijs (2003: 203-204) elaborates on the reasoning behind this passage.

> "By varying wages and salaries, more may be produced. This is because over time the greater returns to the more advantaged serve, among other things, to cover the costs of training and education, to mark positions of responsibility and encourage persons to fill them, and to act as incentives" (Rawls 2001: 63).

The discussion of the institutional implications of Rawls's DP has focused on these types of economic inequalities. Some critics put pressure on Rawls from the left and argue that the inequalities allowed by the DP threaten to undermine the egalitarian spirit of his theory of justice. Most importantly, Cohen (2009: ch. 1) argues that the incentives argument "generates an argument for inequality that requires a model of society in breach of an elementary condition of community" (ibid: 32).[47]

This discussion on incentives has taken place under the assumption that these incentives will lead to efficient allocations of existing resources. This should not be surprising given that Rawls's thinking was influenced by neo-classical welfare economics. The concept of Pareto optimality, which underlies Rawls's concept of efficiency motivating his DP, assumes a fixed set of goods and governs their optimal distribution over people. Accordingly, one may argue that Rawls was mainly concerned with the efficiency strategy for satisfying the DP. By contrast, along with Schumpeterian or Austrian critiques of the concept of static efficiency (de Soto 2008) one may argue that instead of such static efficiency we must consider the idea of growth as a strategy towards satisfying the DP.[48]

Explicit discussion of economic growth is absent in Rawls's early work (Rawls 1971). When he discusses the social and economic institutions of a well-ordered society, he lays out four branches of government (Rawls 1999: 242-247).[49] The *allocation* branch is charged with keeping the "price system workably competitive" and avoiding monopolies. Its measures include "suitable taxes, subsidies and changes in the definition of property rights". The *stabilization* branch pursues the Keynesian goals of full employment and "strong effective demand" to stabilise the market. The *transfer* branch ensures that a social minimum is set and guaranteed. Finally, the *distribution* branch

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[47] See Papaioannou (2016) for discussion of this tension with reference to innovation.

[48] Ziegler (2015) examines this assumed relationship between incentives and innovation in Rawls's discussion of the DP. He notes that there is no simple link between the motivation of entrepreneurs and monetary incentive (188). Furthermore, he points out that the picture of government "to 'cut red tape' and provide better incentives for entrepreneurs" is undermined by the findings by Mazzucato (2013), which I will discuss in more length in section 4 of this chapter.

[49] These branches should be understood as part of property-owning democracy.

preserves stability by limiting extreme inequalities (via inheritance and gift taxes) and raises taxes for the running of government.[50] None of these branches aims for development or growth. Especially the *allocation* and the *stabilization* branch concern merely the efficient allocation of existing resources. If Rawls had accepted the need for growth, this would have been reflected in one of these branches of government. If Rawls had intended one of these branches — especially the distribution branch — to achieve its aim through the pursuit of long-term economic strategies, he would have mentioned science, education or industrial policy. Given the absence of an institution that would embody this strategy, we can infer that Rawls did not want to put growth in the service of the DP in *A Theory of Justice*. Rawls's later work moves from ignoring to officially rejecting the need for growth:

> "the difference principle […] does not require continual economic growth over generations to maximize upward indefinitely the expectations of the least advantaged (assessed in terms of income and wealth). That would not be a reasonable conception of justice. We should not rule out Mill's idea of a society in a just stationary state" (Rawls 2001: 64).[51]

Rawls only explicitly rules out the idea that the DP requires growth, but from his insertion — "that would not be a reasonable conception of justice" — we may infer this applies to other principles of justice as well.

Rawls's view on growth should be understood in the context of his discussion of capitalism.[52] He rejects both laissez-faire capitalism as it "permits very large inequalities in the ownership of real property [...] so that the control of the economy and much of political life rests in few hands" (Rawls 2001: 138). Even welfare-state capitalism —

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[50] Rawls also considers a fifth branch of government (the *exchange* branch). Here, citizens deliberate which perfectionist public goods should be provided and how they should be paid for (Rawls 1999: 249-251). Since these goods are not required by demands of justice, but only on the basis of conceptions of the good, (near) unanimity in the decisions is required. This branch should be regarded as a mere "trading arrangement" and less a proper branch of government.

[51] Mill defines the stationary state as "the state in which no further addition will be made to capital, unless there takes place either some improvement in the arts of production, or an increase in the strength of the desire to accumulate" (Mill 1848: 72).

[52] Rawls's attitude to capitalism was not always clear. Early readers and commentators of his *A Theory of Justice* assumed the normative principles and rather abstract descriptions of economic regimes embodying them amount to a defence of the post-war capitalist US welfare state. This nearly unanimous reading is documented in Krouse and McPherson (1988). DiQuattro (1983) is a notable exception. Forrester's (2019) intellectual biography of Rawls brings out the transformation from his anti-statism in his early years. Edmundson (2017) highlights Rawls's left-wing thinking, especially in his later period.

with its mechanisms for limiting inequality — is inadequate: redistributing wealth after market-processes have allocated them ("at the end of the period") conceals inequalities and dependencies that may persist despite redistribution. The weakest in society would be heavily dependent on redistributive measures and thus most vulnerable to cuts in the welfare state (Rawls 2001: 137–138).

For Rawls, two economic regimes are compatible with the DP and the other principles of justice: property-owning democracy and liberal (democratic) socialism. The main idea behind property-owning democracy is to avoid the accumulation of property and power in the hands of few. It advocates widespread dispersal of property ("at the beginning of each period"), institutes restrictions on political campaign financing and favours worker-led companies.[53] In contrast to liberal socialism, the means of production are not socialised.[54] Rawls does not make the reason for his rejection of growth, as well his theory about its relationship with capitalism, fully explicit.[55] A plausible reconstruction is that Rawls's primary aim is to reject capitalism. He anticipates the arguments that only capitalism will bring about high growth rates and that growth is therefore required by one or more of his principles of justice. As a result, Rawls rejects growth outright.[56]

The recent critique of Rawls maintains that — contra Rawls — the ideal strategy to satisfy the DP is to ensure long-run economic growth. Brennan (2007) suggests a comparison between two hypothetical polities, both considering how to maximise the wealth of the least well-off in their societies. The first (*ParetoSuperiorland*) accepts a relatively unequal distribution and allows relatively unrestricted market processes to ensure high growth rates. Due to the low levels of intervention, ParetoSuperiorland has relatively big gaps between the various income groups (10, 20

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[53] In a similar vein, it has been pointed out that, in addition to dispersal of property, maintaining a culture of corporations (for instance, unions ensuring workers' bargaining power) can also be a crucial factor in making an economic regime less vulnerable to the power of the rich (Hussain 2012a, Keat 2009, Hall & Soskice 2001). See also chapter 6, section 3 for Galbraith's concept of "countervailing powers".

[54] The collection of articles in O'Neill and Williamson (2012) discusses Rawls and property-owning democracy.

[55] Mill is more explicit about his reasons for rejecting growth. First, the "trampling, crushing, elbowing, and treading on each other's heels" that accompany such growth processes are "disagreeable symptoms of one of the phases of industrial progress". Second, Mill is concerned with environmental goods that are destroyed in this process. Mill's rejection of growth only applies to developed economies (Mill 1848: 189).

[56] Freeman offers three explanations of Rawls's rejection. First, capitalist pursuit of growth may undermine the fair value of the political liberties and of fair equal opportunities (Freeman 2007a: 107). Second, capitalism aiming at growth is associated with utilitarianism (ibid.: 108). Finally, growth may generate income and wealth, but the index of primary goods relevant for the DP also includes other goods (Freeman 2007b: 112-113).

and 40 for the poor, middle and rich income group, respectively, in the year 1900). The second (*Fairnessland*) commits to low inequalities between its classes (15, 19 and 24). Due to interferences with the allocation processes of the market, this society has lower growth rates. Brennan assumes a 4% growth rate per year for ParetoSuperiorland and 2% for Fairnessland. We can now follow the expected growth trajectories of these polities (see Table 1, from Brennan (2007: 293)). After mere 25 years, the poor in ParetoSuperiorland are already slightly richer than the poor in Fairnessland (who had initially benefited from redistribution). After 50 years the poor in ParetoSuperiorland are richer than the rich in Fairnessland and after 100 years, they are three times as rich as the rich in Fairnessland.[57]

	ParetoSuperiorland				**Fairnessland**		
	Poor	Middle	Rich		Poor	Middle	Rich
1900	10	20	40		15	19	24
1901	10.4	20.8	41.6		15.3	19.4	24.5
1902	10.8	21.6	43.2		15.6	19.8	25.0
1925	26.7	53.3	106.6		24.6	31.2	39.4
1950	71.1	142.1	284.3		40.4	51.2	64.6
2000	505.1	1010.1	2020.2		108.7	137.7	173.9

Table 1: Brennan's comparison between two hypothetical growth trajectories.

Partly motivated by Brennan's argument, Tomasi (2012: 227-228) formulates a class of market-centric economic models that — like ParetoSuperiorland — limit government interference and are therefore taken to maximise economic growth and thus to satisfy the DP.[58] Tomasi holds that Rawls's preferred economic regimes (property-owning democracy and liberal socialism) would lag behind — like Fairnessland — in the long-run satisfaction of the DP. This powerful argument raises doubts about the consistency of Rawls's position.[59] The potential of high growth rates seems to give significant

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[57] Table 1 assumes that Fairnessland engages in redistribution only in 1900. Of course, Fairnessland may continue to redistribute in favour of the least well-off. However, and this is Brennan's point, the limited resources in Fairnessland mean that the poorest will nevertheless be worse off compared to the poorest in ParetoSuperiorland.

[58] The names of these economic regimes are *democratic laissez-faire* and *democratic limited government*.

[59] Tomasi argues for these market-led economic regimes not only on the grounds of the DP, but also from his own conception of "free market fairness", which contains economic liberty as a basic right. Market-led models, Tomasi maintains, also have the advantage of enshrining economic liberties as basic

support to a commitment to growth as part of the basic structure of society. If we accept Brennan's and Tomasi's arguments, then liberal egalitarians might be compelled to accept market-centric economic regimes. The normative principles of liberal egalitarians are being subverted by market fundamentalists.

By far the most popular criticism of this subversion has concerned these authors' restricted focus on income and wealth.[60] For Rawls the DP governs the distribution of three primary goods:[61] first, "powers and prerogatives of offices and positions of responsibility, particularly those in the main political and economic institutions"; second, "income and wealth"[62]; and third, "the social bases of self-respect" (Rawls 1982). The position of the least well-off should be measured by reference to an index that contains all three. Brennan's argument only accounts for the primary good "income and wealth". He equates higher levels of income with a higher score relevant for the DP. This focus on income and wealth makes Brennan vulnerable to the objection that income is not the only primary good that determines the position of the least well-off. While market-led regimes might maximise the income of the least well-off, it might do worse on other goods, such as the social bases of self-respect, compared to schemes that include, for instance, democracy in the workplace (Clayton and Stevens 2015). Tomasi defends this restriction to income and wealth: income and wealth are uniquely able to further the *agency* of individuals.[63] The other primary goods concern rather their *status*. Rose (2019: 8) points out that this restriction explains the focus on the primary good income and wealth through its close connection with an idea of autonomy and the conditions for pursuing one's life plans. Of course, Rose maintains, this focus may be attractive for some, but it does not comfortably sit with Rawls's account of the role of primary goods.

This chapter accepts the restriction of the application of the DP to income and wealth and to the agency of citizens. Furthermore, it agrees that long-run economic growth is the most promising strategy for the DP. However, it will argue that despite

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rights. "Diminishing personal agency in economic affairs — no matter how lofty the social goal — drains vital blood from a person's life" (Tomasi 2012:10). For Tomasi, economic rights as basic rights is what distinguishes classical liberals from today's left liberals.

[60] Versions of this criticism are advanced by Freeman (2007b: 113), Arnold (2013), Clayton and Stevens (2015) and Rose (2019). Lister (2018) is a general discussion of the relationship between growth and the DP.

[61] For Rawls, social primary goods are "social background conditions and all-purpose means generally necessary for forming and rationally pursuing a conception of the good" (Rawls 2001: 169).

[62] Rawls (1975b: 540) defines wealth as "(legal) command over exchangeable means for satisfying human needs and interests".

[63] This partly follows from Tomasi's market democratic conception of justice (Tomasi 2012: 422, 439).

the acceptance of their normative assumptions, different economic regimes are justified than the ones defended by Brennan and Tomasi. For them, growth leads to higher levels of income and wealth for the least well-off in society, which in turn satisfies the DP. The next section analyses this connection.

3. Creative Destruction and the Difference Principle

Having accepted growth as the most promising strategy for satisfying the DP, we should examine what it is about growth that benefits the least well-off. Which kind of growth should be aimed at? This question will be the focus of this section and it will provide the ground for the discussion in the next section, where we will consider what organisations or institutional arrangements are most likely to bring about growth that is sufficiently fast-paced and inclusive in order to be a plausible candidate strategy for satisfying the DP.

Neo-classical models see growth as more efficient allocations of resources and goods. By more efficiently allocating resources to producers (allocative efficiency) and by more efficiently distributing goods to consumers (distributive efficiency), more wealth is produced in society. The key concept in this growth model is the efficient allocation of existing resources, which is expected to be achieved by market equilibrium. Brennan (2007: 294) endorses this thinking about growth. By contrast, Schumpeterian or evolutionary theories of growth focus on the dynamic and transformative processes that the economy undergoes.[64] The introduction of new products, production methods, resources or delivery methods stimulates rapid changes in the economy. Trains and cars replace the horse, emails follow letters, steel and coal replace stone and wood as material for construction and heating; and synthetic prostheses come after the wooden leg. The new products bring rapid changes in citizens' lives and make previously impossible things normal: sending an email to the other end of the world within a second, a weekend trip to another European capital, or heating in all rooms of the household during winter. The key theoretical concept to understand this kind of growth is entrepreneurship. This model regards these over-time dynamic effects as much more consequential than "static" efficiency in the allocation

[64] Schumpeter (1942) is the most significant proponent. Nelson and Winter (1974) developed a full theory of evolutionary growth.

of goods — for Schumpeter (1942: 84-85) the difference is comparable to "bombardment [...] in comparison with forcing a door". Schumpeter popularised this concept under the heading of *creative destruction*.

Tomasi's arguments seem to endorse this creative destruction account of growth. His characterisation of the wonders of growth draws heavily from the work of the economist Deirdre McCloskey. He cites her claim that innovation and creative destruction brought benefits to society and especially the least well-off (McCloskey 2010: ch. 8, esp. 74). "The eightfold change in the (inflation adjusted) per capita income of average Americans since 1900 is impressive, but considered in terms of real experience the magnitude of change is far greater" (Tomasi 2012: 135) and he quotes McCloskey (2010: 48): "if one accounts at their proper value such novelties as jet travel and vitamin pills and instant messaging, then the factor of material improvement climbs even higher than sixteen — to eighteen, or thirty, or far beyond". Both Tomasi and McCloskey admire this historical growth and McCloskey explicitly states it therefore satisfied the DP.[65] McCloskey (2010: 65) emphasises the potential of innovation to extend the scope of the plans that people can pursue, also with reference to the lower strata of society. Thus, innovation fits with Tomasi's concern for individuals' agency. Given this endorsement of this historical mode of growth, we can safely assume this is also the normative model Tomasi endorses for future growth.[66]

Of course, it is not enough to show that Schumpeterian creative destruction has brought about many innovations. We must also show that such growth may plausibly satisfy the DP: growth must maximise the position of the least well-off. It is not sufficient to show that overall wealth is maximised, but the unique concern for the weakest of society must be respected.

The creative destruction growth model has a strong claim to be inclusive. Through its technological innovation and restructuring of the economy, it raises the value of the primary good income and wealth. In other words, the value of wealth and income is a function of the level of development of society. This can be illustrated by a historical comparison. Allegedly the richest man in history was Mansa Musa, king of

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[65] "The economic history of innovation therefore fulfils the so-called difference principle of the philosopher John Rawls […]. The principle is that a change is ethically justified when it helps the very poorest. Markets and innovation did." And she adds in brackets: "Rawls, by the way, is properly read in his wider *oeuvre* as non-socialist, maybe even a little pro-market" (McCloskey 2010: 73; *footnote removed*).
[66] Perhaps somewhat inconsistently, Tomasi cites Brennan approvingly when he states that market interference disturbs equilibrium and therefore hampers growth (Tomasi 2012: 417).

Mali in the 14th century. During the Middle ages, gold was highly sought after in Christian Europe and Muslim Northern Africa and Asia. At that time, Mali held approximately half of the gold in the "old world" and Mansa Musa, as its king, held the monopoly on all this gold. Accounting for inflation, his wealth may (very tentatively) be estimated to be around 400 billion USD. In 1324 Mansa Musa went on pilgrimage to Mecca and was accompanied by a caravan of 60,000 men. When he reached Cairo, he left enough gold in the market to cause massive inflation. It took more than a decade for the value of gold to recover.[67]

Compare Mansa Musa's breath-taking wealth with a middle-class income in modern industrialised economies.[68] In 2019, the median household income in the UK was GBP 29,600. Of course, which luxuries one can afford with this income depends on matters such as household size, rent payments and other obligations. Yet, absent significant debts, mortgages or other impeding factors, a family living on such an income can afford modern commodities like smartphones, a refrigerator, a holiday flight to the Americas, a car or glasses to correct sight. While not all of these commodities may be affordable for a larger family all the time, certainly none of them is completely out of reach. With a bit of saving or extra work, all of them could in principle be afforded without significant sacrifices.[69]

Mansa Musa, despite all his wealth, which dwarfs a contemporary middle-class income, would not have been able to acquire any of these goods. Smartphones and refrigerators depend on mastery of electricity, cars on engines, glasses on knowledge of optics and a flight to the Americas on secure aviation. Technological progress had not yet enabled these feats in the 14th century, and so money — no matter how much — could not buy him any of them. This comparison between Mansa Musa's gold and contemporary middle-class salaries demonstrates that the value of income is partly determined by the state of technology and the availability of products through market

[67] For the life of Mansa Musa, see de Graft-Johnson (2020) in the Encyclopedia Britannica.
[68] Tomasi makes a similar observation: "Andrew Carnegie, for all his wealth, could not buy a cure for the pneumonia that killed his mother — though treatments for pneumonia are readily available today. How do we measure the change in people's experiences that have been generated by growth?" (Tomasi 2012: 135).
[69] These generalising statements aim to characterise the economic situation of a household with the income stated. Significant proportions of families in the UK are not able to afford such commodities "without significant sacrifices".

exchange.[70] In other words, innovation-led growth can change the value of income and wealth over time.[71]

How can the rising value of income and growth benefit the least well-off in society? Novel products, the lowering of prices, the gradual technological improvement of products mean that even the least well-off find themselves with income that has higher value.[72] Developments since World War II meant that even the poor in industrialised economies can afford high resolution cameras; smartphones and modern bathrooms have become a near universal standard.

Of course, it may be objected that my re-interpretation of Rawls's primary good "income and wealth" to the "value of income and wealth", which also takes into account the technological and economic development of a country, goes against the theoretical reasons that made Rawls choose his primary goods. Primary goods must be measurable in a fairly objective way, especially because they need to be comparable to other bundles of primary goods. After all, how are we to express and measure the value of the improvement of, say, cameras for the index of primary goods relevant for the least well-off in society? What is the value of having a camera that has the power and the storage to capture every moment of one's life? The advantage of a mere "income and wealth" primary good was that comparing different bundles containing this primary good was at least plausible. However, the difficulty of objectively measuring primary goods and finding a way to combine them to allow bundle comparisons (the "index problem") have haunted Rawls's notion of primary goods for a long time. Even the development-insensitive version of income and wealth has not been satisfactorily been made measurable. In addition, viewing income and wealth as insensitive in this way would mean that historical comparisons in the way required in discussion of growth are not comprehensible.

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[70] This section argued that technological and economic change can affect the value of primary social goods. Such long-term change may, however, also complicate the understanding of similar concepts that measure the wellbeing of individuals for the purposes of an egalitarian theory of justice. In chapter 5, section 3, I will quickly consider its implications for the capabilities approach.

[71] It is important to distinguish this phenomenon from other factors on which the propensity of money to purchase goods may depend. One such factor is globalization. The fact that tropical fruit (such as yuca, guava or pineapple) can be bought in Northern Europe also has the effect that money can buy a greater variety of goods. Furthermore, this should be distinguished from the general point that a rich society is beneficial for each individual as it will be easier to acquire high income.

[72] Van Parijs (2003: 213-216) discusses who should be the referent of "the least advantaged members of society".

4. State-led Growth

The claim that growth is the most promising strategy for satisfying the DP becomes plausible when we view growth as the process of creative destruction. The question of the nature of growth is not just relevant for economists. Tomasi used the growth strategy to argue in favour of a set of market-led economic regimes, on the basis that these regimes are most likely to bring about innovation and growth. In contrast to Tomasi, this section will argue that the state has a key role in driving innovation and hence promoting creative destruction.

The assumption that free markets maximise desirable growth is not fully defended in Brennan's and Tomasi's writing. Brennan (2007: 293, n. 3) compares Sweden's low to Hong Kong's high growth rates from 1970 to 2000. Hong Kong's growth rates are, however, not comparable to an already industrialised economy like Sweden's. Developing countries that are catching up with the industrialised world have historically had high growth rates until they mature and have more modest growth rates. Furthermore, Hong Kong is a special case given that it has been a gate for investment into mainland China. More relevant examples are Taiwan (Wade 1990) and South Korea (Chang 2002a). Here, literature on the *Developmental State* argues that these countries' historical growth rates are explained partly by the involvement of the state in their economic development.

The state may not only be a driver of growth in developing countries. Recently economists have highlighted the role of the state in industrialised economies in advancing technologies. Tomasi advances a couple of examples of technologies that represent the improvement of the material situation of people in these societies. Tomasi, quoting McCloskey, mentions "such novelties as jet travel and vitamin pills and instant messaging". However, Tomasi does not explain why his preferred economic regimes will likely produce such innovations. He seems to assume that by instituting a free-market regime, entrepreneurs will be incentivised to promote innovations. There is reason to doubt that the picture of incentives is the most plausible account of how these new technologies were generated.[73] I will use the examples mentioned by Tomasi and McCloskey to show the involvement of the state and social institutions in the development of these innovations.

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[73] Ziegler (2015) also criticises Rawls's assumption that "indirect incentives" lead to innovation.

Let us start with vitamin pills. It should be no surprise that basic research and development is carried out in public sector research institutions. Until the early 20th century, nutritionists believed that the number of calories in food is the only relevant nutritional value. Then, several scientists discovered on mostly independent paths that there are substances that our bodies need and that high nutrition foods may lack. For example, in 1906 Elmer McCollum started his work at the Wisconsin College of Agriculture where he experimented with cows. Similarly, in 1910 the Lister Institute of Preventive Medicine in London assigned a young researcher called Casimir Funk with the task of isolating the substance that is lost when rice is polished and that prevented beriberi. Both of these publicly funded research projects led to the discovery of vitamin (and Funk actually coined the term "vitamin").[74] The idea that basic research and development will not receive the required funding by private investors and is therefore an example of market failure is widely recognised.[75] As the example of the vitamin shows, Tomasi would at least have to include the public provision of basic research and development into his economic regimes.

But it is not just through basic research and development that the public sector brought about the technologies that Tomasi and McCloskey are praising. The US military-research complex in the post-World War II era was perhaps the most ambitious and successful public sector programme in history with regards to innovation. The Pentagon cooperated with other public sector institutions, like NASA, and these investments and infrastructures played a key role in developing jet planes (Block 2008: 175-176). Similarly, instant messaging is made possible by the World Wide Web (developed at the US military research agency DARPA) and HTML/HTTP codes (developed at CERN). For sharing one's location on instant messaging, you need GPS where the "US Air Force has been at the forefront of developing and maintaining the system, which costs the government an average of $705 million annually". And further; "[t]his technology, as well as the infrastructure of the system, would have been impossible without the government taking the initiative and making the necessary financial commitment for such a highly complex system" (Mazzucato 2013: 246). Mazzucato argues that it was not just in the research that the public sector played a key role here, but also in the maintenance of the systems. Finally, the state acted as an entrepreneur and actively helped introduce products with these technologies into the

[74] Price (2015) offers an entertaining and stylised history of the discovery of vitamins.
[75] Nelson (1959) and Arrow (1962) pioneered work on basic research and development as market failure

market. In addition to such historical examples, there are plausible theoretical reasons for thinking that the state has a role in spearheading the development of such innovations. For example, the state has the ability to provide long-term, *patient* finance, as opposed to the more short-term oriented private investments. Long-term investment is what is needed in developing new "radical" technologies, when the potential and the possible uses are not foreseeable (Mazzucato 2013).

Tomasi also admires that "it took 65 years to go from the first flight in a heavier-than-air machine to landing a man on the moon".[76] The technological feat of landing a man on the moon may not be relevant for the discussion of the DP. Nevertheless, it is an important example of a state mission which required large-scale technological developments, from whose spillovers we still benefit in the form of textiles or engines (Mowery 2010). If Tomasi appreciates this feat and the resulting spillovers, then public institutions that can pursue such missions should be included in a political regime justified by the pursuit of growth as well.

Tomasi also quotes McCloskey's statements that "Americans had one car per every 4.4. persons in 1938, one per 2.4 in 1960, and one per 1.26 by 2003".[77] Carlota Perez has analysed the role of institutions during the implementation period of new technologies. In the "age of mass production" that saw the car as the most important product, her work offers two lessons: First, there were

> "institutional enablers, involving rules and regulations, specialized training and education, standards, supervisory bodies, financial innovations and so on. The traffic code and consumer credit for monthly payment of automobiles and electrical appliances were equally necessary for the growth of the respective markets" (Perez 2002: 42).

Here Perez focuses on the regulatory aspect that policy contributed that made the widespread dissemination of the new mass products possible. Later, Perez moves on to a second, even more ambitious point about the need to policy to create demand for new goods:

[76] The claim is by economist Robert Fogel, quoted in Kling and Schultz (2009).
[77] McCloskey in turn credits Cox and Alm (1999).

> "[i]t was the measures of the welfare state, such as free (or subsidised) education and healthcare, labour union-secured salaries and a progressive tax structure, along with complementary institutional innovations such as the credit system, unemployment insurance and mortgage guarantees, which made it possible for growing numbers of the population — including blue-collar workers — to aspire to a suburban lifestyle that included commodities like cars and other electronic devices" (Perez 2016: 198).

Perez argues that in the implementation period of new technologies, demand-side policies are necessary in order to help the widespread dissemination of new products. Given the role that such demand-side policies played in making cars a widespread commodity that are affordable to most in society, why does Tomasi leave out such instruments in the specifications of his economic regimes?

All of the technologies considered in the previous paragraphs brought about marked improvements in the material prospects of the least advantaged in society. However, in each of these cases there seems to be a straightforward way in which the public sector contributed to their invention and dissemination. This shows Tomasi's normative commitment may actually support an economic regime that is very different from the ones advanced in his book. Of course, these considerations of state-led growth are not sufficient for advancing a full economic regime, such as Rawls's property-owning democracy or Tomasi's democratic laissez-faire. We can nevertheless identify the contours of a module that can be part of such an economic regime. In other words, recalling the discussion of Rawls's four branches of government, we may propose to add one branch of government that is motivated by the growth strategy for the DP, along with the empirical-theoretical considerations of this section. After more discussions in the next section on how to ensure that growth is inclusive, I can propose to add such an extra branch of government.

5. Inclusive Growth

The creative destruction growth model raises doubts whether growth benefits all citizens equally. How can we ensure that it is not the least well-off who lose out in these dynamic processes? In Brennan's argument, growth was assumed to benefit the different strata of society equally (an x% growth rate means both the income of the poorest and the richest grows by x%). While this is a key assumption for his argument, Tomasi does not offer guarantees that his preferred institutional arrangements actually generate such inclusive growth. Herzog (2016) questions whether Tomasi's assumption that growth will be inclusive (and green) is plausible and feasible given his own preferred institutional arrangement. Thus, one may question whether growth helps the least well-off.

In fact, the possibility that the poor are not benefiting from economic development is the softer worry. A more serious concern is that the new economic processes (such as automation) undermine the economic bases of the poorest. This is the "destructive" part of creative destruction. This dark side of growth poses problems for the growth strategy. In fact, Schumpeter has observed exactly that point:[78]

> "(A) process of degeneration, of degradation of large circles (of society) accompanies the upward movement. Large circles see their economic basis being pulled away. [...] Their moral and intellectual powers dwindle, the more so the more the economic atmosphere they find themselves in is darkening. [...] [*Observers*] cannot ignore the shouting of the crunched who are crushed down by the wheels of novelty" (Schumpeter 1911: 503; the translation is Schubert's (2013: 599).[79]

This observation raises doubts that creative destruction, be it market-led or state-led, really maximises the long-run prospects of the poorest in society. The introduction of industrial automation may have benefited western societies in the long run, especially by making industrial goods progressively cheaper. Yet the prospects of the newly unemployed might have deteriorated terribly. For the growth strategy to claim it satisfies the DP, it requires a guarantee that those at the bottom can be protected from such rapid changes in labour markets.[80]

There is a broader worry than protection from turbulences in labour markets. The dynamism of growth and innovation requires that these new forces are channeled through social, economic and political institutions to ensure they benefit the least

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[78] This problem of the growth strategy for the DP is treated in Arnold (2013: 397).
[79] Schumpeter echoes here Mill's aversion against the "trampling, crushing, elbowing" that accompanies growth.
[80] This claim is controversial. The new industries may re-employ the newly unemployed.

advantaged in society.[81] Some have used the term "creative destruction management", which operates on the premise that "the innovation-based and financially scaffolded transition to new techno-economic paradigms necessarily destroys the old industries, their employment, financing, and related structures" (Drechsler et al. 2006: 16). Instead of resignating to this trend, creative destruction management is premised on the acceptance "that this process can and must be managed by the state in order to maximize gains and minimize adverse side-effects" (ibid.).

Perez (2002) holds that the "golden ages" of capitalism followed such institutional responses to technological revolutions. One example mentioned in the previous section was the last mass production wave of technological innovation. The associated lifestyle, the American, consumerist, lifestyle has allowed millions to aspire to new prosperity in the forms of houses, electronic devices, cars and secure jobs. The welfare state has played a dual role in this past technological revolution. As we saw in the previous section, it created the demand that was required for the deployment and expansion of the new technologies and production possibilities. In addition, it was one of the policy instruments that enabled wide parts of society — many of the weakest and less skilled — to participate in and benefit from the new prosperity. Hence, "creative destruction management" not only entails driving growth, but channeling the new wealth into directions to ensure the least well-off benefit. Perez's focus on the institutional response to technological revolutions also relies on the insight that growth does not only have a rate, but also a direction. The institutional response may determine the "directionality" (Perez 2016). In addition to being inclusive, there are more direction that growth can take, such as "green".

Remember that for Rawls the relevance of the DP was for the design of the institutions in the basic structure of society. The discussion of new technologies, their implications and their management in the rollout in society might encourage thinking about particular policies, but that would not be in the spirit of Rawls's DP, which applies on the theory level. Earlier I surveyed the branches of government that Rawls envisions for a property-owning democracy. The proposal that the DP would ideally be satisfied by state-led growth must be expressed as a suggestion to add another branch of government to those outlined by Rawls. I can thus consider the addition of a branch

[81] This idea goes back to Polanyi's (1944) notion of the *double movement*.

of government concerned with economic development to the four branches that Rawls already considered.

Such a *development branch* of government will have to assess the economic background conditions of society and choose an adequate strategy for the pursuit of growth.[82] The mechanisms of this branch of government may include the setting-up of government research and innovation agencies, long-term investments, entrepreneurial activity in collaboration with private sector companies, and even the pursuit of ambitious missions that are aimed at solving societal problems and with a view to spillovers and the restructuring of economic life (Kattel & Mazzucato 2018). This branch of government may also be tasked with the development of social institutions that are suitable for the implementation of new technologies, in the way that the welfare state helped disseminate the technologies of the previous mass-production wave of technological development.[83] Of course, this branch of government will have to take into account several (non-ideal) factors, such as international economic regimes, political and bureaucratic feasibility and how to handle the associated risks. This development branch of government may be mostly aimed at ensuring the kind of growth required by the DP.

In addition to driving the creative destruction process, this branch of government may also be tasked with managing the economic and social consequences of this process. This may be partly through finance, institutional design or economic activity by the state. In this way, the development branch may ensure that the growth strategy actually satisfies the DP, even in the face of the possible turbulences such transformative changes produce.

How does the proposal to add such a development branch of government relate to Rawls's notion of property-owning democracy? Rawls's characterisation of property-owning democracy does not include development instruments, such as innovation or industrial policy. However, the need for the design of institutions to channel growth in a socially desirable direction is close to the spirit of property-owning democracy, with its focus on predistribution of property and inclusion through education and campaign regulations. It is possible that Rawls would have rejected the proposal to include a

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[82] Schweickart (2012) discusses the ways in which property-owning democracy could be supplemented with investment and other development instruments.

[83] Considerations of state capabilities and coordination might imply that such a branch of government should best be placed at the level of multinational organisations, such as the EU, instead of individual nation states.

development branch to his property-owning democracy on the ground that it would be just a variation of welfare-state capitalism.

Schweickart (2012) has also argued for the need for such policy instruments in a political regime like property-owning democracy. His worry is that property-owning democracy, as sketched by Rawls, would leave decisions of investment and growth to private investors only. His main worry was that this makes regional imbalances in economic development likely. Schweickart (2011), as part of his model of *Economic Democracy*, proposes that finance be socialised and thus subject to democratic will.[84] By removing questions of finance from the narrow quest for profit from private investors, societal considerations other than profit can be acknowledged in these decisions. For example, Schweickart holds, investment can be allocated proportionately to all geographical regions of a country. One difference of the proposal advanced in this chapter to Schweickart's is that it is not just questions of regional equality that could guide public investment, but broader concerns about the direction of growth and creative destruction management, of which regional equality may be one aspect. The least advantaged members of society — who are the concern of the DP — may also live in prosperous geographical regions.[85]

Schweickart proposes the wholesale socialisation of investment and his proposal is therefore significantly more radical than the one considered here, which allows the co-existence of public and private investment. Presumably, Schweickart wishes for investment decisions not to be interfered with by private investments and interests. However, it may not be necessary to completely socialise investment to determine the direction of growth. The existence of a development branch of government does not entail the abolition of private investment. For this reason, the proposal of this chapter concerns state-*led* growth, as opposed to arrangements in which the state is the only actor driving growth.

Having considered how state-led growth can ensure the satisfaction of the DP, we can call into question whether market-led growth can be inclusive. A political regime, such as Tomasi's democratic laissez-faire, does not seem to have the institutional leverage to ensure that growth occurs in a way that satisfies the DP. Consider, for example, the growth that occurred in the US in the previous decades which has disproportionately benefitted the richest. Tomasi would at least need to

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[84] For the economic background for the notion of the "socialisation of investment", see Bellofiore (2014).
[85] Miller (1989: ch. 12) argued for similar economic regimes to Schweickart's.

explain how his preferred institutional economic regimes differ from existing ones to account for this.[86] Furthermore, they would have to hold that in the process of creative destruction, the least well-off will find new employment quickly. The problem of the socially undesirable consequences of creative destruction is a deep one for defenders of the market-led growth strategy.

6. Conclusion

Tomasi's argument from the DP to the adoption of a growth strategy to the choice of free market economic regimes is based on a set of normative assumptions. Most importantly, it assumes that income and wealth are the only, or at least most important, primary goods for the determination of the prospect of the least well-off. Furthermore, Tomasi holds that a long-term growth strategy is more promising than one that focuses on the distribution of existing wealth. Finally, Tomasi has shown strong commitment that technological development of society, along with the dissemination of new products, has strongly benefited the least well-off, making it a plausible model for future satisfaction of the DP.

This chapter accepted the normative premises of Tomasi's argument, but rejected the claim that free market economic regimes are thereby supported. The state has often played a key role (often in partnership with the private sector) in generating the very technologies that Tomasi argued benefitted the least well-off. Next, and more closely connected with the spirit of Rawls's property-owning democracy, institutions that ensured the widespread dispersal of property and inclusion of lower strata of society have played a key role in dissemination. Thus, economic growth and technological innovation can be embraced by liberal egalitarians, without the need to succumb to a market-centric economic regime.

[86] Brennan (2007: 294-295) cites historical evidence that in the past growth has been inclusive. Piketty's (2018) thesis contradicts Brennan's contention. Even if past growth has been inclusive, the reason for this might have been the involvement of state institutions as described in this section. See, for instance, Perez (2002: ch. 5).

Chapter III. Spontaneous Order and Market Shaping: Freedom, Knowledge and Evolution

0. Abstract

The idea of spontaneous market order is a powerful theoretical insight and policy views about the role of the state in market formation must explain how they can accommodate it. This chapter examines market shaping as a view about the role of the state and seeks to show its compatibility with the emergence of spontaneous order and the aspects that theorists such as Hayek identify as desirable in it, namely freedom, knowledge and evolution. It argues that market shaping policies are compatible with freedom required for the maintenance of a spontaneous market order. In addition, they may contribute to the epistemic role that markets play as discovery devices.

1. Introduction

What should be the state's role in the formation of markets? While the division of labour between market and state in political economy is a well-established field, the role of policy in giving shape to the market is underexplored. The need for an active role of the state in *shaping* or *creating markets* has become a rallying cry for scholars dissatisfied with views of the market as simply *given*. By emphasizing that the nature of markets is rooted in social and political institutions and thus that their making is partly subject to political will, the conceptual space opens for policies that drive the shaping of markets.

The role of the state in shaping markets is key for recent proposals for economic change in the face of societal challenges, particularly climate change. Science, technology and innovation are evaluated according to their prospect of aiding in the effort against grand challenges (Mazzucato 2021). For Mazzucato (2016), mission-oriented innovation policy should result in the creation or shaping of markets that ameliorate societal problems, create opportunities for economic growth and generate public value. This constitutes a break from neo-classical welfare economics that takes the nature of markets as given and evaluates transactions within them on consequentialist-welfarist grounds.

As a preliminary characterisation, policies are *market shaping* when they partly determine the making of markets in an intentional and goal-directed way. They only *partly determine* their making because they do not construct single-handedly immutable markets, but rather act alongside other economic forces and market participants.

The idea of market shaping calls for re-evaluating existing arguments about the relationship between state and private business in the formation of markets. Proponents of the market as "spontaneous order" are sceptical of such state involvement in the making of markets. They hold that as a spontaneous order the market possesses attractive features, especially their complexity resulting from the full use of knowledge. For them, state involvement in market formation is the attempt to construct a "planned order", an attempt that would disturb the generation of spontaneous order and result in failure. Instead, legislation should restrict itself to providing a framework within which a spontaneous order can occur.

This chapter will discuss the idea of market shaping from an epistemic and evolutionary perspective. Section 2 compares it to alternative views from normative political economy about the relationship between state, market and business. Sections 3 to 6 assess market shaping with reference to the idea of spontaneous order. Section 3 compares market shaping to rule-giving and argues that is does not infringe on the freedom necessary for spontaneous order. Sections 4 and 5 argue that market shaping preserves the superior epistemic function of spontaneous market order. Section 6 deals with its capacity as an evolutionary and discovery device. Section 7 concludes.

2. The Role of the State in Market Formation

Neo-classical welfare economics takes markets as the default method for distributing goods as perfectly competitive markets are expected to produce Pareto optimal results. Under certain circumstances — *market failures* — this school recognises that markets do not produce such results.[87] Then, there is a prima facie reason for state action in the form of market fixing or the production of public goods. A leading exponent of this reasoning is Arrow (1974). The role of the state is "supplementary and regulatory" and "the burden of proof is implicitly on those who say that its action is needed" (Galbraith

[87] Stiglitz gives an overview of different kinds of market failures (1989). Chang (2002b: 541) writes that "the logic of market failure has been used in order to justify anything from the minimal state to full-blown socialist planning".

1973: 19). Thus, the market is seen as the primary economic institution and policy requires justification by reference to a failure in the market.[88] The derivative view in the case of market formation is that this should also normally be left to private businesses operating in the market.

One way of criticizing this picture is to question the default status of the market. By only focusing on the strengths and failures of the market, the picture remains vague about the role and limits of economic actors other than private businesses. In particular, it leaves out the question of the strengths and weaknesses of these other actors and how to weigh their capacities when making decisions about the allocation of responsibilities. It also ignores that some normative goals may simply be best left to other organisational arrangements.

Another criticism of this picture is the variability of markets. States and society can do more than simply accepting the particular nature of markets and 'making the best of it'. Further, the understanding of the market is too abstract and removed from the real institutions of society that deserve to be called market.[89] The theory of market failure derives the results of the benefits or limits of markets not from the understanding of concrete markets, but rather from an abstract picture of the market. This school espouses a view that I dub *markets as mere exchange*. In this view, markets are merely the private exchange of goods and money.[90] This view has ramifications for the role of markets in society and also for the relationship between markets and state. The state acts as a potential obstruction to this exchange. Through legislation, states may block or restrict the otherwise free market transaction. The political-normative question arising from this view of the market is therefore whether some markets should be restricted or modified. The default is that markets are merely a private concern. Only if externalities abound, do they become a public concern.

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88 Chang (2002b: 546) calls this the "market primacy assumption".

89 Hodgson characterised this lack of understanding (disapprovingly) in the following quotation: "many forms of human interaction have been regarded as exchange, and summations of such exchanges are loosely described as *markets*. The market then assumes a deinstitutionalised form. Markets result neither from protracted processes of institution building nor from the full development of a specific commercial culture. Whenever free people gather together in the name of self-interest, a market somehow emerges in their midst" (Hodgson 2015: 14).

90 Milton Friedman, for example, characterises the "free private enterprise exchange economy" as a society that "consists of a number of independent households — a collection of Robinson Crusoes" (Friedman 1962: 13).

However, there is not just one market (Vanberg 1986).[91] An alternative view of markets does not see them as merely the freedom of exchange, but rather as social institutions that form part of society.[92] I will call this position *markets as institutions* (Hodgson 2015: 142; Hodgson 1988).[93] The ability of individuals to exchange goods in markets requires the existence of an institution that goes beyond the mere freedom of the exchanging individuals. For a market transaction to take place, the institution of the market must exist. The claim that markets are institutions contains the claim that markets are constructed and therefore highly contingent. What can be bought and sold in society is dependent on a range of cultural, social, economic and political factors.[94] In this alternative view of markets, the market is interwoven ("embedded") with other institutions and social and political factors.[95] While the market as mere exchange view focuses on the relationship between the participants in the markets, the market as institution view insists that this relationship must always be understood in reference to an institution, that is, the market. The relevance for the role of the state is that policy can do more than merely blocking exchange. Political forces can shape and even create markets, often by modifying social, technological or economic conditions which constitute or facilitate markets.

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[91] Both Schumpeter (1911: ch. 1 and 2) and Hayek (1979: 491-492) reject the ideal of perfect markets in equilibrium as the benchmark to understand markets.

[92] Referring to the view of markets in New Institutionalism (most notably, Douglass North), Chang and Evans (2005: 4) write: "by employing the rhetoric of 'constraints', they still maintain the myth that the unconstrained market is the natural order, while institutions are man-made substitutes that should be (and will be) employed only when that natural order break down."

[93] I follow Hodgson's definition of the market: "We shall here define the market as a set of social institutions in which a large number of commodity exchanges of a specific type regularly take place, and to some extent are facilitated and structured by those institutions" (Hodgson 1988: 174). Hodgson (2015: 139-141) discusses the history of this view.

[94] See in particular Chang (2002b) for an institutionalist view of markets; Hodgson (2015: ch. 5) on markets and capitalism; Hodgson (2006) on the nature of institutions; Mazzucato (2018b: 274-277) on "markets as outcomes"; Pistor (2020) on the role of law in markets.

[95] Polanyi (1944) argued that market society is "embedded" in social and cultural conditions. Barber (1995) gives a review on the notion of *embeddedness*. The discussion of the concept in Granovetter (1985) and Fligstein (1996) launched the field of economic sociology.

	Laissez-faire	State as Market Shaper
Market as mere exchange	Neo-classical Economics Market Failure	(New Institutionalism) [96]
Market as Institution	Austrian Economics Spontaneous Order	Institutional Economics Market Shaping

Table 2: Views on markets and of the role of the state in market formation.

There are at least two alternative visions of the relationship between state and market which take into account the institutional nature of markets.[97] The first are the proponents of spontaneous order who accept that markets are institutions that are contingent and dependent on law, but hold that the market is a spontaneous order and should be left as such. Friedrich August Hayek is perhaps the most famous proponent of this view. For Hayek, law is the key institutional basis for the emergence of spontaneous order in the market. The scope of political reform is limited to devising such useful rules that give enough space for freedom to use knowledge effectively (Polanyi 1951). By extending the market to areas in which it could previously not exist, more space is given to the use of individual knowledge and spontaneous order. While in neo-classical welfare economics laissez-faire is justified by the distribution brought about by (ideal) markets, this Austrian defense of laissez-faire holds that state inaction allows for spontaneous order in which institutions embody full provision of freedom and use of knowledge.[98]

The second alternative vision as to the relationship between state and market assigns equal standing to both state and business in their formation. In order to reflect this equal standing, Mazzucato (2018a) calls for a shift from *market fixing* to *market shaping*. In other words, this institutionalist approach to market-state relations challenges the justificatory primacy of markets. This opens up the possibility of "conscious public molding of institutional change" (Nelson & Winter 1982: 366). Policies are *market shaping*

[96] New Institutionalism (North (1990)) understands institutions as constraints on actions, such as market exchanges. It is therefore plausible to ascribe the market as mere exchange view to them. However, they believe that such constraining institutions play an important role in economic change and for this reason they might be closer to an understanding of the state as an actor on its own right. The inclusion of New Institutionalism in this table is nonetheless highly tentative.

[97] The following categorisation of different approaches to market-state relations follows Chang and Rowthorn (1995: ch. 1). For a very similar typology in the face of environmental challenges, see Jacobs (1995). Anderson and Leal (2001) are an example of the Austrian approach; Vatn (2007) for an institutionalist account for environmental challenges.

[98] Potts (2014) draws a similar distinction in relation to innovation, focusing on entrepreneurship.

when they partly determine the making of markets in an intentional and goal-directed way, especially by changing institutions on which the particular nature of market transactions depend. They only "partly determine" their making because they do not single-handedly construct immutable markets, but rather act alongside other economic forces and market participants. These institutions or institutional factors on which market transactions depend include the following: law (what can be exchanged, contract enforcement, obligations, etc.), cost structure (tax, subsidies), psychological behavioural factors (for instance, advert regulations), trade policy, market scale, infrastructure, market synergies or linkages, financial markets, product regulations, (state) monopolies, consumption infrastructure and procurement policy.

The main differences to the Austrian approach are two: first, it accepts the state as central actor and the market as central process, without assigning primacy to the market. State and market assume equal theoretical and practical importance. Second, it sees the involvement of the state and social forces in the shaping of markets more extensively, not just through law making. The most crucial difference seems to be that the Austrian approach insists on leaving the market to allow the emergence of a spontaneous order. This is in contrast with the institutionalist idea that the state is on a par in giving shape to the market. Consider Aspers's distinction between *organized market making* and *spontaneous market making*; in the second, "neither the state nor any other form of organization participate in the making of markets" (Aspers 2009: 12). It seems that the Hayekian view of state-market relation would favour spontaneous market making, while the institutionalist approach to market shaping would allow for organised market making.

The remainder of this chapter will examine the idea of market shaping from the vantage point of the epistemic role of markets and the argument from spontaneous order. The main contention is that the seeming differences between market shaping and spontaneous order arguments are not as stark as it appears. The next sections look at different desirable properties that Hayek identified in a spontaneous order and asks whether market shaping can maintain these properties. The chapter argues that market shaping is compatible with the idea of spontaneous order: it can be carried out while preserving freedom, the use of knowledge and the evolutionary role of markets.

The argument from spontaneous order received its most powerful formulation from Austrian economists who have additionally developed a range of other concerns against state action in the economy. Hayek famously argued that extending the power of the state is a "slippery slope to authoritarianism" (Hayek 1944). In the context of market shaping, Hayek would likely reject the idea that state-owned enterprises should contribute to market shaping, given that the state would exercise considerable power as an employer. If a significant proportion of the economy is run by state-owned enterprises, then it may be difficult to participate in the economy without being subject to state commands through public managers. Hayek may therefore categorically reject the idea of extending state authority in the market, on grounds other than those of the epistemic evaluation of markets and spontaneous order. As a result, the present chapter does not attempt to marry the idea of market shaping with the broader political philosophy of Hayek or other Austrian theorists. Instead, it will use Hayek's formulation of these ideas in order to re-assess their proper theoretical understanding and institutional implications.

3. Freedom, Law and Institutional Change

This section concerns the institutional-legal basis of spontaneous orders and argues that market shaping can be seen as one way of reforming the spontaneous order of the market without disturbing it. This section and the following ones will aim to show that the idea of market shaping is compatible with the idea of the market as a spontaneous order. Another argumentative strategy would be to point out problems with the idea of spontaneous order.[99] By contrast, my aim here is to show that even defenders of spontaneous order can endorse market shaping as economic policy. For Hayek, an order is

> "a state of affairs in which a multiplicity of elements of various kinds are so related to each other that we may learn from our acquaintance with some spatial or temporal part of the whole to form correct expectations concerning the rest, or at least expectations which have a good chance of proving correct" (Hayek 1973: 35).

[99] See, for example, Hodgson (1994: 432-435) for problems and unclarities in Hayek's concept of spontaneous order.

Hayek distinguishes between two types of social orders. A spontaneous order is the product of human action, yet not of human design.[100] By contrast, a planned order is the result of human design. For Hayek, spontaneous orders possess a complexity not shared by planned orders.

Hayek applies this distinction between two types of order to markets and laws. Hayek calls spontaneous market order *catallaxy*. He acknowledges the institutional basis of market order, especially rules and laws.[101] Hayek also applies the distinction between spontaneous and planned order to laws.[102] Grown (spontaneous) law is preferable because it represents rules that were discovered by society as an appropriate framework for spontaneous order.[103] These laws embody rules that grant individuals the necessary freedom required for the development of spontaneous order, in particular in the market sphere. The role of government legislation is to provide the framework for the generation of spontaneous order, mostly in the form of useful rules. "The fact that law that has evolved in this way has certain desirable properties does not prove that it will always be good law or even that some of its rules may not be very bad" (Hayek 1973: 84). Because of this, Hayek recognises the need for legislation.

Rules that are not discovered or grown, but rather imposed, would interfere with the freedom of people and would hinder them from forming a spontaneous market order, Hayek maintains. Instead, such rules would aim to impose a uniform purpose on society or economy. It would be the attempt to impose a planned design on society. However, for Hayek, that would come at a considerable cost as spontaneous orders have two distinct advantages over planned orders. First, they allow for the full use of knowledge: "it is impossible […] to improve or correct this order by interfering in it by direct commands" (Hayek 1973: 49). Second, spontaneous orders function as epistemic and evolutionary discovery procedures and interference would hamper these functions.

Thus, the relevance of Hayek's exploration of different kinds of orders and their application to the market, law and legislation is an argument against interference:

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[100] By "human design", Hayek means that an object comes into existence by humans who intend to create that object. Hayek credits the Scottish Enlightenment and in particular Ferguson (1767) with the concept of spontaneous order.

[101] Institutions are widely defined as systems of rules (Hodgson (2006), North (1990), Ostrom (1990)). Hodgson (2019b: 8, n. 13) contains further references.

[102] Hayek refers to spontaneous order as *cosmos*, planned order as *taxis,* grown law as *nomos* and planned or legislative law as *thesis*.

[103] Some have referred to spontaneous order as an "invisible hand explanation" of social institutions (Nozick (1974: 18-22), Ullmann-Margalit (1978) and Gray (1998: 32)). I will not use this term to avoid confusion with the idea of an "invisible hand" associated with Adam Smith.

> "What the general argument against 'interference' thus amounts to is that, although we can endeavour to improve a spontaneous order by revising the general rules on which it rests, and can supplement its results by the efforts of various organizations, we cannot improve the results by specific commands that deprive its members of the possibility of using their knowledge for their purposes" Hayek (1973: 49).

This is an argument against intervention in the economy that is along the lines of legislative law (as opposed to grown law) or a planned order. It is an argument directed against the idea of centralised planning, like command economy socialism.

One potential misunderstanding would be that Hayek wants to establish the superiority of economic relations that are governed by the market as opposed to those governed by *organisation*. Simon (1991) argued that the economic focus on market relationships in neo-classical economics is unwarranted: most of the behaviour takes place not in the form of market exchanges, but rather within firms and these relations are better characterised as "organization". It is important to highlight that interpreting Hayek as favouring one such type of relationship over another would be misleading:

> "The argument for liberty is not an argument against organization, which is one of the most powerful means that human reason can employ, but an argument against all exclusive, privileged, monopolistic organization, against the use of coercion to prevent others from trying to do better" (Hayek 1960: 88-89).[104]

Now we can start to compare Hayek's official view on permissible government activities and my account of market shaping. Hayek's argument amounts to opposition against a particular kind of interference with market processes, namely those in the form of specific commands. These take the form "agent X should do action Y". Market shaping is not such a restrictive form of command and thus not of the kind of market interference that the argument from spontaneous order objects to. The shaping of

[104] Hayek criticises central planning by the state. An interesting question is whether the argument from spontaneous order has similar implications for the ambition of central planning by private businesses. Presumably, Hayek would argue that private businesses would never be in the position to centrally plan an entire economy. In contrast to the state, private companies will always be to a certain extent subject to market mechanisms.

markets amounts to changes in the institutions that underlie the particular market transactions that individuals can engage in, but it does not obstruct those particular transactions themselves. Freedom to pursue economic means and ends that are chosen by the individual is not restricted as it would be in a command-and-control economy. Hayek accepts that "[t]he wise legislator or statesman will probably attempt to cultivate rather than to control the forces of the social process" and sees this mainly through legislation. Market shaping can be understood as another way to "cultivate", yet one that employs more mechanisms than just law, while Hayek's view of government seems to be mostly restricted to lawgiving. Let us start this comparison by considering the impact of market shaping on freedom.

I take freedom here as the absence of restrictions to economic activities. Blocking particular markets — prohibiting the sale of cannabis — is an example of such a restriction that would inhibit freedom (to a certain extent). Does shaping a market restrict economic freedom? It might if market shaping occurs in the form of laws that prohibit certain types of ownership or economic transactions. However, market shaping can also take place through mechanisms other than prohibition. In particular, when the state acts like any other market participant, then it acts alongside them and does not restrict their behaviour by rules or other freedom-restricting measures. This interpretation of the role of the state is supported by Hayek: "there is no violation of principle in its engaging in all sorts of activities on the same terms as the citizens" (Hayek 1960: 332). And "the fact that all government activity has been assumed more and more to be necessarily of the 'authoritative' character is one of the chief causes of the objectionable developments of modern times" (Hayek 1960: 332, n. 3).

This should become clearer when we spell out the implications for sellers and buyers in the market. Sellers are still free to sell their products in the market, but find themselves in a different institutional environment or find that other kinds of market organisation or products are technologically possible or economically viable. Buyers, too, are not blocked from acquiring certain goods (as would be the case if certain transactions were prohibited).

The main difference between Hayek's constitutional view of the state as a law giver and the view of state market shaping is that the second also sees the state as an important economic actor and value creator on its own. The state is a required actor to ensure markets deliver socially desirable results. In addition to law, the state can use various economic mechanisms to shape the institutional basis on which markets are based. If the state employs mechanisms other than law, this does not imply that it thereby restricts freedom.

For example, through procurement policy, the state can create demand for products and encourage the creation or development of markets that would struggle otherwise (Edler & Georghiou 2007). Public sector innovation can generate new inventions and public entrepreneurship may introduce such inventions as new products in the market. Taxes and subsidies as well as public investment banks may all be used strategically in order to favour or else change markets. Through such economic functions, the state is not only the lawgiver from above, but also participates in the dynamics of the market forces (as described in Mazzucato 2013). The state may back and collaborate ("picking the willing", Mazzucato 2018) with certain firms in order to ensure that markets are shaped in a certain way. More ambitiously, the state may itself enter "as" a firm, as in the case of state-owned enterprises. Thus, market shaping is different from Hayek's view which is restricted to law. Hayek's restriction does not seem to be warranted by concerns for freedom. Concerns for freedom also allow for a richer employment of economic policy as advocated by market shaping.

4. Knowledge and Catallaxy

Hayek defends freedom in the market and spontaneous market order because he thinks that it uniquely allows individuals to use their knowledge.[105] In the previous section I argued that market shaping can preserve freedom and does therefore not fare worse on this count than Hayek's version of legislation, which is restricted to law. This section considers the relationship between market shaping and the epistemic role of markets, as well as the knowledge dispersed between individuals.

The claim that command-and-control economies neglect the epistemic functions of the market process is Hayek's most central contention. A different way of stating the same insight, and one which Hayek himself often adopts, is to say that "socialists fail to grasp the function of *the market as a discovery procedure* — as an institutionalized process for the generation and use of knowledge, tacit as well as

105 The reasons why individuals are taken to be privileged in their ability to exploit this knowledge are deep. Knowledge is primarily taken to be tacit or practical and therefore our knowledge of the world is not mainly expressed in the form of theories, but rather embodied in our social practices and skills. Hayek takes this insight from Polanyi (1966). See the illuminating discussion in Gray (1998).

explicit, including knowledge of men's preferences" (Gray 1998: 39).

Knowledge in society is distributed among people and it would not be available to a central planning board running a command-and-control economy. Hayek believes that such a planning board would never have the required knowledge because

> "the 'data' from which the economic calculus starts are never for the whole society 'given' to a single mind which could work out the implications, and can never be so given" (Hayek 1945: 519).

Instead of such a picture of knowledge that could be available to one single mind, Hayek relies on Michael Polanyi's (1966) concept of *tacit knowledge*. This kind of knowledge, so Hayek, is available "solely as the dispersed bits of incomplete and frequently contradictory knowledge which all the separate individuals possess" (Hayek 1945: 519). A spontaneous order can use a much greater breadth and depth of knowledge than an alternative — planned — order.[106] It is the prices in a market that reflect pieces of information and thereby fulfil a key epistemic function:

> "Fundamentally, in a system where the knowledge of the relevant facts is dispersed among many people, prices can act to coordinate the separate actions of different people in the same way as subjective values help the individual to coordinate the parts of his plan" (Hayek 1945: 526).[107]

Prices convey signals to market participants on how to act, based on economic information, such as the availability or scarcity of goods. The rise in the price for tin may indicate a shortage in that material or the discovery of alternative uses. For the market participant, a rise in the price sends the signal to rethink the use of tin and possibly to use another resource for her purposes (see also Gamble (2006: ch. 6) on knowledge in Hayek). In this way, society can cooperate economically and produce and distribute things, even though no single participant has oversight over these market processes. Prices carry information that is not available to any single market participant.

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106 O'Neill (1998: ch. 8) offers arguments against Hayek's epistemic defence of markets.

107 There are important criticisms of such epistemic defences of the price system. For example, Mazzucato and Li (2021: 39) argue that prices for pharmaceutical drugs are "skewed towards revenue-rich ailments" and do not reflect the significant public investments that went into their development.

Two challenges for the idea of market shaping follow from Hayek's notion of the role of knowledge in markets. First, it seems the shaper of markets assumes to have knowledge which they in fact do not possess. The market incorporates a great variety and depth of knowledge and the shaper's knowledge is much more partial. By aiming to construct something better, the advocate of market shaping might fall for what Hayek calls the "synoptic delusion", which is "the fiction that all the relevant facts are known to some one mind, and that it is possible to construct from this knowledge of the particulars a desirable social order" Hayek (1973: 15).

Second, there is also the challenge that markets as social practices need to be evaluated according to the amount of knowledge they generate and disseminate. As Gray (1998: 39-40) notes, "Hayek's conception of social institutions as vehicles for the generation and dissemination of knowledge in fact represents one of the most important paradigm shifts his work brings about in social theory". This shift, argues Gray, represents "a shift from the criticism and evaluation of social institutions by reference to preferred principles of morality to an assessment of them in terms of their capacity to generate, transmit and use knowledge" (ibid.).

This shift to an evaluation of institutions that focuses on the knowledge that they reflect poses an important challenge to those wanting to critically assess them. "We cannot easily subject social rules to critical assessment, since the knowledge they embody or express is itself usually inaccessible to critical statement" (Gray 1998: 40). In other words, Hayek believed the market order should be assessed in terms of its complexity, that is the amount of knowledge it reflects. Interfering with markets is likely to reduce that complexity. Besides, it is not possible for the policy maker to fully understand the knowledge embodied in these practices and therefore any assessment that would be conducted, for instance by the policy maker, would necessarily be limited and faulty. This poses an undeniable challenge to the notion that market shaping is possible while preserving the epistemic function of markets.

How can the epistemic challenge against market shaping be overcome? The strategy I will pursue in the next section is to argue that market shaping is another — yet qualitatively different — piece of communication that transmits new information through the market which it did not reflect previously.[108] In this way, it is acknowledged

[108] Mazzucato (2021) recently touched on this idea, referring to it as "collective intelligence": "governments should steer the innovation ecosystem to use collective intelligence and innovation for public-health impact. Scientific and medical innovation thrives and progress is made when knowledge is exchanged openly, building upon shared successes and failures" (Mazzucato 2021: 132).

that the market shaper does not fully understand the epistemic practices embodied in markets and does not have full knowledge, which Hayek would call the synoptic delusion. Instead, the policy maker has a piece of information that she or he inputs into the market just as other market participants also communicate their knowledge about shortages or supplies by action in the market.

5. Static vs Dynamic Market Shaping

Consider first a scenario in which a market shaping policy imposes a market on society and the economy. The state stipulates that a certain product should be bought and sold through the market and perhaps also stipulates further details, like the way it is traded and the price. Furthermore, the state stipulates that this market must remain this way (until another directive is issued). Here the policy interferes and disturbs the epistemic function of markets. The epistemic function of the market did not materialise and the market shaping policy maker did, in fact, not consider the knowledge implicit in already existing practices, such as the market that existed before it was modified heavy-handedly. In a sense, freedom is preserved because consumers and sellers can still choose to sell and buy in that market. If the newly shaped market is not attractive to either of them, they may not have the ability to further modify that market (because it is ex hypothesi set by the state), but they can choose not to transact in that market. Let us refer to this type of market shaping as *static market shaping*.

The alternative is *dynamic market shaping* which treats it as a co-creative and dynamic process. The state acts as an economic actor and changes some of the background conditions of the market, without setting in stone that it must look a certain way. In this way the state does not close off the possibility of further developments that may reflect information or knowledge which was not previously accounted for. The formation of the market remains an evolutionary process. Information and knowledge continue to play an evolutionary role as they allow the continued discovery of the appropriate market form. The co-creative aspect is important because it allows other market participants to add their knowledge in the establishment of the new market. The dynamic process is important because it means that the further development of the market is open, it is susceptible to the incorporation of new knowledge. Individuals are free to continue to transact in the market (as it was in the case of static market shaping). In the case of dynamic market shaping individuals have an additional option, namely to act on the market in order to change it by economic means.

It is this dynamic version of market shaping which allows the free play and therefore use of knowledge of other market participants and which is compatible with the epistemic function of markets and therefore a defensible form of market shaping. The argument from spontaneous order and its epistemic role as a discovery procedure may therefore be understood as an argument in favour for a particular kind of market shaping, namely one that understands policy as one force among others impinging on the market and thus reflecting some knowledge that enriches the epistemic practices of the market.[109]

The important difference between static and dynamic market shaping is that the second is not aimed at establishing a particular market as an end-state, but instead launches and contributes to a process of "discovery".[110] In the same way that Hayek is keen to emphasise that the rules that underlie the catallactic order must be discovered to be the best in order to sustain a spontaneous order, markets can be discovered to be the best by market participants.[111] As a result, the role of the state is to set some parameters and push market participants to develop markets in a different direction. Hence, the state may act on some knowledge it possesses, for example knowledge about the deleterious effects on certain market practices on society, and thereby incorporate that knowledge into the market without at the same time precluding the use of other types of knowledge.[112]

Let us reconsider the two epistemic challenges introduced in the previous section, namely that the policy maker's knowledge is limited and markets embody tacit knowledge. It seems dynamic market shaping can accommodate both challenges. First,

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[109] Compare with Popper's distinction between "utopian social engineering" and "piecemeal social engineering" (Popper 1945: ch. 9). Hayek seems sympathetic to the piecemeal approach, but it "suggests to me too much a technological problem of reconstruction on the basis of the total knowledge of the physical facts, while the essential point about the practical improvement is an experimental attempt to improve the functioning of some part without a full comprehension of the structure of the whole" (Hayek 1976: 313-314, n. 13). See also Hayek (1967).

[110] Nelson and Winter (1982: ch. 11) explain how "search and selection" guide the decision rules of firms in evolutionary contexts. Mazzucato (2021) argues that in the past missions have instituted a system that rewards experimentation and discovery and thus led to important innovations.

[111] Gray is also explicit about interpreting spontaneous order as a dynamic process, rather than a static condition (Gray 1998: 30).

[112] Herzog (2020) has explored Hayek's epistemic argument from a similar perspective. She identifies "institutions that form an 'epistemic infrastructure' for markets" (266). Her argument is highly interesting as it links this epistemic infrastructure to the conditions for morally responsible agency.

the policy maker has more modest goals and does not pretend to understand all the relevant facts that are relevant. Instead, they react to the particular policy information they have available and provide it as input in the market — be it in the form of taxes or subsidies or a great variety of other economic policy mechanisms. It is therefore possible to follow the market shaping approach without being subject to Hayek's warning of a "synoptic delusion". Second, dynamic market shaping respects the insight that markets are the embodiment of tacit or practical knowledge. This epistemic role of the market is preserved and the state does not aim to transcend the knowledge of the particular actors shaping markets, but rather contributes on a somewhat equal basis.

It is important to qualify the previous claim that the state can be seen as a market shaping actor similar to other economic agents. This claim should be understood merely for the respective epistemic contributions that the state and other agents play. State action may transmit knowledge through the market that is not readily available and transmissible for other agents, such as private businesses. The claim does not entail that the state is similar in respect to other dimensions. Importantly, the state will in many instances be a much more powerful actor and, importantly, will be able to directly change laws, for example in the pursuit of shaping markets. Moreover, the political philosophical standing of the state is relevantly different to private businesses and other civil associations. The state may have particular legitimacy due to democratic elections, but it will also have particular responsibilities that are alien to other such actors. Thus, the thesis that the state is a market actor like others is restricted to this claim about its epistemic function.

Of course, the dynamic market shaping process described here is an ideal type. The compatibility of pushing for societal goals while respecting the knowledge embodied in markets may vary according to circumstances. The point is that market shaping can be construed in a co-creational and dynamic process, and the state's contribution to its shaping is not fundamentally different from that of other actors.

Market shaping may be pursued solely in order to maintain the spontaneous order, but if it is pursued in order to bring about a certain end-state, it is at least not compatible with Hayek's evaluation of institutions in terms of the knowledge they embody. This is the challenge that it is impossible to evaluate markets according to some end-state principles.

Indeed, the idea that state action in economic development need not restrict knowledge, but may, by contrast, contribute to discovery and knowledge has been discussed in the context of industrial policy. Rodrik (2004) advances an account of how industrial policy should be carried out which he thinks of as a "strategic collaboration between the private sector and the government" (3). For him, "the right way of thinking of industrial policy is as a discovery process — one where firms and the government learn about underlying costs and opportunities and engage in strategic coordination" (ibid.). Rodrik is an advocate of industrial policy playing an active and strategic part in economic development and the fact that he understands such kind of policy as contributing to the process of discovery shows that a focus on knowledge discovery need not result in scepticism against state action.[113]

6. Markets as Discovery Procedure

The previous section considered the use of knowledge as one attractive feature of spontaneous order. In addition, Hayek also notes another, somewhat different, aspect. Spontaneous order will be allowed to evolve over time and select between different traditions of law, behaviour and institutions (Hayek 2002; Buchanan & Vanberg 1991). Gray refers to this as "the thesis of cultural evolution by the natural selection of traditions" (Gray 1998: 32). In the previous section, we encountered Hayek's argument that the market works as a signaling device, where prices indicate what ought to be done. It mediates knowledge between market participants, even though no single mind possesses all knowledge.[114]

Another — evolutionary — strand in the idea of spontaneous order may be seen as operating on a longer time horizon. Rules and other institutions, such as markets, have been discovered by a process of natural selection and embody stability in the face of the unknown. The long-term knowledge that these institutions embody may be difficult to read off.[115] This is yet another argument in favour of grown law and against command-type interference. Such laws are "discovered" and embody

[113] Mazzucato (2013: 34) worries about Rodrik's focus on *process* as opposed to *outcome*: "I believe that the history of technological change teaches us that choosing particular sectors […] is absolutely crucial. The Internet would never have happened without it being forcefully 'picked' by the Defense Advanced Research Projects Agency".
[114] There is also work inspired by New Institutionalism on the role of knowledge in evolutionary change. See Mantzavinos et al. (2004) for an account of "cognitive institutionalism".
[115] Despite Hayek's ambiguity about the level on which this evolutionary process takes place, he distances himself clearly from Social Darwinism: "The error of 'Social Darwinism' was that it concentrated on the selection of individuals rather than on that of institutions and practices, and on the selection of innate rather than on culturally transmitted capacities of the individuals" (Hayek 1973: 23).

knowledge that enable the long-term success of society. In this sense, they embody an element of the long-term success of society, institutions or individuals.[116] The details of such an evolutionary strand remained undeveloped and unclear in Hayek's thought. In particular, he never provided full details what he thought would be the variation, selection and retention mechanisms that would ensure that the best rules are found and kept in society. This case may be more obvious for the market order — where the profit motive incentivises new entries and where "unfit" companies drop out. However, in the realm of the social adoption of rules — or their retention — such an account would be less plausible. Vanberg (1986: 83) notes that

> "closer examination of Hayek's writings on this topic reveals that, in actual fact, he neither systematically elaborates nor consistently pursues such an individualistic, evolutionary approach to the question of why it is that rules can be expected spontaneously to emerge that increase the 'efficiency of the group as a whole' *[Hayek 1967: 71]*. Rather there is a tacit shift in Hayek's argument from the notion that behavioral regularities emerge and prevail because they benefit the individual practicing them, to the quite different notion that rules come to be observed because they are advantageous to the group."

Given that this aspect of spontaneous order remains unclear, we must be especially careful in associating it with the idea of market shaping. There are two ways in which market shaping adds to or interferes with such an evolutionary process.

First, deliberate market shaping policies may add to the variation both in institutions and in economic enterprises. By introducing new elements into the institutional basis of the market, such as introducing new products, the state may intentionally and unintentionally bring about further institutional variation. Some of these variations may become obsolete very quickly, some may not. In this sense, the state is an entrepreneur like other market actors. In this role, the state may sometimes succeed and sometimes fail in realizing its plans.

Second, the state can contribute to such an evolutionary process by partly selecting new institutions that were made possible by variation. For example, young

[116] It also offers an argument for conservativism and "Burkean" reverence of traditional practices. Received institutions must be changed or abolished with great caution because they may embody wisdom and long-term knowledge that is not readily comprehensible to the reformer.

industries may not be able to develop and form new markets if relying on private demand. The state, through procurement policy or other demand-creation policies may fill this gap and thereby encourage the selection of a particular market form over others. In this way the state is one of the actors — among others, albeit a powerful one — able to contribute to the dynamic selection of new rules, institutions and market forms.

Of course, it may be objected that the state is more powerful than business corporations or private consumers and will therefore play a much greater role in selecting markets. It is certainly true that in principle states may be much more powerful than private businesses in deciding and bringing about markets. For this reason, it is important to stress that the idea of market shaping is only compatible with ideas and the normatively attractive features of spontaneous order if such policy is pursued in addition to other market actors also working in the market. This was discussed previously under the heading of "dynamic market shaping" as opposed to the "static" version where states just bring about markets without the leeway for further modification by other economic actors.

7. Conclusion

The argument from spontaneous order constitutes an important ingredient in the understanding of the state's role in bringing about and shaping markets. Freedom is the condition for such spontaneous order, and the full use of knowledge and evolution of institutional practices constitute desirable features of such orders. This argument against interference is compatible with a more ambitious view of policy than might usually be expected. Hayek acknowledges the need for legislation to provide useful rules. Yet this need for legislation can be expanded to other areas, including economic mechanisms going beyond the mere passing of rules, without thereby infringing on the spontaneous order and giving up on the desirable properties that Hayek identifies in it.

Most importantly, I identified two types of market shaping, a static and a dynamic one, and I argued the argument from spontaneous order suggests that market shaping must be dynamic. It must initiate and facilitate a process of discovery, without determining the end-state of the market to be shaped. In addition, it shows the need for a co-creative account of how market shaping should occur, with the state acting alongside and in cooperation with private business. Hayek and other theorists have interpreted the implications of the argument from spontaneous order as a general argument against state action in the formation of new markets. This chapter argued that they missed the compatibility between the epistemic role of markets and policy that results in the formation of new markets.

The epistemic evaluation of markets has been treated as a theoretical mode reserved to theorists of the value of markets and defenders of laissez-faire. By reconsidering the relationship between state action and freedom and knowledge, we could also carve out an account of the epistemic value of state action. In this way, the argument from spontaneous order might become available to liberal egalitarians and other theorists wanting to develop an account of state action that goes beyond the mere setting of a framework for the functioning of markets.

Chapter IV. The Ethics of Market Creation: Changing Behaviour by Adding an Option

"When a government provides means of fulfilling a certain end, leaving individuals free to avail themselves of different means if in their opinion preferable, there is no infringement of liberty, no irksome or degrading restraint. One of the principal objections to government interference is then absent" — J. S. Mill (1848: 199).

0. Abstract

Besides coercion, incentive and nudge, adding an option is a further way of changing people's decisions. What is the ethical standing of adding an option as a mechanism for behavioural change? This chapter addresses this question with reference to the creation of new markets, which constitute new options for consumers. It argues that it is a comparably soft approach towards behavioural change. Even considering the possible long-term effects of market creation, such as option disappearance and preference change, it should be considered a gold standard for policy aiming for behavioural change.

1. Introduction: Mechanisms for Behavioural Change

Should policy aim to change citizens' behaviour by creating markets in which new, say healthy or green, products can be purchased? The ethics of changing other people's behaviour is subject to intense debate, particularly when brought about through public policy. This chapter argues that one mechanism for behavioural change — *adding an option* — has so far been ignored by philosophical debate and does not face the same ethical concerns as other mechanisms. By way of introduction, adding an option will be contrasted to other forms of behavioural change. Before discussing policy, consider different types of mechanisms in the *living room*:

Timmy is hungry and he can choose between a bar of chocolate and an apple. He may choose one of them, but not both. His girlfriend, Judi, wants Timmy to lose weight and choose the healthy option, in this case the apple. Judi knows from Timmy's past behaviour that he will, left on his own, choose the chocolate over the apple. How can Judi still get Timmy to eat healthy? How can she make him choose a healthy option despite the presence of the bar of chocolate?

First, Judi could engage in removing an option or *coercion*. She could take away the chocolate, leaving Timmy only with the apple. By removing an option, Timmy can only eat healthy or starve. Timmy is still in charge of his actions, but his range of options narrowed down to one option that does not involve starving. Removing an option does not necessarily mean making it physically impossible. It could also mean adding costs to the option that make is unfeasible. If Judi threatens to kill Timmy after choosing chocolate, Timmy could still physically take it, but the costs are too high. It is not a feasible option anymore.

Second, Judi could add an *incentive* to make the apple more attractive than the chocolate for Timmy. This could either mean making the apple more attractive (incentive), or making the chocolate less attractive (disincentive), or both. An extreme version of this approach is to raise costs to such an extent that the option becomes unfeasible, such as death threats. Yet Judi can also impose moderate costs or benefits to achieve the desired effects. She could charge £5 for the chocolate, or offer £5 in case he chooses the apple. Incentives are external benefits that are added to one of the existing options, thus changing their relative attractiveness.

Third, Judi could *nudge* Timmy towards the apple. This option leaves all the options on the table and does not add external benefits to any of them.[117] Instead, it changes factors in the environment in which Timmy makes his choice. What changes are not facts about the availability or the actual attractiveness of the options, but rather the psychological factors that determine how Timmy makes his choice. Judi could mention that the apple is really shiny and tasty and that chocolate has lots of calories and unhealthy additives.

It is not just Judi who wants to affect others' behaviour for health, environmental protection or other purposes. The mechanisms available to policy makers are similar to Judi's. Public policy has little bearing on Timmy's consumption choices in his living room, but it can affect markets. Markets are institutions where

[117] Thaler and Sunstein even define nudge in contrast to coercion and incentive, namely as "any aspect of the choice architecture that alters people's behavior in a predictable way without forbidding any options or significantly changing their economic incentives" (2009: 6). My introduction of adding an option as a further behavioural mechanism shows why this definition of nudge is inadequate. Their definition of nudge rules out that coercion or incentive does the work, but they would have to equally rule out that adding an option does the work.

economic options are offered and chosen. What forms do coercion, incentive and nudge take in economic policy? Let us consider policies that channel consumer behaviour in an environmentally friendly way.

First, the state can remove options from the market, most importantly by making them illegal. In other words, citizens are coerced into not making these choices. For example, emissions-heavy options, say combustion engines, could be banned from the market. Options could also be removed in ways other than the law, for example an option could deliberately be made economically unviable for producers. Of course, some of these goods may be offered nevertheless, despite state sanctions.[118]

Second, the state can place incentives on goods in markets through subsidies; or disincentives through taxes. Think of subsidies for green cars and organic food or sin taxes on tobacco, alcohol and gambling. Some such policies, if successful, can result in reduced consumption of unhealthy or environmentally problematic goods without prohibiting them.[119]

Third, there is a great variety of nudge policies that can influence how buyers make decisions. Examples are regulations of adverts, food labels, or deeper ways of changing the "choice architecture" (Sunstein 2015), like decisions on where to allow commercial businesses in a city or how public spaces or shopping centres are designed.[120]

Name	**Mechanism**	**Living Room**	**Market Policy**
Coercion	Remove an option	Remove chocolate	Block exchange
Incentive	Add external benefit to existing option	Add £5 to apple	Subsidy
Nudge	Change the choice architecture	"What a tasty apple!"	Advertising rules
Adding an Option	Add an option	Add banana	Market Creation

Table 3: Mechanisms for behavioural change.

118 On blocked market exchanges, see Anderson (1993) and Satz (2010).
119 The ethics of incentives was discussed most clearly by Grant (2014, 2015).
120 The classic case is the conspicuous placement of an apple in a cafeteria. The unhealthy choice remains, but due to the set-up of the "choice architecture", the buyer is more likely to choose the apple (Thaler & Sunstein 2009).

However, these are not all possible ways of changing individual behaviour. A fourth option, both for Judi's quest to make Timmy eat healthy and the policy maker's quest to change market choices is *adding an option*, which is to add an option to the existing ones. In addition to the apple and the chocolate, Judi may offer Timmy a banana. From the start, Judi's goal was to make Timmy eat healthy, so she wanted to convince him to choose the apple. The banana is just as healthy as the apple. It may turn out that Timmy's preference ordering favours apple over chocolate, but banana over both. Assuming that Timmy's preferences stay the same with the additional banana, we can expect him to choose the banana and change his behaviour.

Similarly, the creation of new markets can introduce new options for consumers. Just in the last century, cars, vitamin pills and smartphones were introduced to the market. For example, introducing new green products into the market, such as green energy or green cars, may induce consumers to change their consumption choices. The creation of markets is not reserved for private entrepreneurs; states, as well as other actors in civil society, can shape and create markets (Mazzucato 2013, 2016). A new option, which is superior to the existing ones, may change consumers' consumption choices, without the need for coercion, incentive or nudge.

The ethics of coercion, incentive and nudge has been discussed extensively in the literature. This chapter, by contrast, will analyse the ethics of adding an option as a mechanism for behavioural change. May states change individual behaviour by adding options in the market? What are the constraints of such policy? How does the ethical status of this mechanism compare to coercion, incentive and nudge?

The idea of changing people's behaviour by adding an option may be an important way to tackle societal problems, such as health and safety. Nudge policies, for example, have been advanced with the purpose of increasing public health. The adding of options may be used for a wide variety of public purposes, but the primary example discussed in this chapter will be the introduction of green ways of generating electricity in the form of solar panels.

This chapter addresses worries that could be raised against market creation. It does not consider positive reasons why the pursuit of such policies might be necessary or valuable in the first place. Thus, this chapter is primarily defensive. Section 2 goes into more depth about market creation as a form of adding an option. Sections 3 to 6 compares adding an option with the other forms of behavioural change on different evaluative criteria, namely freedom (section 3), property (section 4), autonomy (section

5) and paternalism (section 6). The overall argument is that adding an option is comparably soft on these parameters. Section 7 considers combinations with other mechanisms and section 8 concludes.

2. Adding an Option and Market Creation

Adding an Option: Standard and Botched Versions

One example for a successful case of adding an option is Judi's offer of a banana to Timmy. Judi adds a superior option to Timmy's set of options, an option that makes Timmy choose a new course of action, namely eating a banana. There are two important conditions that must be satisfied. First, the new option must somehow be *objectively better* than the option that would otherwise be chosen. The banana satisfies this criterion because it is healthier than the chocolate, which Timmy would otherwise choose. Second, the new option must be *subjectively superior* to the existing options according to the subjective preferences of the chooser. Timmy regards the banana as preferable to the chocolate. This is the successful case, and thus the conceptual core of adding an option. There are, however, five ways in which adding an option can deviate from this standard case.

i) *No objective improvement*. The newly added option is not objectively better than the option which would have been chosen in the absence of the new option. Judi might add cake to Timmy's set and Timmy might happily choose it over the chocolate, but it would not serve Judi's intention of making Timmy eat healthy. Remember that the primary objective of policy introducing such new options was to advance some societal or private good, like health or environmental protection. The new option must be somewhat better than existing options at promoting these goals (if chosen).

ii) *Inferior option*. The newly introduced option is objectively better, but not subjectively superior to the existing options. For example, Judi may introduce a (healthy) kiwi to Timmy's set of options, but it turns out that Timmy hates kiwi and would even prefer apple to kiwi. This condition of superiority may for instance be spelt out in terms of Timmy's preferences or his judgement of the intrinsic qualities of the options. The new option must be preferred by Timmy.[121]

iii) *Unchosen superior option*. The newly introduced option is objectively better and subjectively superior, but for some reason or other Timmy fails to choose it. For example, Timmy may not know of the newly added banana. The new option must actually be chosen and the attempt at behavioural change successful.

iv) *Superior option chosen for other reason*. The newly introduced option is objectively better and superior and is chosen, but is chosen for reasons other than its superiority. For example, Judi may introduce the banana, but then threaten Timmy with a gun if he fails to pick the banana. In this case, the superiority of the banana was not the decisive reason for Timmy's choosing the banana. The superiority of the newly introduced option must be the decisive reason for its being chosen.

v) *Other intention*. Judi adds an objectively better, superior option that Timmy chooses for its superiority, but Judi does so with another intention. Judi may have brought home a banana and left it on the table, without thinking of offering it to Timmy. Similarly, Judi may be introducing the banana for other purposes, such as confusing or annoying Timmy. Judi must actually intend Timmy's behavioural change.

Such variations of accidents and mere attempts at behavioural change are *botched* versions of adding an option and make for interesting cases. By calling these versions of adding an option "botched", I do not mean to suggest that they are normatively worse than the standard case. Instead, the idea is that these are deviations of a conceptual core. In this chapter, I restrict my attention to considering the ethical standing of cases which do not deviate in one of the five ways outlined. This is comparable to the treatment of nudge where discussion assumes that nudges succeed in changing behaviour and are the result of intentional design.

Supply-Side Economic Policy and Market Creation

After this description of adding an option by means of the living room example, let us now turn to economic policy. An instance of adding an option in economic policy is the creation of new markets. I understand *Market creation* as any policy that successfully

[121] A variation of this occurs with preference change. Imagine that the introduction of the kiwi makes the apple seem nice after all to Timmy and that he comes to choose the apple over the chocolate. The role of the introduction of the kiwi was merely to change Timmy's preference. He ended up choosing differently, but not the new option (Grill (2014: 151) considers this possibility).

establishes a new type of market transaction in an economy and thus adds a new option for consumers (and sellers). The establishment of the solar panel market in Germany is one example (Naam 2019). The German *Energiewende* (Germany's energy policy since 2010) has shaped a new market in solar panels, by encouraging demand and encouraging suppliers of solar panels to enter the market. The resulting scale made it cheaper to win energy from solar power than from fossil fuels in many regions of the world. "Germany began subsidizing solar and wind when they were extremely small scale industries, and their costs were quite high. Those subsidies drove German utilities, businesses, and home owners to purchase clean energy. That created a market. That, in turn, led solar and wind manufacturers to leap into the market, competing ruthlessly against one another to bring down their prices faster, offering the best product at the best price to customers. By scaling the clean energy industries, Germany lowered the price of solar and wind for everyone, worldwide, forever" (Naam 2019). This is a prime example for a state-led creation of a new market. The resulting new market is not dependent any longer on government subsidies. The economic competition meant that the prices for solar panels were reduced for consumers. The new market also satisfies (in many cases) the two conditions for adding an option that were introduced earlier. First, the new option is *objectively better* since producing electricity with solar panels emits fewer greenhouse gases. Second, the new option is *subjectively superior* for consumers given their preferences (and this can be made plausible by the fact that solar panels produce electricity more cheaply than alternatives).

The five ways how adding an option can go wrong also apply to market creation. The newly added option must be objectively better. Only some people will change their behaviour as a result of new markets. The interesting case arises for those people for whom the new option was superior and who as a result chose it. Finally, I will consider market creation as the intentional object of policy, not the unintended consequences of policy or other economic forces.

The proposal for the state to change behaviour by market creation must be distinguished from other ways in which policy may change markets. In particular, market creation seems to be a mechanism that changes behaviour in the demand side (the choosers), as well as in the supply side (the sellers). The living room example only considered Judi's strategies in order to change Timmy's behaviour. In the context of economic policy, there are two options: namely to try to change the behaviour of the choosers and the sellers. Market creation is a policy mechanism on the supply side, but it is not the only one. In chapter 1, I considered Evans's (1995) distinction between three roles that the state can play vis-à-vis private entrepreneurs in economic development: regulator, demiurge and midwife. As regulator, the state tries to impose restrictions on the behaviour of private entrepreneurs. As demiurge, the state mistrusts the private entrepreneurs and instead takes production and selling in its own hands. And finally, in the role as midwife, the state tries to induce companies to enter new markets or sectors. Along these different roles of the state, market creation can be categorised as a proposal alongside two other supply-side policies that have recently been proposed.

As for the role of the regulator, Oliver (2013) complains that the discourse on nudge puts responsibility for making good choices on the side of the demand side, namely the consumer. For Oliver, the discourse is mostly a way of staying away from (long overdue and necessary) government regulation of businesses. By contrast, he holds that the regulation of the supply side in companies, and thereby their market products, must at least play an equally important role, what he calls "budge".[122] Translating this to the solar panels, this might be the requirement for all electricity producers to cohere to certain environmental standards.

As for the role of the producer, Sitaraman and Alstott (2019) suggested the idea of offering "public options". These are (market) options that are supplied by the state, usually allowing private initiative to compete with these public options. The idea is that the "public option is often attractive because it offers a high-quality service for a reasonable price. But it is an option, competing directly with other options provided by the private market — a form of competition that can be beneficial to both the public and the private realm" (Sitaraman & Alstott 2019: 9). The authors cite public schools, public defenders in court and parks as good examples for such public options. For example, the state could offer to produce and sell solar panels itself.

By contrast to budge and public options, the proposal of market creation must be understood as the state taking the role of midwife. The primary objective is to

[122] This distinction between policy attempts that focus on the supply side and those on the demand side is well expressed by Oliver in this quotation: "It is perhaps important to note that when regulating commercial enterprises government is not relying directly on changing the personal lifestyle behaviours of individuals per se (that is, they are not relying on demand-led change), but is rather targeting the often profit-driven nature of the supply side. In other words, rather than leaving the supply side largely free while attempting to influence demand so that people make 'better' choices, the demand side is left largely free but the supply side is shorn of those goods, services and processes that are deemed excessively exploitative" (Oliver 2013: 697).

establish new markets. The German solar case is an example of market creation. The role of the state was to induce private actors to join the market to sell solar panels and to drive prices down to make it a viable option for consumers and sellers. This may involve regulation and it may also involve a more direct involvement of the state in the form of producer, for example by introducing a public option (Mazzucato & Li 2020). These are, however, only auxiliary mechanisms for the purpose of establishing a new market, which goes beyond the idea of the state merely regulating private business or taking over the role of producer or seller.

Role of State	**Name**	**Mechanism**	**Example**
Regulator	Budge (Oliver 2013)	Public regulates businesses	Regulation on production standards
Demiurge	Public option (Sitaraman & Alstott 2019)	Public offers market option alongside private businesses	Public option for health insurance
Midwifery	Market creation (Mazzucato 2016)	Public establishes new market option	Establishing a solar panel market

Table 4: Supply-side mechanisms for behavioural change.

Varieties of Market Creation

I discuss market creation under the aspect that it opens up new possibilities for action (buying or selling). J. A. Schumpeter has contributed most to our understanding of the dynamic changes in the economy by innovation and the "carrying out of new combinations". Schumpeter's concern is to give a general account of entrepreneuship. It will be useful to consider the variety of ways that Schumpeter identifies as economic development. Some of these are closer to my concern of market creation, some are further removed. Schumpeter identifies five ways in which discontinuous forms of economic development can take place:

(1) The **introduction of a new good**

(2) The **introduction of a new method of production**

(3) The **opening of a new market**

(4) The **conquest of a new source of supply of raw materials**

(5) The carrying out of the **new organisation of any industry**

(Schumpeter 1911: 100-101).

Schumpeter's points (1) "the introduction of a new good" and (3) "the opening of a new market" are directly relevant for the concept of market creation. The introduction of a completely new product or service is the most straightforward way of creating a new market. Similarly, the opening of new markets introduces an option that already existed elsewhere (in other geographical regions or countries), thus spreading the product to other environments. This constitutes the adding of a new option for the people in that region and thus the creation of a new market. These are the most straightforward cases in which entrepreneurship consists of introducing options for buying and selling.

Schumpeter's point (2) "the introduction of a new method of production" puts pressure on the distinction between adding an option and making an existing option better. The introduction of "a new method of production" can reduce production costs, giving the entrepreneur a competitive advantage. This could also drive down prices for consumers. Is a product that has the same intrinsic qualities as before but offered more cheaply a new product or just a better version of the old one? Obviously, there is no clear-cut boundary between better and new here. The important consideration is the ability of ordinary consumers to purchase a good. The printing press did not invent a new Bible, but it made this book a household good that most could afford. Before that it was scarce and reserved for the rich and monasteries. In my terminology, it is subjectively superior to the extent that it is preferred by consumers and new production methods can make a product superior because of falling prices.

Schumpeter's points (4) "the conquest of a new source of supply of raw materials" and (5) "the carrying out of the new organisation of industry" are further removed from consumer-facing or producer-facing options that are created in new markets. Instead, they signify changes in the technological and economic *background conditions* against which new markets and options can be created. These are new higher-order options for the introduction of new products or methods of production, but do not have direct bearing on consumption or production. These higher-order options for introducing new market options are somewhat removed from my concern.[123] In particular, they describe what is technologically possible or economically viable, but that is different from whether an option is actually offered in the market. Something may be possible, but not actually offered. Or something may not be economically viable, but the state may still offer it as a public option (making a loss).[124]

Schumpeter's classification of the varieties of market creation is somewhat abstract. Consider again the case of the solar panels. It seems the creation of this market touched several of these points. The solar panels were new, but so were the methods with which they were produced (in order to drive prices down). In addition, it brought about a new organization of the industry because individuals could now produce electricity by themselves (as opposed to taking it from the grid). Considering Schumpeter's varieties of innovation should merely illustrate that entrepreneurship can be about more than just adding new products.

Optimism for State as Market Creator

Having identified the conceptual space of adding an option and market creation, let us advance some reasons for optimism. Why should we think that economic policy is able to establish new options that fulfil both conditions, namely being objectively better and subjectively superior for consumers. In order words, can government add options that people will like? We should first revisit some of the reasons surveyed in chapter 1 as to the role of the state in innovation. First, historical evidence suggests that the state has played a central role in developing and commercializing technologies in the past. Second, states may be better equipped to ensure long-term patient finance in order to

[123] Consider similar background conditions for nudge policy. Here, the idea would be that certain laws, policies, or other institutions in the background shape which nudges are possible in a society. There would also be an ethical question about that, but they would be mostly derivative of the direct question whether nudges themselves are ethically legitimate or not. Similar remarks apply to coercive mechanisms or incentives.

[124] I distinguish three possible ways in which policy can affect market creation and such background conditions. First, a policy may not directly establish a market, but instead change the background conditions, namely what is technologically possible or economically viable. Private economic actors, as a result, find that the creation of a new market is now possible or viable and carry it out themselves. Second, a policy may only be directed at establishing a new market, without changing background conditions. It may be found that a new product is already technologically available and economically viable and that the only action needed for the creation of a new market is the introduction of a product into the market (commercialization). Third, policy may combine both. For example, Mazzucato (2013) argues that in the past the state has driven new products "along the entire innovation chain".

develop radical new technologies. Third, the state is not required to act on the profit motive and can choose to develop and advance options that are likely to be objectively better (such as green options), even if that is not likely to be profitable in the short run.

However, when it comes to the second condition — establishing options that will be subjectively superior and thus accepted by consumers — we cannot give an insurance, but it is also not needed. There is no way of guaranteeing that new markets will be accepted by consumers. Just like private entrepreneurship, public entrepreneurship might have to rely on trial and error and find out which new products will meet demand.[125]

Ethics and Market Creation

We can now turn to the evaluation of market creation. Are there ethical or political reasons against creating markets as a mechanism for behavioural change? What are the ethical considerations of the state aiming for behavioural and institutional change? Adding an option has not yet been discussed in philosophical literature and therefore no ethical worries have been expressed about this mechanism. However, market creation is a form of state action, one that aims at changing human behaviour. Changing human behaviour, especially when it is induced by the state in the name of "objectively better" options, will sound alarmist bells. This would go beyond the mere regulation of individual activities. It suggests the large-scale restructuring of economic life. Does this not constitute a heavy-handed intervention in individuals' affairs? Beyond this general worry, discussions in political philosophy have often assumed that the division between legitimate spheres of government and individual action is a zero-sum game. Government action necessarily impinges and restricts the sphere of individual citizens and is therefore in tension with a core tenet of liberalism: that the individual is the locus of moral value in theories of political legitimacy. By arguing that adding an option is "comparatively soft", I wish to show that it is a type of government action that does not restrict the sphere of individual action. The four philosophical notions I am going to address in the following sections — freedom, property, autonomy and paternalism — share that they express concern for the individual and are therefore seen

[125] Of course, states have the power to make new products desirable; for example, by introducing electric cars and then building an infrastructure so that these cars can be charged everywhere. But this might already go beyond 'mere' entrepreneurship. I discuss this later in section 7 of this chapter.

as some kind of limit to legitimate state action. In particular, these notions have been advanced against the other three mechanisms for behavioural change that were introduced earlier.

Two clarifications are needed before we start. First, the creation of markets is not reserved to states. While we can raise ethical worries for other actors too, the focus of this chapter is on policy. Second, for the sake of this discussion I shall assume that the purposes for which behavioural change is pursued are politically legitimate.[126] We are concerned with means, not ends.

That is an important assumption, but there is sufficient agreement that economic change is necessary for tackling societal challenges, such as climate change. Of course, mechanisms for evil purposes are illegitimate uses of state power. The interesting question, which is addressed here, is about ethically problematic mechanisms for the pursuit of legitimate public purposes. Is adding an option ethically problematic even if the ends are legitimate?[127]

3. Freedom

By removing or disallowing chocolate, Judi coerces Timmy into eating the apple and thus restricts his freedom. Judi can be criticised for not allowing Timmy to make a decision for himself. Policies that block market exchanges are similarly subject to the criticism that they restrict the freedom of sellers and buyers and thus deprive them of the ability to make decisions for themselves. For example, prohibition against sex work in many countries is argued to restrict freedom. Making market transactions impossible (either through law or in other ways) is seen as a hard mechanism for behavioural change. Concerns for freedom have been a central argument for the restriction of government action. The restriction of government action on the grounds of freedom usually rests on a negative conception of freedom. A negative conception of freedom holds that freedom consists in the absence of restrictions, be they legal or non-legal.[128] In the context of market creation, we must deal with a more specific form of freedom, namely economic freedom. Economic freedom is the freedom to own productive

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[126] Sunstein (2015), for instance, makes the same assumption in his ethical defence of nudge.
[127] The focus in the remainder of this chapter will be on (broadly speaking) deontological concerns in ethics. For welfare-based concerns that arise from new options or too many options, see Dworkin (1982), Velleman (1992) and Schwartz (2004).
[128] For the role of positive and negative freedom in public policy, see Pennington (2018).

property and engage in voluntary exchange (Tomasi 2012).[129] Does adding an option and the creation of new markets also restrict individuals' freedom like coercion? This section argues that adding an option is not subject to this kind of criticism.

Adding an option to someone's set of options does not restrict that person's negative freedom. Similarly, the creation of a new market does not limit the economic freedom to possess and engage in voluntary exchange. The mere addition of a new option does not constitute a new restriction or prohibition of economic actions, both for consumers and sellers. For consumers, the creation of a new market results in new or different products being available on the market; yet previously available products can still be purchased. The new product does not close off any option for purchase. Thus, introducing a new product into the market does not restrict the freedom of consumers. Consider the example of the introduction of solar panels into the market. The mere introduction does not restrict people's options in any way.

Likewise, producers' economic freedom is not restricted by the introduction of a new product by the state either. A typical way in which the economic freedom of producers is curtailed is by outlawing the selling of certain goods or services. Prohibition of sex work, for instance, is such a curtailing of freedom on the side of the supplier. Such a law restricts the range of products and services that a person may legally supply and sell on the market. Introducing new products does not mean that other products cannot be sold and advertised on the market. In particular, market creation does not imply outlawing competing products in the way that sex work may be outlawed.

Dynamic effects are one complication to this view that creating new markets does not restrict freedom. The argument so far held that the introduction of a new product into the market need not be accompanied by the removal of options from the market. This seems to be plausible for new products that cannot compete with existing products. One might argue, however, that this cannot be guaranteed in the long run for products that satisfy a need far better than competing products. The dynamic effects of the introduction of a new product might mean that previously available options disappear.[130] Old products can no longer compete with new products — especially

[129] Economic freedom has recently been adduced in the context of economic regimes. Socialists demand that the means of production are socialised, but Tomasi (2012) and others argued that in such a regime economic freedom could not be realised. The realization of economic freedom requires that the means of production can be owned privately and that economic transactions are not limited.
[130] This dynamic effect of innovation has been most prominently discussed by Schumpeter (1942) as "creative destruction".

those that are technologically superior — and this can lead to massive changes in the market. Cars replaced horse-drawn carriages, telephones replaced the telegram and smartphones replaced Nokia phones.[131] Solar panels might replace other comparable products due to economic competition. In other words, can market creation be blamed for removing options and therefore for restricting liberty, just like the more coercive policy alternatives did?

In response, I highlight the difference between option removal as a form of deliberate market interference and the disappearance of market options as a result of dynamic processes. In the first instance, it is a conscious and intended removal. In the second, it is not. The reason for the disappearance of the option in the second instance is not the deliberate removal from political or other authorities. Rather, it is the fact that the disappeared option could not compete with novel ones and was therefore not chosen anymore by consumers.[132] The possibility of the disappearance of options is inherent in dynamic systems, even without state innovation and public adding of options.

4. Property

Another objection that can be advanced is that the creation of markets by the state must somehow be financed, usually in the form of taxation. To the extent that citizens must contribute to public projects by paying taxes, their freedom is restricted. When Judi adds the banana to Timmy's set of choices, someone has to pay for the extra banana. If Judi pays for it herself, there is no ground for complaint. But if Judi and Timmy share a household, there is — as always in a household — the question what money is spent for. State action requires resources, and the way of financing government is through taxation.[133] The mere expansion of old products into new markets may be less costly, but big research and innovation producing significant new products are likely to

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[131] Old-fashioned phones can still be purchased and horse-drawn carriages are still a big tourism attraction in Vienna's city centre. Yet sending a Telegram is really not an option anymore (Lafrance 2016).

[132] Pettit's (2012: 35-40) distinction between invasive and vitiative hindrances on freedom mirrors my distinction between option removal and the disappearance of options as a result of competition. Klein (2017) argues that Republican theorists should also be concerned with vitiative restriction of freedom, especially in political economy.

[133] Note that this order – first tax, then spend – is controversial as a description of government financing. Modern Monetary Theorists, such as Kelton (2020), argue that this is based on a flawed understanding of monetary theory.

consume significant amounts of societal resources. Perhaps the problem with innovation as policy is not the way in which it changes behaviour, but rather the coercive way in which it is financed.

Nozick offered the most forceful formulation of this libertarian argument against taxation: "Taxation of earning from labor is on a par with forced labor" (Nozick 1974: 169). By taxing citizens, the state forces them to work more in order to keep consumption constant. Nozick argues that forcing someone to work is nothing else than slavery. There are more moderate versions of this argument (for example, Gaus 2010).[134] For our topic of market creation, we may consider the possible extension of this argument from taxation to the financing of innovation programmes that result in the addition of new options. The state does not develop and introduce the new option with its own resources, so this objection goes. Instead, the state takes away resources from citizens and thus forces them to contribute to this public economic programme. This may be fine for that part of the citizenry that approves of such innovation programmes and that are willing to buy the new products. However, it might also force that part of the citizenry that opposes these programmes and might have no appetite for the new products. Gaus (2010) holds that a policy itself must be evaluated in conjunction with the way it is financed. One might add that with the resources that citizens pay in taxes, they could have invested themselves in entrepreneurship or innovation programmes that would bring about similar, or even better, innovation. Why force the citizens to contribute to the public programme, if they might be much more successful in doing the same individually?

It may not be possible to give a satisfactory answer to the libertarian worry here. What is possible is advancing a comparative argument, showing that innovation is more attractive than incentives on the score of property. The argument from property and taxation is a significant problem for policies involving incentives.[135] Imagine an

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[134] There have been replies to this libertarian objection. Murphy and Nagel (2002) argue that property depends on the market and the market on the state. Similarly, Scanlon (2018: 103): "The best way of understanding the objection to redistributive taxation is therefore not that it is objectionable because it takes away part of the pretax income that people have earned and are entitled to according to the particular legal system in which they live. The objections should be, rather, that a legal and political system that allows for redistributive taxation is, for that reason, unjust (and the pretax incomes earned within it are therefore to some degree also morally tainted)." One interesting avenue for future research is to consider the dynamic effects of innovation of markets and their implications on the normative significance of property.

[135] Grant characterises incentives as a particular type of offer which satisfies these three necessary conditions. It is

incentive scheme that heavily subsidises certain kinds of organic foods. Some people do not want to consume such organic foods, but are nevertheless forced to contribute to this incentive scheme via taxation. What can justify this continuous redistribution of resources from some to others, attached to certain forms of consumption or other economic behaviour?

It is difficult to distinguish precisely between incentive and market creation. How can we conceptualise their difference? The idea is that the new option is objectively better than the one which would have been chosen in its absence. The banana is preferred over the chocolate and the apple. The real question here is whether it is possible to draw a boundary between incentivising an option (making the option better, or more attractive) and adding an option. The suggestion is that there is an important normative difference between the two, namely in the dependence of the additional benefit on continual state subsidy. This distinction can only be drawn in economic policy, not in the living room.

If Judi wants to rely on incentivizing Timmy to eat the apple in the long run, she will have to offer the £5 reward not just once, but for all or most instances where Timmy is faced with such a decision. Similarly, if the state offers an incentive for a product, it will have to offer that financial benefit continuously. Here lies the crucial conceptual and normative difference between incentive and market creation. In market creation a new product is introduced, but the economic viability of the product does not depend on subsidies. The cost of market creation is restricted to the inception phase. The increase of production results in economies of scale, product improvements and learning, which in turn lead to the reduction of prices. Once a new market has been created — a market that is economically viable — the new attractive product can be sold without the need for continuous state subsidy. In other words, incentives require more taxes, because they must be paid in the long run, whereas market creation ceases to require government expenditure at some point.[136]

It can be objected that not all cases of introducing new options into the market by the state are economically viable. Sometimes, the state may introduce an option and

- "an extrinsic benefit or a bonus, which is neither a deserved reward nor a compensation nor the natural or automatic consequence of an action. […]
- a specific prompt expected to elicit a particular response; and
- intentionally designed to alter the status quo by motivating a person to choose differently than he or she would be likely to choose in its absence" (2015: 357).

[136] Once the product exists in the market, entrepreneurs can learn how to produce better and cheaper products.

act as seller (this is the aforementioned "public option" (Sitaraman & Alstott 2019)). Such a public option may be economically viable — which means the state does not make a loss by selling the product — but it may also not be. If the public option offered by the state is not economically viable and makes a loss, then it is equivalent to the case of incentive. Its provision requires the continuous subsidy of the state. Hence, for such cases of public option it cannot be argued that they fare better than incentive given the argument from property.

Market creation requires societal resources. In this sense, it will always be subject to the concerns of the libertarian argument against taxation. However, by comparing market creation to incentive, I showed that there are important differences between them. In the case of incentives, the state is required to ensure the attractiveness of the option by a continuous offering of a financial benefit. By contrast, the expenditure for market creation is limited to the inception phase, assuming it results in options that are economically viable and can therefore be offered without financial loss.

5. Autonomy

Thaler and Sunstein, proponents of nudge in policy, argue that the use of nudge is a form of *libertarian paternalism* (Thaler & Sunstein 2009). For Sunstein (2015: 7) "[n]udges are interventions that steer people in particular directions but that also allow them to go their own way". Those who are subjected to a nudge keep all their options (their freedom is not restricted, hence "libertarian"), but they are nevertheless nudged into making a certain choice, which they regard as a defensible kind of "paternalism".[137] In this way, nudge is argued to be a soft mechanism for behavioural change. It is softer than coercion because it does not restrict liberty. In addition, it is softer than incentives because nudges do not interfere with the relative attractiveness of the various options.

Note that nudges work in the realm of psychology. Proponents of nudge point out biases and other cognitive limitations of rational behaviour in humans. Nudges are somehow designed to exploit and correct these cognitive limitations. The way that nudges "push" the chooser into a certain direction (and thus increase the probability that the chooser will actually make that choice), is by influencing decision making. For

[137] I will only consider nudge policies pursued by the state here. As demonstrated by the living room example in the introduction, nudges — like coercion or incentive — may also be instituted by other actors.

example, by framing choices in a certain way (health warnings on cigarette packs), the consumer's decision process is affected in a way to make it more likely that the better choice is made. Thus, nudges do not change the set of options that are open to consumers, but aim to influence how the choice between them is made. Nudge interferes with the psychological process of making a decision between unaltered options. By contrast, the mechanism through which successful cases of market creation change people's behaviour is by adding an option that is subjectively superior to existing ones.

Among the many evaluative concerns that have been raised against the use of nudge, infringement of people's autonomy is one of the most pressing.[138] The idea behind autonomy in this context is that what matters are not merely the options open to those subjected to nudge, but also "the quality of those options and the individual's ability to reflect on these options in an authentic fashion" (Mills 2015: 497). Imagine that Timmy would have chosen the chocolate over the apple, but by careful arrangement of these options and by exploiting Timmy's cognitive biases, Judi still manages to make Timmy choose the apple. We may worry whether the use of nudge really leaves Timmy in charge of his decisions or whether they are instead carefully subverted by dubious psychological mechanisms. Mills (ibid.) writes that

> "[h]eteronomous behaviour can be caused by any reason for action that motivates an individual contrary to (e.g., by overriding or subverting) their authentic will. Heteronomy specifically threatens the independence of an individual's will by disregarding her decision-making competency, thus bypassing part of what makes her decision her own".

And Hausman and Welch (2010: 128) write: "when this 'pushing' does not take the form of rational persuasion, their autonomy — the extent to which they have control over their own evaluations and deliberation — is diminished".

Proponents of nudging advocate them only as "means-related nudges", helping people achieve what they want themselves, but what they may not be able to achieve due to cognitive limitations. For this reason, proponents of nudge hold that "[w]hen they help correct some kind of bias, nudges might well promote people's autonomy"

[138] Barton and Grüne-Yanoff (2015: 349-351) give an overview of debates on nudge and autonomy.

(Sunstein 2015: 30). Mills (2015), for instance, identifies a set of circumstances and types of nudge he thinks are respectful of people's autonomy. Thus, the concerns of autonomy restriction for nudge may be avoided in certain ways and cases, but the worry looms large over nudge as a general mechanism for behavioural change. We may now ask whether adding an option poses similar threats to the autonomy of individuals? Adding an option aims to change people's behaviour by adding an option, with the result that individuals act differently than they would have in the absence of the new option. What is the relationship between this behavioural mechanism and concerns of autonomy?

Market creation does not aim to influence the decision process of consumers. The primary way in which market creation changes behaviour is not by influencing the choice process, but rather by adding new options. Changes in the choice process result from the addition of new options. Remember that the standard case of adding an option involves that the new option is already subjectively superior to the otherwise chosen option. It is hoped that people will choose the new options because they prefer them. No psychological mechanisms that are aimed at influencing the choices that consumers make are proposed. The behavioural change is achieved solely by extending the options available to choose from. Of course, there is a sense in which market creation aims to be *choice-improving*.[139] Options are created which would not have been available otherwise. These options are created in the hope that they will be in important ways objectively better than the existing options. While nudge policies aim at improving the choices that are made given existing options, market creation aims to add better options, while leaving choice to consumers.[140]

A possible rejoinder to this argument is that such a neat distinction between providing options and influencing consumers' choice cannot be made. For example, introducing solar panels into the market might force consumers to choose the eco-friendly option. Consumers might not want to be perceived as polluters of the environment and the resulting social pressure might influence the choice that can be made between the eco-friendly and the polluting alternatives. In terms of behavioural change, market creation might do more things than just adding an option. It might

[139] Quong (2011: 77-78) gives a formulation of *choice-improving paternalism*.
[140] One possible argument is that there are certain things whose introduction into the market would definitely interfere with autonomy, especially products that are addictive. It must be noted that the problem here is not the behavioural mechanism (adding an option), but rather the particular nature of the option to be introduced. Of course, not all options that can be added should or may be added.

create a new norm and thus change consumer preferences. Hodgson (2000: 318) writes that "individuals do not simply (intentionally or unintentionally) create institutions. Through 'reconstitutive downward causation' institutions affect individuals in fundamental ways".[141] Hence, the worry is not that the introduction of new options infringes on autonomy immediately after it is introduced. Instead, since new markets are new institutions and new institutions have this *constitutive* relationship to norms and people's preferences in the long-run, can we not expect market creation to have an even more profound influence on the wants, values and decision making of individuals than nudges?

The reply to this objection grants that the new or modified options provided by the state may easily result in changed choice outcomes. The modified options will give rise to different considerations and will result in different choices. The crucial point (and what distinguishes market creation from nudge policies) is that their primary aim is not to influence those decision processes, but merely to change the options between which those choices are made. Social pressure, bad conscience and other factors might interact with the newly created options in ways that will draw consumers to these new options. However, market creation as such does not aim to modify those accompanying causes in order to sell options to consumers. The sovereignty of the consumer in making decisions is left intact. Market creation aims to create new options not via better selling techniques, but via better products.

In addition, I can modify the earlier reply to the worry that dynamic processes may result in the removal of options from the market. In both cases, the outcome (removal of options, preference change) occurs as a result of dynamic market processes. Even without state-led policies to introduce such new options, there would presumably be dynamic market processes that result in changes in market options and people's preferences. These changes occur not because of the deliberate moulding by the state, but rather as unintended consequences of policy, along with market processes.

[141] Hodgson (2003) explains how institutions shape habits and social practices. Frank Knight gave a lucid formulation of the variability of preferences: "Wants are usually treated as the fundamental data, the ultimate driving force in economic activity, and in a short-run view of problems this is scientifically legitimate. But in the long-run it is just as clear that wants are dependent variables, that they are largely caused and formed by economic activity. The case is somewhat like that of a river and its channel; for the time being the channel locates the river, but I the long run it is the other way" (Knight (1924: 262-263), quoted in Hodgson (1989: 262)).

6. Paternalism

The previous sections argued that adding an option fares better than alternative mechanisms for behavioural change on freedom, property and autonomy. In the coercion, incentive and nudge variants of the living room case, Judi did not trust Timmy to make the right decision and therefore tried to interfere in some way or other. Judi's actions can only be explained by her judgement that without her action, Timmy would make the wrong decision. Such disrespect for others' agency has been discussed under the heading of paternalism. The definition of paternalism is subject to debate and some elements that are sometimes associated with it, have already been addressed in previous sections.[142] In recent years, the epistemic element in paternalism has received increasing attention (Shiffrin 2000, Quong 2011: 80-83, Le Grand & New 2015). The idea is that the core of a paternalistic action (what makes it insulting to the subject of paternalism) is a judgment that the person is ignorant of the value of an option or unable to pursue the course of action herself. For this reason, the paternalising agent pursues an action on behalf of (or instead of) the person subject to paternalism.[143]

One might worry that market creation is an epistemic form of government paternalism. It seems to be based on the judgment that the state *knows better* which options should be created and how to do so. After all, one might think that if an option is really that valuable, then consumers might start to demand it and entrepreneurs, not the state, would see the opportunity and provide the option themselves.[144] If many citizens wish to buy a product, then entrepreneurs will seize the opportunity and establish the corresponding market. If a product is not sufficiently in demand and hence not profitable, that market will not continue for long. If the state "intervenes" in this adjustment of markets to consumers' wishes, it seems to somehow mistrust its citizens. In other words, it seems to be an instance of state paternalism. In addition, given that both the state and individuals have judgements about the subject matter, it is now an

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[142] Mill's (1859) account — without using the term "paternalism" — focuses on motivation and restriction of freedom. Sunstein and Thaler (2003) hold that nudge is paternalistic because it aims to improve people's choices, even if it does not restrict freedom.
[143] Dworkin (2015: 31) gave a clear formulation of this version of paternalism: X acts paternalistically towards Y by doing (omitting) Z only if "X substitutes his/her judgment or agency for Y's on the ground that compared to Y's judgment or agency with respect to those interests or other matters, X regards her judgment or agency to be (or as likely to be), in some respect superior to Y's." Compare also Hausman's (2018a) *barebones* account: "A policy is paternalist if and only if it aims to take over or control what is properly within the agent's own legitimate domain of judgment or action for the benefit of the agent."
[144] It is beyond the scope of this chapter to argue that the state, in fact, is better than private businesses at creating new markets.

open question why public officials can be confident that their judgment is likely to be superior and more likely to promote wellbeing than the judgment of individual citizens (Hausman 2018b). Framing market creation in terms of substitution of agency does not only open the question of paternalism, but also the ground for public officials' judgment. Why would they know better?

Note that this epistemic account of paternalism contains two separate aspects. First, the agent substitutes her judgment or agency for that of the paternalised person. Second, the agent does so on the ground that the paternalised person's judgment or agency is relevantly inferior. Thus, one might argue that the state, by creating markets, is paternalistic as it substitutes the judgment and agency of individuals on the ground that the state regards its judgment or agency superior to those of the individuals. Yet market creation need not contain a substitution of the agency of individuals in the market sphere. By pursuing innovation policy or other policies that aim to create new markets, the state does not hinder other companies to do so too. Private companies are nonetheless able to identify such opportunities and act accordingly. Therefore, instead of substitution of agency, these policies constitute an addition of agency. The state acts in addition to market forces.

A similar distinction has been made by Mill between authoritative and non-authoritative government action. The latter, for Mill more easily justifiable, leaves "individuals free to use their own means of pursuing any object of general interest", while "the government, not meddling with them, but not trusting the object solely to their care, establishes, side by side with their arrangements, an agency of its own for a like purpose" (Mill 1848: 176). Thus, Mill argues, the state may provide public health programmes, without restrictions on the provision of private health care.[145] Expanding Mill's argument, the state may pursue policies aiming for the creation of markets, without at the same time prohibiting private actors from doing so too. Such a pursuit by the state, in addition to leaving market forces free to pursue them as well, is no substitution of agency and thus is no form of epistemic paternalism.

Adding an option aims to change behaviour by adding subjectively superior options. I left it vague what is meant by "subjectively superior" and who is to judge the superiority. Given that individuals are left to choose or not to choose the new option,

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[145] What Mill has in mind here is probably closer to the idea of a "public option" (Sitaraman & Alstott 2019) than to market creation, but the point about "side by side with their arrangements" is similarly relevant for market creation.

they maintain their sphere of agency where they can judge whether they want the new option and make decisions accordingly. If government misjudges the need for new products, or misjudges the quality of its new products, it is still left to individuals to make decisions for themselves. The misjudgment of public officials need not translate into harm or foregone benefits for the individuals.

7. Combinations with other Mechanisms

State action that aims to create markets will not always rely purely on the mechanism of adding an option. If government wishes to change citizens' behaviour, the introduction of new markets may be accompanied by other policies that enforce the behavioural change. In section 2, I listed the various ways in which adding an option may be botched. One way was that a superior option is chosen for a reason other than its superiority. We can consider such combined versions of market creation with the solar panel example. For example, the introduction of solar panels into the market might be accompanied by policies or mechanisms that are freedom-restricting. Alongside the introduction of panels, policy may outlaw the selling of diesel engines. Of course, that part of the policy that outlaws the production or consumption of a product is freedom-restricting. Similarly, there may be additional taxes or incentives on solar panels in order to change the relative attractiveness to favour the new option. Finally, new markets may come with nudge-like actions, like marketing, advertisement campaigns, or more subtle mechanisms, in order to sell the newly created products. Given that consumers will not be aware of a newly introduced market product, some form of advertisement seems to be crucial in order to establish a new market.

Taxes, subsidies, prohibitions or nudges may of course accompany and enforce policies that aim to create markets. While they may accompany them, we must distinguish them from the adding an option aspect. Besides, market creation without such accompanying mechanisms is possible. In the abstract evaluation of policies, we can always only rely on ideal type policy mechanisms. The fact that actual policies may contain a mix of such ideal type policy mechanisms means that we can adduce such arguments like the ones of this chapter only with reservation.

8. Conclusion

The tension between individual action and concerns for private and societal interests creates the need for government policy that mediates between the two. Coercion, incentive and nudge are mechanisms for such mediation, but they all face concerns that the moral value of the individual was not adequately respected — be it in the form of freedom, property, autonomy or paternalism. Thus, this chapter introduced the adding of new options as a further mechanism of behavioural change. I argued that adding an option does not fall short of placing full respect on the individual. Market creation should therefore be seen as the gold standard in the policy toolkit for aligning private action with private and societal interests.

Chapter V. Why Some Things Should be for Sale: Responsibility and Green Markets

0. Abstract

Contemporary societies create and shape markets. The range of products accessible to consumers in most parts of the world has constantly expanded: electric power, cars, phones or vitamin pills have been added just in the last century. Markets are not given by the gods, nor are they natural entities we can merely make the best of. Their nature is partly subject to political will. Thus, which markets are shaped and created is a question of politics and of value. We need to consider which markets would be conducive to society. In other words, we require a normative framework to assess new markets that could be brought about as a result of innovation and economic policy.

The proposal of this chapter is that we should understand the value of some such new markets as deriving from the relationship these markets have to individuals. In the context of climate change, markets should be understood as institutions that enable individuals to fulfil their moral duties. They incentivise, channel and create norms that make it more attractive, easier or even possible for them to engage in climate-friendly behaviour. In this way, the creation of a new market may fulfil a state's second-order responsibility in climate mitigation. By considering new markets that did not exist before, we open up the space from markets that are too bad to exist, to those too good not to exist.

1. Introduction: Athena Gives the Olive Tree

Are there some goods or services that should be for sale in a society? And is it the role of policy to ensure that they are? The idea that particular markets have value can be found in the Ancient Greek myth on the competition between Poseidon and Athena. After the foundation of Athens, its inhabitants needed to choose a patron god. Poseidon and Athena were the two Greek deities with ambitions to this title. In order to decide the competition, both were asked to present a gift to the new city. Poseidon, the god of the sea and water, created a well of salt water in the city. This made the city a seafaring nation. Afterwards, Athena planted an olive tree on the Acropolis. This gift would shape the economic life of the Athenians: the olives could be eaten, wood was used for construction and olive branches played central roles in rituals. Olive oil was used for cooking, lamps and as perfume. It even became the main export good, especially in exchange for much-needed wheat. The young city saw the economic benefits of the olive tree, chose Athena as patron goddess and named itself Athens.[146]

Due to Athena's present, Athenian farmers could grow olive trees themselves, produce and consume their various products and trade with other cities. The olive tree is not a good that can be enjoyed one-off, nor does it provide a free continuous supply of goods (as the well would have offered continuous water supply, had it not been saline). Instead, Athena advances the frontier of what is technologically possible, in order to shape a new form of economic activity. This myth is perhaps the most famous story of the creation of a new market.

Athena is ideally suited to be the goddess of market creation.[147] First, Athena is the goddess of crafts and skills, the forerunner to modern technology. The myth shows that the new market is incepted by the introduction of a new technology — the olive tree. Its domestication is the precondition and the trigger for the launch of the new market. Second, Athena's counsel (especially in Homer's Odyssey) displays forethought, cunning and practial insight. In our myth, Athena is an economic strategist, an entrepreneur: she identifies an opportunity for the Athenian economy and acts accordingly. Third, Athena represents higher virtues of morality, civilisation and justice. The olive tree represents not only the cunning, competitive advantage to neighbours, but it helps incorporate the city state into a web of institutions that ensure its continued culture, prosperity and peace. Olive trees require some 40 years to fully grow and — being located outside the city walls — they were an easy target for the enemies' flames. Dependence on olive trees meant dependence on peace. It thus provided the economic condition for the flourishing of art, culture and philosophy.

The creation of markets is not reserved for the world of mythology, Ancient Greece and olive trees. Contemporary societies, too, create and shape markets. The range of products accessible to consumers in most parts of the world has constantly

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[146] The first mention of the myth is found in Herodotus (1925: 51); Apollodorus (1921: 77-81) gives the most complete account in Greek. The version presented is the popularly known account and follows Latin writers, especially Marcus Terentius Varro. See Donald (1996: 73-122) on the cultural and economic significance of the olive tree and (ibid.: 149-170) for the myth and its various sources in classical antiquity.

[147] See the Editors of the Encyclopedia Britannia (2021) on Athena's role in the Greek mythology.

expanded: electric power, cars, phones or vitamin pills have been added just in the last century. In the myth the new market was brought about by Athena's divine power. In our world, economic, social and political forces are the driving factors. Markets are not given by the gods, nor are they natural entities we can merely make the best of. Their nature is partly subject to political will. Thus, which markets are created is a question of politics and of value. We therefore need to consider which markets would be detrimental and which conducive to society (Mazzucato 2016). In other words, we require a normative framework to assess new markets that could be brought about as a result of innovation and economic policy. Which things should be for sale and why?

This chapter aims to sketch the idea that the creation of some markets is a process that generates value for society. Section 2 considers why existing evaluations of markets cannot account for the value of new markets. Section 3 outlines various theoretical strategies for establishing the value of new markets based on wellbeing. Sections 4 and 5 argue in favour of another strategy, namely that the creation of markets is a legitimate exercise of government authority because it can help individuals fulfil their independent individual responsibilities. Section 6 considers two objections and section 7 concludes.

In discussing *markets*, I refer to markets delineated by the good or service traded, such as the olive oil market, labour market or energy market. I adopt this term from the moral limits of markets literature which is discussed in the next section. The alternative use, which is avoided here, is that in *market economy* as a general economic system that distributes goods through exchange by default and encompasses many particular markets. This focus on particular markets, as opposed to the whole market economy, allows more fine-grained arguments that take account of moral values or societal implications unique to some markets. Let me call policy *market creation* when it successfully establishes a new type of market transaction in an economy and thus adds a new option for consumers (and producers).[148]

[148] See Chapter 4, section 2, "Varieties of Market Creation" for a discussion of the various ways in which new markets can be created.

2. Beyond the Moral Limits of Markets

Before we can consider a possible normative framework for new markets, we must review the existing accounts of the evaluation of markets and in particular the *moral limits of markets* literature. It examines markets, such as sexual labour or sales in body parts, and asks whether they are morally problematic. As such, this literature may seem promising for an account of market creation. Yet this section shows why it has limited use for the evaluation of market creation.

The moral limits of markets literature questions the extension of market mechanisms to certain goods on the grounds that their commodification is morally problematic. Anderson (1993) argues that there are different evaluative modes for different goods. Economic goods are properly valued through the market, but the commodification of sexual labour, for instance, "destroys the kind of reciprocity required to realize human sexuality as a shared good" (Anderson 1993: 155). Likewise, Sandel (2012) holds that goods such as friendship or democratic votes are corrupted if acquired through market transactions. Both accounts hold that some goods have characteristics that make it morally problematic for them to be exchanged in the market.[149] In her book, Satz (2010) proposes that certain markets are noxious, not because they constitute a moral wrong in themselves or destroy the meaning of the good exchanged. Instead, noxious markets have consequences on individuals or society incompatible with demands of egalitarian justice. For instance, Satz holds that sexual labour need not be morally wrong in all societies. However, in contemporary society, sexual labour may perpetuate views on women that endanger their equal standing in society (Satz 2010: ch. 3).

These accounts identify *limits* of markets, which provide a prima facie reason for their restriction or regulation. There are three limitations of the moral limits of markets literature that make it of limited use for the evaluation of market creation. The remainder of this section discusses these limitations.

First, this literature only identifies markets that are too bad to exist in a society. Yet there is a flip side question: are some markets somehow beneficial or even crucial for a just society? Of course, this question applies to currently existing markets, but we may also extend the question of valuable markets to non-existing, yet possible, markets.

[149] Radin (1996) offers another account. Brennan and Jaworski (2015) offer a strong case against the restriction of markets on such moral arguments.

While political philosophers have discussed the question whether some markets are too bad to exist, we must raise the reverse, and ask whether some markets are too good not to exist. When the moral limits of markets literature argues *Why Some Things Should Not Be For Sale* — the book title of Satz (2010) —, there is also the question whether there are some things that *should* be for sale. Thus, it might be found that creating new markets would be particularly beneficial for the needs of a society, for example in view of egalitarian justice or climate change.

Second, the literature only focuses on markets that result from the commodification of goods that already existed prior to their introduction into the market. Sexual intercourse, kidneys, Nobel prizes, friendships and surrogacy existed prior to their commodification. Commodification only had the effect that they can now also be acquired through market exchange. However, besides commodification, innovation is a second type of process that can generate new markets. While commodification creates new markets by making existing goods available through new distributional mechanisms, innovation makes new goods technologically possible or economically viable in the first place.[150] Innovation as a processes of market creation might involve a wide range of phenomena. It may be understood as the extension of what is technologically possible. Schumpeter (1911: 292) reserved the term "invention" for this purely technological aspect. "Innovation", for Schumpeter, is the introduction of "new combinations" into the market as products. Furthermore, the availability of products is also affected by a great number of further background conditions. The sale of smartphone accessories is only economically viable given widespread smartphone ownership. Making a product viable sometimes requires legislation or social policy, sometimes it requires social change, like the acceptance of new goods (Anteby 2010). Thus, innovation and commodification are different types of market creation, but should be understood as umbrella terms for a wide range of social phenomena that can result in the creation of new markets.

[150] The distinction between commodification and innovation as two processes of market creation is blurry in some cases. Critics of market commodification, such as Sandel (2012), argue that commodification changes the very character of some goods or services. Sexual labour as market commodity may be seen as a novel good, substantially different from non-market sex, so that it constitutes a novel good in society. I shall ignore these complications here.

	Commodification	**Innovation**
Moral limits	Moral limits of markets	Responsible research and innovation (RRI)[151]
Moral potential	Adam Smith[152]	The present chapter[153]

Table 5: Realms of market evaluation.

The third limitation of the moral limits of markets literature lies in their understanding of the nature of markets. In chapter 3, section 2, we discussed the different ways of understanding markets. It seems that the moral limits of markets literature espouses a view that I dubbed *markets as mere exchange*. In this view, markets are merely the realisation of the private freedom to exchange. The state acts as a potential obstruction to this exchange. Through legislation, states may block or restrict otherwise free market transactions. The political-normative question arising from this view of the market is therefore whether some problematic markets should be restricted or modified. Given that state action is seen to be inherently limited to restriction of otherwise free action, the evaluative concerns are negative: are interferences in markets paternalistic? Do they limit people's freedom or autonomy? Thus, it is no surprise that the evaluative focus of the moral limits of markets literature lies solely on the limits of free exchange. The default is that markets are merely a private concern. Only if externalities abound, do they become a public concern.

The alternative view of markets does not see them as merely the freedom of exchange, but rather as social institutions that form part of society. We referred to this view as *markets as institutions* (Hodgson 1988). The ability of individuals to exchange goods in markets requires the existence of an institution that goes beyond the mere freedom of the exchanging individuals. While the markets as mere exchange view focuses on the relationship between the participants in the markets, the "markets as institution" view insists that this relationship must always be understood with reference

[151] The focus of responsible research and innovation is typically on the moral limits of the innovation process, such as von Schomberg's (2013: 60-63) examples of irresponsible innovation. However, the great emphasis of this literature on the propensity of innovation to help solve grand challenges complicates this categorisation.

[152] Adam Smith argued for the social value of markets, for instance: "commerce and manufactures gradually introduced order and good government, and with them, the liberty and security of individuals, among the inhabitants of the country, who had before lived almost in a continual state of war with their neighbours and of servile dependency upon their superiors" (Smith (1776: 402); quoted in Satz (2010: 24)).

[153] Mazzucato and Ryan-Collins (2019) and Kattel et al. (2018) explain the need for an account of public value in market shaping.

to an institution, that is, the market. Given that markets are institutions, they are constructed and therefore highly contingent. What can be bought and sold in society is dependent on a range of cultural, social, economic and political factors. In this alternative view of markets, the market is interwoven ("embedded") with other institutions and social and political factors.[154] The relevance of the markets as institutions view for the role of the state is that policy can do more than merely blocking exchange. Political forces can create markets, often by modifying social, technological or economic conditions on which markets depend. While in the markets as mere exchange view, the effect of policy on individuals through the market is one of restriction, in this view the state can enable new courses of actions previously unavailable. In order words, the markets as institutions view opens up the evaluative concern from restriction of freedom to the normative benefits of enabling individuals.[155]

The distinction between these two views on the nature of markets reflects two traditions in the understanding of liberty. It is possible to characterise the difference between markets as mere exchange and markets as institutions in terms of the difference between negative freedom and positive freedom (Berlin 1959) as applied to the economic realm. The negative type of freedom is freedom from impediments and has been viewed as a constraint on the legitimate action of government. The market, as one realm of such (negative) freedom is therefore the expression of freedom. The other tradition sees freedom in the positive, in the sense of the ability of individuals to carry out certain actions.[156] Here the picture of government is mixed. Given the absence of suitable conditions for the exercise of freedom, government may be required to help create these conditions. This view brings into sharper focus the existing institutions, conditions and abilities that are required for the successful exercise of freedom.

It should by now be clear why the markets as institutions picture offers a more suitable view of markets for analysing the value of new markets. This view of markets

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[154] For the relevant literature in economic sociology, see footnotes in chapter 3, section 2.

[155] The view of markets advanced here shares some aspects with that of Hegel (1821). Hegel puts the market into the realm of civil society, a layer between the private realm and the state proper. In this regard, this view may be distinguished from that of Adam Smith, or at least the common perception thereof, where markets are mere expressions of individuality. Hegel recognises the need for markets as places for individuality. Hegel's view of the state sees it as necessary, not merely obstructive, to freedom. Individuals' freedom only receives full expression through the institutions of civil society and the state. A full interpretation of Hegel's views and their implications on the current subject is beyond my scope. The contrast between Hegel's and Smith's views on the market is explained by Herzog (2013).

[156] A straightforward conceptual reason against treating markets as merely negative freedom of individuals is that this view cannot account for the fact that new markets, such as the market in vitamin pills, come into existence. The emergence of these markets cannot be explained simply by the withdrawal of constraints to negative freedom.

takes into account the embedded nature of markets in the wider framework of institutions in society. More crucially, it opens up the possibility that markets provide options that would not otherwise be available. The policy idea I am deliberating is that states contribute to the creation of new markets, without thereby restricting individuals' freedom. The tradition that regards freedom as a limit on government action has little to say about the value of such state action, whereas there is argumentative space in the alternative tradition. Hence, we need a view of markets as valuable institutions in society.

To summarise, the moral limits of markets literature is concerned with markets resulting from the commodification of a good that was previously distributed in a different way. The question raised is therefore not whether a good should be available in general; but, more narrowly, whether it should be available in the market. By contrast, the present chapter asks whether new markets should be created not by commodifying existing products, but by making new products technologically possible or economically viable in the first place. What value lies in such new markets? The next section will move over to a different branch of thought on the evaluation of markets, namely that based on human welfare.

3. Wellbeing and Market Creation

Welfarist theories identify the value of social institutions in the contribution they make to human wellbeing. Market creation is valuable if (and only if) it maximises human wellbeing. Welfarist theories are much more promising candidates for a useful framework that accounts for the value of market creation. These theories differ — among other factors — in how they conceptualise wellbeing. This section discusses three theories of welfare (Parfit 1984: 493ff), namely hedonism, preference satisfaction and the capabilities approach as examples of an object list account, before developing another non-welfarist account of the value of markets in the next section.

Hedonism identifies human wellbeing with pleasure, construed as a psychological state (Bentham 1789). Some products or services in the market may be immensely conducive to human pleasure. This may apply both to the direct participants in the market (especially the consumers of the new products), but also to others who are not party to the market exchange, namely in the form of great positive externalities (or comparatively small negative externalities). As a general defense of entrepreneurship and market creation, hedonism is unlikely to provide much ground. The additional pleasure received from new products is usually only temporary. After some time, the effect of the new product declines. If the consumer loses access to the new product, this comes with significant psychological cost (pain). Introducing new products means that people are happy at first, but then they get used to it. The frenzy of a new smartphone lasts a few days only and the pain of spending a day without one is great once one is used to it. Hedonism is a relatively crude account of the value of markets. Hedonism subjects all social institutions to the same kind of utility calculations. It lacks the conceptual resources to appreciate the fact that in the market consumers can make choices.

The satisfaction of preferences is another account of wellbeing that could serve as an account of market creation. The more preferences satisfied, the greater a person's wellbeing. The value of market creation may be accounted for by the number of preferences satisfied. Assuming that consumers are good judges of their preferences, there is a straightforward test for whether a new market satisfies a great number of preferences. If a large number of consumers buy the new product, then we can assume that it satisfies many preferences that were previously not.

Both accounts of wellbeing surveyed so far are consequentialist and therefore see the value of the market in the actual outcome it has on people's happiness — whether construed as pleasure or preference satisfaction. Markets leave the decision whether to sell or purchase certain goods to individuals themselves. Imagine a mandatory state-organised in-kind provision of goods that satisfies people's preferences just as well as market arrangements would ever do. Both schemes might produce the same amount of happiness in terms of preference satisfaction, and would thereby produce the same outcome on happiness. However, only the market arrangement would ultimately leave it to individuals themselves whether or not they actually want to realise their opportunity to engage in a market transaction and thereby translate a capacity to an outcome.

Creating markets may create the capacity to pursue certain actions, without being forced to pursue these actions. Sen's and Nussbaum's capability approach is one example for building the *freedom* element into the assessment of individual wellbeing. "Functionings" are doings and beings, "capabilities" are the freedom of pursuing such functionings. Sen (1992: ch. 2) holds that wellbeing should be based on capabilities and their realisation is only secondary. In other words, which capabilities are turned into functionings is outside the scope of the theory of wellbeing. Nussbaum's (2011) objective list account of capabilities that constitute wellbeing helps us illustrate how a capability approach could account for market value. For example, a market in telecommunications technology and smartphones, might — in conducive circumstances — create the conditions for the exercise of the capability to communicate with fellow citizens.[157] Creating such a market is therefore one way for policy makers to create the economic conditions necessary for a capability. It is of course not just the buyer of products whose capabilities could be improved. Some markets may offer job opportunities to the poor and unskilled in an indirect way. This approach to markets does not presume any answers how individuals will use their freedom. In this way, we can accommodate one key aspect of markets into our normative framework, namely a sense of freedom or individuality.[158] Markets leave it to individuals to make final decisions.[159]

The capabilities approach is an account of human wellbeing and there is therefore a restriction on the capabilities that can be identified as relevant. If markets are to be understood as institutions in which individuals can fulfil responsibilities to others, this would have to be conceptualised in terms of a capability. However, such a capability — for example to live compatibly with the demands of climate mitigation — would not count as constitutive of a person's wellbeing.[160] Living compatibly with climate-related responsibilities may influence wellbeing, for example when failure to do so and social pressure creates shame, but in itself the capability approach does not seem to have the resources to allow such a *moral capability* to be part of an account of wellbeing.[161] In other words, the capabilities approach is a welfarist account that can

[157] In Nussbaum's list (2011: 33-34), "affiliation" is one capability: "Being able to live with and toward others, to recognize and show concern for other human beings, to engage in various forms of social interaction". It may be argued that new markets in telecommunications technologies enhance this capability for many.
[158] Consider also Gray's (1992) defence of the market in terms of autonomy. Gray (1992: 23): "By contrast with political institutions that require a policy binding on all, markets allow each to go his own way, thus allowing an exfoliation of individuality and diversity."
[159] The presence or absence of certain markets may constitute an important conversion factor (Sen 1992: ch. 2). These determine how well resources can be translated into functionings. Crocker and Robeyns (2010: 68) distinguish three types of such conversion factors (personal, social and environmental), but the presence of markets does not seem to fit into any of their categories. Chapter 2 considered the immense wealth of Mansa Musa, which he could not use for smartphones, refrigerators and transatlantic flights. This may require the addition of a fourth factor specifying the state of technology and the availability of products through market exchange.
[160] See Schlosberg (2012) for the application of the capabilities approach to climate change.
[161] Compare with Rawls's second moral power: the capacity for a sense of justice, which is "the capacity to understand, to apply, and to act from (and not merely in accordance with) the principles of political justice that specify the fair terms of social cooperation" (Rawls 2001: 18-19).

take account of the individuality and freedom of individuals, but it remains restricted to assessing markets on account of their direct effect on people's welfare.

There are some statements in Sen's work that suggest that his capability approach is also compatible with functionings that concern moral actions. For example, when Sen discusses the agency role of individuals in his account, he writes he is particularly concerned with the "role of the individual as a member of the public and as a participant in economic, social and political actions", which includes "individual or joint activities in political and other spheres" (Sen 1999: 19). A clear identification of functionings whose content is moral action is nonetheless absent from Sen's work. An important contribution here is the identification of "the possibility of being able to live in a law-abiding fashion" (Wolff & De-Shalit 2007: 47). Thinking of the possibility of being able to live a moral life is important and the capability approach may serve in the background when we think of the conditions for environmentally-friendly lifestyles in the next section.

4. Responsibility and Market Creation

Having surveyed the moral limits of markets and the connection between markets and wellbeing, this section focuses on a different account of the moral role of markets, namely as mediating institutions that enable moral conduct. One way of viewing institutional change is as toolkit to induce behavioural change and this was the perspective taken in chapter 4. From this angle, human behaviour is one additional — albeit difficult — variable in policy making. However, citizens themselves have reasons and obligations for action. Living compatibly with the demands of justice is an imperative for citizens. Yet in absence of institutions that enable citizens to do so, they are significantly restricted in their ability to live as responsible citizens. Changing economic institutions in order to enable individuals to live such lives is a justification for state action. Economic institutions, such as markets, can thus also be seen as enabling individuals to carry out actions for which they have independent reasons as moral agents.

Markets are mediating institutions in the sense that they coordinate the production, exchange and consumption of goods and thus lie at the core of the working of regional, national and global economy. Onora O'Neill points out that due to the increasing economic interdependence between people and societies, it is increasingly difficult to abstain from engaging with global markets and thus abstain from indirectly contributing to morally dubious economic practices: "Modern economic causal chains are so complex that it is likely that only those who are economically isolated and self-sufficient could know that they are part of no such system of activities" (O'Neill 1975: 286). It would take to be an eremite to withdraw fully from global supply chains, business practices and market dynamics. By participating in markets we contribute and act in an interdependent economy.[162]

They key problem that I wish to identify, for which the creation of markets might act as a solution, is how difficult or impossible it is to combine modern lifestyles and aspirations with our environmental duties. By modern lifestyles and aspirations, I mean activities like pursuing an academic career. We require electricity and transport and buildings and for these we must find our way in the given consumption infrastructure. These infrastructures differ significantly among countries. In some countries, it is easier to get from one point to another by public transport. In some countries, the electricity from the grid is produced to a high proportion from renewable sources of energy. In others, it is not.

Adam Smith famously pointed out that for a Scot to be respectable and appear in public, he must wear leather shoes. The inability to buy such shoes should be understood as material poverty, along with the social stigma that accompanies it. Similarly, we also hold certain social expectations about each others' lifestyles and it takes much social courage to withstand it. Avoiding a lifestyle that is heavily dependent on actions that either directly or indirectly cause greenhouse gas emissions is very difficult, not just in terms of the material poverty, but also the social expectations. It takes an eccentric to do that. Those with restricted resources will find it difficult if not impossible to spend more to live environmentally friendly lives. Consider the difference in prices between train travel and flights in Europe.[163] The key point is that our consumption infrastructure makes many lifestyles impossible or too costly, both in terms of money, social capital or giving up on personal ambitions.

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[162] Herzog's (2020) recent article on the "epistemic infrastructure" advances an interestingly similar argument: "the person […] knows that she is buying or selling tin, but she does not know, or at least she does not *need* to know, whether she is enabling the production of cans or the production of toxins, or whether she is contributing to the perpetuation of exploitative working conditions, or supporting family-owned businesses to survive (or several of these at once)." (Herzog 2020: 275; original emphasis).

[163] Here is some anecdotal evidence. In September 2021, the price for a return ticket from Eindhoven (the Netherlands) to Vienna using the fantastic new night train of the Austrian Federal Railways (a public option) was €278. By contrast, return tickets for a direct flight between these cities with a (private) discount airline was €49.

There are two options: either we give up or we try to change our consumption infrastructure in a way to make such lifestyles compatible with environmental duties. This chapter explores the value of markets in doing the second. Of course, this does not mean that the creation of new markets is all that is required to fulfil environmental duties.

Scheffler (1995) states that it is not just the interdependence of the global economy, but that to the individual it seems that his or her options are given and immutable:

> "many of the options and choices with which people are presented throughout their lives, although experienced by them as entirely natural, are nevertheless structured to a considerable extent by institutional arrangements of enormous complexity" (ibid.: 43-44).

This first quotation (critically) addresses the notion that certain institutions often appear to be natural and not alterable. This is perhaps closest to the view of markets as merely given. Afterwards, Scheffler recognises the role that such economic choices play in structuring human agency:

> "By structuring individual choices in the way that they do, these arrangements serve, in effect, to harness and channel human actions: to recruit them as contributions to larger processes that typically have little to do with people's reasons for performing those actions, but which often have profound and far-reaching effects." (ibid.).

Scheffler goes on to argue that individuals may even be hardly conscious of the effects or their choices, given the "phenomenology of agency". O'Neill and Scheffler pose an important political and institutional problem. The options that individuals are presented with appear as given and immutable, while they are at the same time "linked in complicated but often poorly appreciated ways to broader global dynamics of the greatest importance" (ibid.). Those options that are not linked to negative global consequences and that can be readily verified not to possess such a link would be of considerable advantage. New markets may constitute such options. Market creation may therefore be understood as an attempt at building institutions in which options for individuals are structured in a way that makes fulfilling one's individual responsibility easier or makes it possible in the first place. In this understanding, markets are moral institutions that enable individuals to live compatibly with the demands of societal challenges, such as climate change.

Before considering the example of climate change to argue that markets enable individuals to fulfil their responsibility, let us turn to the question of political authority. In the previous section, I rejected accounts of market value on the ground of promotion of individual wellbeing. Markets must be understood as institutions that do more than just promote wellbeing; they are moral institutions that enable moral behaviour in society. And yet creating markets here involves usage of the machinery of the state. What is the conception of political authority underlying such a view of the market value and the action of the state in the market?

One promising theory of political authority for giving a foundation to the present view can be found in Raz's *the Morality of Freedom* (1986). Raz's *service conception of the function of authorities* is a useful starting point; it is:

> "the view that their role and primary normal function is to serve the governed. This [...] does not mean that their sole role must be to further the interest of each or of all their subjects. It is to help them act on reasons which bind them" (Raz 1986: 56).[164]

This service conception entails that public authorities must act for individuals, but not in order to further their interest, which should be understood as the accounts of individual wellbeing laid out before. Instead, individuals have independent reasons for action and duties. Raz establishes a close connection between these independent reasons and state action. His *dependence thesis* states that

> "all authoritative directives should be based on reasons which already independently apply to the subjects of the directives and are relevant to their action in the circumstances covered by the directive" (Raz 1986: 47).

[164] Raz's more recent formulation of the service conception of government is found in Raz (2005).

First, I should clarify a potential misunderstanding of the relevance of Raz's theory on my discussion of markets. Raz considers the basis for *authoritative directives*, which invokes the picture of laws that constrain and regulate the action of individuals. Instead, we should understand it as the general basis on which any state action, including the creation of markets, can take place. Thus, it encompasses the passing and implementation of economic policy, just as much as other directives. What is now the implication on the justification of state action? Here, consider Raz's *normal justification thesis*:

> "the normal way to establish that a person has authority over another person involves showing that the alleged subject is likely better to comply with reasons which apply to him (other than the alleged authoritative directives) if he accepts the directives of the alleged authority as authoritatively binding and tries to follow them, rather than by trying to follow the reasons to which apply to him directly" (Raz 1986: 53).

The implication of this account of the justification of authority to my discussion of the legitimacy of market creation is thus: If an individual has independent reason for action, and if the creation of a market by the state makes it more likely that the individual complies with said reason, then the authoritative directive, the economic policy, is (prima facie) justified. It follows that I must still demonstrate the truth of the two antecedents in this statement, in order to show the justification of market creation by the state. First, it has to be shown that there are such independent reasons applying to individuals.[165] Second, I need to show that the government action will actually be of service, that it will make compliance with these independent reasons easier. The next section will consider these two conditions in the light of climate change and the creation of a market in solar panels.

Before we can advance to the next section which argues this case for climate change, we have to consider the relatively demanding nature of Raz's view of citizenship. For Raz, politics is intricately bound up with moral life:

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[165] The inclusion in Raz's theory of such independent reasons makes his theory an example of *perfectionist liberalism*. Perfectionists have often been charged with being value-monists, that they only accept one conception of the good, reference to which can justify public decisions. However, perfectionists have insisted that their views are compatible with value pluralism (Raz 1986: 58, 133, 395-399).

> "Who then is the moral person? What is the proper relationship between self-interest and moral concern? At a superficial level one is inclined to say that he is a person among whose pursuits there are many non-self-interested ones, and whose self-interested goals do not conflict, except occasionally, with the well-being of others. This, though true, takes the divide between one's self-interest and the other aspects of one's well-being too seriously. A better answer is that the morally good person is he whose prosperity is so intertwined with the pursuit of goals which advance intrinsic values and the well-being of others, that it is impossible to separate his personal well-being from his moral concerns" (Raz 1986: 320).[166]

The implication of this is that if we follow a Razian interpretation of the value of markets, we must be clear that we assume a demanding nature of the moral person. Institutions and markets are not just understood as furthering the interest or the wellbeing of individuals narrowly construed, but aim to enable them and assist in them leading moral lives where their personal wellbeing cannot be separated from moral concerns. We may admit that this is a somewhat idealistic view of the citizen in society. However, the value of the creation of markets may be most fully understood with reference to this ideal. New markets may be institutions where the practice of a moral life can easily be carried out. The interwovenness of the individual wellbeing (as discussed in the previous section) and the moral concern may be facilitated by an accompanying interwovenness in the realm of the market which mediates the behaviour of the individual with the rest of society.

5. Green Markets

This section will now turn to the role that markets may play in enabling individuals to carry out their climate-related responsibilities. This section illustrates the considerations of political authority and the normative status of markets from the last sections.

Climate change is a collective problem. In the absence of one collective agent that could by itself mitigate climate change, individual citizens bear responsibility

[166] Raz (1994) elaborates on the relationship between individual interest and duties.

(Isaacs 2011: esp. ch. 5).[167] Individuals' climatic responsibilities may extend to climate mitigation, adaptation and compensation (Caney 2018b). Furthermore, such individual responsibilities may take various shapes depending on the different economic, social or political roles we assume (Cripps 2013). For example, in the economic context there are individual responsibilities that attach to buyers and sellers in markets.[168] As to the precise nature of the just distribution of burdens, there is a lively philosophical debate.[169] This chapter will ignore these questions about the precise distribution of responsibilities and merely assume that there are some responsibilities that apply on the level of the individual.

One key problem is that for many individuals, there are no reasonable options in economic and social affairs that allow them to fulfil their climate-related responsibilities. Some actions that would be required by climate-related obligations are simply not available to some individuals. We may not be able to make the choices that we should simply because the choices do not exist yet. For example, we may find that in certain regions there is no way to use electric power without at the same time fulfilling one's climate-related responsibilities.

It is in this context that Caney (2014) has distinguished between two kinds of responsibility when avoiding or mitigating climate change, namely first-order and second-order responsibilities.[170] First-order responsibilities are responsibilities to contribute directly to some good or avoiding harm, like reducing one‘s carbon footprint. Second-order responsibilities, on the other hand, are those to make it more likely that someone else fulfils their first-order responsibilities. Caney lists different ways in which this can take place, namely incentivising, enforcing compliance or norm creation. Another form he mentions is enablement:

> "By this I mean the capacity to enable others to engage in mitigation or adaptation. For example, some agents' willingness to comply with their first-order responsibilities to reduce their greenhouse gas emissions may be undermined because low-carbon alternatives may be difficult to find (or, in a

[167] In this chapter, "responsibility" and "obligation" are used interchangeably.
[168] Of course, the view that individuals can have impact and thus have responsibility has been contentious. See Hiller (2011) for an argument against individual responsibility.
[169] The central views are the *Polluter Pays Principle*, *Beneficiary Pays Principle* and *Ability to Pay Principle*. Caney (2018a: 681-684) is the state-of-the-start literature review.
[170] O'Neill (2001) discusses the relevant notions of "primary" and "secondary agents of justice".

variation on this, because the low-carbon alternatives are quite expensive)" (Caney 2014: 137).

The main way he envisages this to be carried out is through scientific research and innovation transfer. Thus, second-order responsibilities are "not simply [...] responsibilities to ensure that agents comply with their first-order responsibilities, but also [...] include responsibilities to create possibilities for some to be allocated some new first-order responsibilities that they previously lacked" (ibid.).

For my discussion of market creation, first-order responsibilities may be said to be the responsibility of consumers to make consumer decisions that reduce their contribution to climate change. Second-order responsibilities, by contrast, are the responsibilities to "enable" or create the conditions under which first-order responsibilities can be fulfilled. Even though the enablement function is perhaps the most promising mode through which new markets can help fulfil first-order responsibilities, there may be other ways in which markets can do so, for example through incentivising or norm creation.[171]

Consider the example of the solar panel market, which was created by German subsidies.[172] As was discussed in chapter 4, The German *Energiewende* (Germany's energy policy since 2010) has shaped a new market in solar panels, by encouraging demand and encouraging suppliers of solar panels to enter the market. The resulting scale made it cheaper to win energy from solar power than from fossil fuels in many regions of the world.

Nothing in the account of second-order responsibilities implies that they can only be carried out by state actors. In fact, individual citizens may have a big role to play in bringing about institutions, such as markets, that will in turn enable them or incentivise others to fulfil first-order responsibilities.[173]

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[171] "Old institutional economics" argues that markets shape people's preferences and values (Chang 2002b; Hodgson 1993).

[172] Mission-oriented innovation policy (Mazzucato 2018a, Uyarra et al. 2019) proposes such reshaping of markets through missions, innovation and demand-side policies.

[173] The relationship between the present proposal and emissions markets deserves attention. Such markets were also created by public action, but it seems they result from the commodification of an existing good (as opposed to innovating something). Emissions markets may incentivise people to reduce their emissions. However, the problem might remain that a genuinely low-carbon lifestyle may still not be available. The present proposal is aimed at making such a lifestyle possible. Of course, proponents of emissions markets may counter that emissions markets will also have dynamic consequences that result in the enabling of such a lifestyle. On the normative evaluation of emissions markets, see Caney and Hepburn (2011).

Let me clarify what I propose as the normative assessment of markets. It may be thought that energy markets may be assessed based on the amount of greenhouse gases they emit or indirectly cause to emit. This would suggest a consequentialist framework in which, for evaluative and practical matters, the amount of greenhouse gas that is emitted is the key for assessment. The proposal here is instead that we should understand the value of such markets as deriving from the relationship these markets have to individuals. They incentivise, enable and create norms that make it more attractive, easier or even possible for them to engage in this climate-friendly behaviour. New markets may be institutions through which individuals can reduce their greenhouse gas emissions.

6. Objections

There are two objections to the argument in this chapter I must address before concluding.

First, the normative evaluation of markets presented in this chapter takes as its starting point the responsibility of individuals in climate-related action. The danger, so this objection goes, is that we shift too much responsibility and burden to act on individual citizens and consumers. In fact, individuals can only have a minute impact and real climate action would involve direct climate-related action from fossil fuel industries and big governments.

I agree and I think my account is compatible with this worry. Caney's distinction between first-order and second-order responsibilities should not be taken to be a distinction between the responsibilities of individuals and those of states or collective actors. In putting the normative basis on the first-order responsibilities it is not implied that the magnitude of first-order responsivities is bigger. In fact, most of climate-related action must focus on a shift towards renewable energy sources. The enabling argument is meant to put the focus on those actions which individuals are currently not able to carry out or not able to carry out at a reasonable cost.

Second, it can be objected that nothing in the enabling argument establishes that this enablement should occur through markets. There is a variety of institutional arrangements through which goods and services are provided in society. The market is only one type of institution, but there are others. The argument from enablement extends to any of these institutional arrangements if they enable citizens to live their lives in a climate-friendly way. However, there seem to be reasons to focus on the market. Let me consider the following three alternatives.

First, *household production* denotes certain goods or services that are provided in the confines of the household. It seems unlikely that most of the goods which are required for a modern lifestyle, but which need to be changed to make a green lifestyle possible can be provided through the household. Few can build an electric car in their garage. An important exception is the private production of electricity, for example by using solar panels. Even those solar panels need to be acquired, again from the market.

Second, *in-kind provisions* by the state (and other organisations) mean that goods are provided without the need to pay a price. The provision of security, roads or vaccinations are examples for such in-kind provisions. The problem with in-kind provisions is that their provision does not depend on individuals choosing them.[174] It does not make sense to make in-kind provisions of electric cars or train travels. Only those who want to use them should get them and it makes sense for them to do so through the market. The advantage of the market over such in-kind provisions is that it allows individuals to acquire the material basis for their pursuits given their own plans. This goes to the heart of what Hegel (1821) identifies as the individuality in markets. Markets are institutions in which citizens can be enabled to do things. The final decision on which life to live and which goods to buy will rest with them. State provision of in-kind goods will effectively force them to at least acquire goods and for them to join in the tax effort to bring about these goods. Thus, there is at least some reason for preferring the distribution of such goods via the market.

Third, *communal governance of commons* (Ostrom 1990) allows communities to manage common ownership together. To the extent that it is possible through such an arrangement to supply the economic basis for a modern green lifestyle, then the argument of this chapter applies to them as well. It is not clear how such arrangements would successfully develop and distribute goods that allow a modern lifestyle compatible with environmental responsibilities.

Finally, it should be noted that by advocating for "creating new markets", I do not specify the buyers in that market. Some such new markets might ideally be supplied by a state monopoly (such as the postal service in the past) or by the state providing a

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[174] Arguably, it does through the political process.

"public option" (Sitaraman & Alstott 2019) alongside private options. There might also be no such role as seller for the state in a new market.

The goal of this chapter was to establish another dimension of market evaluation on top of others. There might be some reasons why in the context of climate change, new markets might be the primary way of making a certain lifestyle possible, but there is certainly also room for these other institutional arrangements. That this dimension is applicable to other institutional arrangements, too, is not a problem for the present analysis.

7. Conclusion

Markets should be understood as institutions that enable individuals to fulfil their moral responsibilities, especially relating to climate change. By considering new markets that did not exist before, we open up the space from markets that are too bad to exist, to those too good not to exist. Markets are the institutions in which people can make decisions, they respect their moral agency. There is a close link between the difference between markets as mere exchange and market as institutions and the philosophical question whether states should have a say in the design of markets. By creating markets, states may act on reasons that individuals have independently and thus exercise legitimate political authority, according to Raz's framework of political authority.

Chapter VI. Individual Obligation in Market Shaping

"It is not simply the case that my small part gains significance because it is part of a collective effort that raises $20 million for cancer research. There is the further point that the collective framework itself helps narrow down my range of options, thus enabling me to take effective action against a daunting and individually insoluble problem" — Isaacs (2011: 139).

0. Abstract

What is the role of individual citizens in shaping and creating markets? This chapter argues that as consumers, investors, users and voters, citizens can and should play an active role in bringing about markets which will facilitate a green lifestyle. In this way, citizens can make a significant difference in the context of climate change. The chapter also discusses how citizens can be sufficiently knowledgeable and coordinated for market shaping. Finally, the chapter considers whether the use of purchasing power to shape markets is permissible.

1. Introduction

The last chapter considered the rationale for establishing new markets in society. Such new markets may enable individuals to live compatibly with the demands of climate change. In a society with well-established green markets, individuals are in a morally privileged situation: they can go about leading their lives, using products and services from green markets, without having to invest (much) extra resources to fulfil their environmental responsibilities. In such a society, choosing green options is not more expensive than choosing options merely on grounds of self-interest. Markets are important mediating institutions that partly determine how feasible it is for individuals to fulfil their individual climate-related responsibilities. In a society without green energy options in the market, it is very difficult to reduce one's share of emissions without reducing one's energy consumption. If green options are significantly more expensive than carbon-intensive ones, the financial burden makes the options unfeasible for many consumers.

However, the alignment of markets with individual responsibilities is only an ideal case for individuals. We must also consider the situation of individuals when such markets are not yet established. The state was the focal agent in the previous chapters and arguments in favour of innovation policy were intimately connected with the idea that the state is the primary agent in bringing about new markets. The present chapter moves from the rationale of the state for establishing such markets to the ways that individuals can act before such markets are established. In the absence of such green markets, what can and should individuals do?

To specify further, this chapter operates on the premise that there is already some policy effort to establish new markets. In the absence of such political action, individual obligation will primarily consist in bringing about such political action. The more nuanced question is how individual action can and should be complementary to state action in bringing about new markets. The discussion contributes to the debate about the distribution of obligations to act in the face of climate change. In discussing "obligations", the stress is on the forward-looking sense of that concept — obligations to act in the future — as opposed to the term "responsibility", which also invokes blameworthiness (for past action or inaction).[175]

Philosophers discussing individuals' obligations in the face of climate change have faced an important sceptical challenge: the greenhouse gas emissions of individual citizens are minuscule compared to global levels. As a result, it is true for (most) individuals that changing behaviour to a greener lifestyle will make no discernible difference to climate change. The fact that climate change is a collective harm — which is not brought about by one collective agent, but rather an aggregate of many individual contributions — means that the individuals causing that harm seem to make no individual difference.[176] Nefsky (2019) calls this the "inefficacy problem" for individual responsibility and identifies two strategies for overcoming it. One strategy to nevertheless establish individual responsibility is to deny the link between causal difference making and individual responsibility. Even if flying between two adjacent cities makes no relevant causal difference, you may still have a duty to abstain from it.

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[175] This distinction has become widely accepted in discussions of individual responsibility. Shockley (2020: 495) discusses the connection between this forward-looking aspect and institutional solutions.
[176] Important publications on this problem include Glover & Scott-Taggart (1975), Sinnott-Armstrong (2005), Kagan (2011), Hiller (2011) and Nefsky (2018, 2019).

The other strategy is to, after all, identify a causal pathway how individuals can "make a difference" (Nefsky 2019: 2).[177]

One notable attempt to identify such a causal pathway is to understand individual action in the context of bringing about larger institutional or organizational action. The idea is that an individual can do little by reducing greenhouse gas emissions individually, but can do much to establish the collective action that can have a much more significant causal impact. Cripps (2013: 140) distinguishes between direct and promotional duties: "Promotional duties are duties to attempt to bring about the necessary collective action. Direct duties are duties to protect the interests at stake or mitigate the harm directly, oneself or in combination with a like-minded subset". For Cripps (2013: 143), promotional duties should be interpreted as demanding political action, such as joining campaigns or political deliberation. How can we best fulfil our promotional obligations? Cripps identifies various normative ideals, such as feasibility, fairness, efficiency, effectiveness, determining which political strategy should be chosen. Cripps's identification of promotional duties is an important contribution in the literature, but in her discussion such duties are restricted to the political realm. In the context of market shaping, we can ask whether such promotional duties can also be applied in other realms, especially in the economy.

It is the contention of this chapter that the distinction between direct action and more indirect action (aiming for large-scale change) can also be considered in the context of the market. The first way that consumers can have impact through their market choices is direct. By purchasing options that produce less harm, consumers are directly responsible for less harm. If they consume less electricity, they are responsible for less damage done to the environment.[178] However, it seems that these merely direct consequences of market choices will not make enough difference to escape the inefficacy problem. The more indirect way to act through the market would be to aim to change markets as institutions (as opposed to individual transactions in the market). Shaping markets means shaping the behaviour of other people. For example, boycotts have a long history of shaping the market to such an extent that members of society

[177] Broome (2012) advances a powerful "marginalist" argument against the idea that individual emissions do not make a difference.
[178] On varieties of political consumerism, see Boström et al. (2019).

cannot engage in harmful markets anymore.[179] Shaping markets may be one of the best strategies for individuals to "make a difference".

There are several roles through which individuals can shape markets. First, voters and political lobbyists can push state actors to drive market shaping policies. Second, they may induce private companies to change their practices. They may actively work together with companies or state authorities to work on products. Third, investors can invest in companies and products to bring about new markets. Fourth, as consumers they can signal that there is demand for certain products (and conversely, that certain markets are declining). Fifth, as users they can improve the desirability of certain products.

The aim of this chapter is to argue that individuals may have a (defeasible) obligation to contribute to market shaping and thereby make a significant difference in efforts towards climate mitigation. Section 2 will consider the idea that individuals can make a difference in the shaping of markets. Section 3 considers the idea that individuals may have obligations to contribute to the formation of a collective agent better able to address market shaping. Section 4 applies Collins's responsiveness duty to the interaction between state and individuals in shaping markets. Section 5 considers the nature of the resulting individual obligations more closely. Section 6 asks whether individuals have the knowledge and coordination to work together to shape markets. Section 7 asks whether it is legitimate for individuals to use their purchasing power (as consumers or investors) in changing the nature of markets. Section 8 concludes.

2. Markets and Individuals

Markets are constructed and should be treated as an outcome of political and individual action, not merely as constraints. Markets are institutions partly subject to political will (Chang & Evans 2005) and outcomes of economic policy (Mazzucato 2018: ch. 9). What can be bought and sold in society is dependent on a range of cultural, social, economic and political factors.[180] Individuals, too, are able to modify markets. This chapter will rely on literature studying the ways in which individuals in various roles can have an impact on the nature of markets, for example the literature on market

[179] Of course, boycotts have also been used for illegitimate purposes in the past; most notably for discriminating against minorities.
[180] This institutional understanding of markets is discussed more extensively in chapter 3, section 2.

shaping (Reijonen & Tryggestad 2012, Geiger & Gross 2018, Nenonen et al. 2021) and co-creation between companies and individuals (Ramaswamy & Ozcan 2020). A strength of this literature on agency and market shaping is that it allows for multiple agents to collaborate in bringing about and shaping markets (Hawa et al. 2020).

There is another idea explored in previous chapters that is useful in the present context. In market shaping as policy, we should not only ask which markets are too bad to exist, but also ask which markets would be too good not to exist. Market shaping does not just consist in blocking markets, but also of bringing about markets that did not exist before. In addition to the distinction between ethically problematic and conducive markets, we also encountered two different processes of market formation in chapter 5. There are two ways in which new markets can be brought about, namely by commodification — introducing an existing good into the market — and innovation — bringing about an entirely new good. Thus, in market shaping as individual obligation, we should not only consider ways in which individuals can block markets that resulted from the commodification of goods, but also how individuals can encourage the emergence of new markets, especially those resulting from innovating new green products.

The fact that individuals can influence the shaping of markets does not yet mean that they can thereby make a significant difference in the sense of overcoming the inefficacy problem. This chapter, however, will explore how market shaping may be a way for individuals to "make a difference". We must consider whether market shaping activities of individuals can be expected to have more impact than mere exchanges within the market. For this distinguish the *static* and *dynamic* consequences of actions on the market. Static consequences of market action are the immediate consequences of that particular market exchange, on the buyer, the seller or the short-term externalities of that exchange. For example, the static consequences of buying solar panels are the consequences of that purchase on me, the seller and the immediate environmental impact of buying and using solar panels as opposed to other sources of energy. Dynamic consequences, by contrast, are consequences that change the market environment that other market participants will find themselves in in the future. For example, buying moderately priced solar panels today might result in solar panels being offered more cheaply to consumers in a year's time.

If we consider the static effects of consumer choices in the market, then it is unlikely that the purchases (or omissions thereof) of most individuals will make a discernible difference in the context of climate change. If individuals manage to shape the market environment that others face, there is much greater leverage to have an impact. Instead of merely changing one's own behaviour, the prospect of market shaping opens the possibility of influencing the behaviour of others too.[181]

It may be argued that this does not really solve the problem that it was meant to solve. The initial problem was one of inefficacy, namely that many small contributions aggregate to big harm and that the individual action does not make a discernible difference. The problem was that individual action or non-action does not really make a big difference. The idea that individuals may not only contribute to the aggregate harm, but also change the institutions in which this is possible may reduce the distance somewhat. In bringing about a new market, an individual decision may have a somewhat larger role, but it is still restricted.

In order to strengthen the idea that market shaping is a way for individuals to make a difference, I will consider the debates on the individual responsibilities in collective contexts. Following Collins (2019: 97), I refer to these as *coordination duties*. For Collins there are two kinds of these duties. *Collectivization duties* are duties to bring about collective agency that can adequately deal with the problem. By contrast, the other kind of duty that Collins identifies are *responsiveness duties*. These are duties to be responsive to the actions of another person, with a view on acting in concert to solve a problem. I contend that individual obligations to contribute to market shaping can take the form of both collectivization duties and responsiveness duties and their widespread fulfilment may enable many individuals to make a discernible and positive contribution in the fact of climate change. The next section will discuss collectivization duties and avenues for market shaping. Section 4 will concern responsiveness duties.

3. Collectivisation

In some instances, individual obligation may consist in workings towards forming a collective agent able to address the problem at hand. Held (1970) originated this idea by considering *bystander cases*: A child is about to drown next to a group of bystanders who are not able to rescue the child individually. However, they would be able to do so

[181] For the various analytical methods needed for understanding long-term dynamic phenomena, see Pierson (2004) and Pollitt (2008).

if they cooperated and formed a collective agent. The first concept to understand this case is the "random collection of individuals", by which Held meant "a set of persons distinguishable by some characteristics from the set of all persons, but lacking a decision method for taking action" (Held 1970: 471).

The concept of a "random collection of individuals" is a useful starting point to analyse the configuration of the various agents in the case of market shaping. It seems that market shaping is a difficult endeavour because in normal cases there is not just one agent able to bring about the required change. The various agents who are directly or indirectly involved in the shaping and maintenance of markets do not have "a decision method for taking action". The individual consumers, investors, companies and public organizations share some key characteristics, namely that they are somehow involved with the markets (this is why they are "distinguishable by some characteristics from the set of all persons"). In comparison, in the case of the drowning child, the random collection of individuals share the characteristic that they are spatially close to the child and are able to contribute to the child's rescue.

Of course, it may be questioned whether the actors able to shape a market really do lack a decision method. Here the important variable is whether there are deliberative bodies in which such decisions can be made and whether there is a state able to lead in the effort of shaping markets. We must also acknowledge the limits of the presence of a well-functioning state leading in this effort. In the case of market shaping, the state is only one actor among others (albeit a powerful one). In some cases, state action on the market may be limited by constitutional constraints. In other cases, the state does not actively try to shape the market because policy requires leaving markets without state steering. In this case, consumers and companies may try to cooperate to change markets. However, the existence of political action seems to be a central aspect and, in its absence, individual obligation seems to consist primarily in bringing it about.

One practical way of realising such collectivisation duties in the case of market shaping are forming social movements or interest groups and supporting societal organisations like NGOs. Such social movements are relevant because they can coordinate the action of individuals and encourage support by broader parts of society. Lobbying is an example of an action that can be spearheaded and coordinated by social movements. Leadbeater (2018) discusses the role of social movements in market shaping. Collectivised individuals are better able to lobby states and companies to act towards market shaping. Social movements are, nevertheless, only an intermediate step towards collectivisation. The central goal will be to bring about political action in the form of state action, through voting, petitioning, political pressure, lobbying, or awareness campaigns.

An important inspiration may come from a similar form of collectivisation, which concerned the power of the citizen (as worker, consumer, seller) vis-à-vis big businesses. The American economist James K. Galbraith (1952: ch. 9) coined the term *countervailing power* to describe coalitions, such as labour unions and citizens' organisations. These form the counterpart of the power that large business corporations exercise in setting prices and negotiating an advantageous market environment for them. Some continental European countries used to have strong and successful semi-formal fora in which regular negotiations between businesses and such countervailing powers took place (for example, *Sozialpartnerschaft* in Austria (Priddat 2011)). A similar semi-formal forum might also be instituted to discuss and negotiate the shaping of markets for green purposes.

4. Responsiveness

In the previous section, I discussed obligations to collectivise in the absence of social movements or collective political actors. There seem to be important issues of individual obligation even in the case where such collectivised actors exist. The key observation here is that the collectivised agents on their own are perhaps not able to shape markets by themselves. They require the coordinated interaction with other actors, such as companies, states and individuals. Thus, we also need to consider individual obligations in the interaction with such collectivised agents. How can (and should) individuals be sensitive to their action?

To be specific, we must consider the coordination duties that exist between individuals and states or other collectivised agents. Collins (2019) considers cases in which collective obligation may result in individual obligations that do not result in duties to collectivise, but rather in duties to coordinate with other agents. Collins only considers the interaction among individuals, but we can also extend the framework to cover interactions between individuals and other collective agents.

Consider Collins's (2019: 117) *coordination principle*:

> "if a non-collective group is able to produce a morally valuable outcome in a morally valuable way — or is able (in a morally valuable way) for form a collective that will produce that morally valuable outcome — and if no other group will do so in a better way, then each member of the group has a duty to be responsive to the others with a view to the outcome being produced or to the collective being formed."

These are duties to be responsive to the actions of another person, with a view on acting in concert to solve a problem.[182] In the context of market shaping by individuals, this may be translated into the obligation for individuals to *respond* and be sensitive to market shaping by other actors or possibly even to drive it more actively. There are five ways in which individuals (or their collectivised interest groups) can be sensitive to the actions of other actors and act accordingly:

First, consumers may express certain attitudes about products, production methods or the companies themselves through consumption choices (Lawford-Smith 2015, Martin & Schouten 2014, Nefsky 2018). They may stop buying certain products (what Hirschman (1970) refers to as "exit") and thus reduce demand for a certain product. The more collective form is to engage in a boycott of a company or certain products. Of course, we are not only interested in blocking problematic markets, but also in encouraging the development of new markets that would hold value for society. Thus, we must also mention the flipside of boycotts, namely buycotts. In buycotts, consumers actively seek out certain products to reward (or encourage) certain companies, such as fair trade products. In this way, consumers may signal that there is more demand for certain types of products and may thus encourage other actors to enter the market.[183] Buycotting may be particularly relevant in the early phases of introducing new products or prototypes into the market. When green cars are spearheaded and in their early phases, it may be imperative for consumers to buy it. Buying them will increase demand and will make sure that companies can continue improving the product. Higher demand will result in the perception that this is a business opportunity for other companies. Other companies crowd in and try to enter

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[182] In Collins's account, there are collectives, coalitions and combinations. "Coordination duties can be held by members of both coalitions and combinations" (Collins 2019: 5). Responsiveness duties are also duties that arise in the context of coalitions; their target is not to bring about a collective agent, but rather to act responsively to others.

[183] Friedman (1996) offers a conceptualization of buycotts.

the market as well. This drives down prices and finally makes the new green product affordable for wide parts of society. Of course, we must not overestimate the efficacy of consumers in doing so. After all, companies are hardly expected to make a win on early-stage products. Whether they will be successful in introducing new products until they are viable and competitive probably depends to a large extent on the financialisation of that company.

Second, individuals may "voice" (Hirschman 1970) their concern for the need to change products, production methods or else with companies. Here consumers interact with companies in a more direct way and communicate their concerns more directly. This idea has received wide attention in the last decade under the heading of "co-creation" (Ramaswamy & Ozcan 2020). The duty to be responsive to the market shaping actions of others may be realised by interacting with companies to help them develop better products that help achieve a societal purpose. In other words, there would be an obligation for consumers to co-create (along with the state and companies). As lobbyists, they may induce private companies to change their practices (products, production, selling, employment, investment). In addition, they may actively work together with companies or state authorities to work on products. We must also note the limits of this approach. Importantly, not all markets are consumer oriented. For example, military equipment is not produced to serve individual consumption. Consumption choices by individual consumers are unlikely to have any direct impact on this market.

Third, individuals can invest in innovative companies willing to shape green markets. This is perhaps more impactful than buycotts for the reasons already mentioned. Early stage-products can survive mostly because of the required funding. Of course, one problem is that the extent of the impact that investment has is determined by one's own financial resources. I discussed market shaping by individuals as a strategy to make a difference in the context of climate change. Most people will be able to contribute to the formation of collective agents, such as social movements. Consumption may already be a way to make a difference that is more reserved for elites. It presupposed that individuals have sufficient economic resources to make consumer choices on grounds other than self-interest. Investment is even more elitist: it is restricted to those with financial resources not required for immediate consumption. The question whether the use of one's purchasing power is a legitimate way of shaping social institutions such as markets will be addressed in section 7.

Fourth, individuals may also have a duty to be responsive towards other individuals. For example, they may have an impact on market shaping by convincing others to engage in boycotts or buycotts or even more advertise products in a way to change other people's preferences. Individuals may act as trendsetters.

Finally, individuals may act sensitive to policies by the state and add their own behaviour towards reaching a certain tipping point in using public infrastructure. As users, individuals may generate changes in the consumption infrastructure (Harrison & Kjellberg 2016). For example, for green cars to work, there need to be power stations everywhere. Otherwise, it is not possible to drive over long distances. Being an early adapter sends the signal and the demand to provide more of these. Similarly, being an early adaptor helps gather knowledge about how best institute a new product. Providing feedback may be the best way how one can help shape a market as a user.

5. The Nature of Market Shaping Obligations

The previous two sections considered two different kinds of obligations that individuals may have regarding the shaping of markets. This section will consider more closely the normative ground for this type of obligation. As discussed in the previous chapter, Caney (2014) has distinguished between two kinds of responsibility when avoiding or mitigating climate change, namely first-order and second-order responsibilities. First-order responsibilities are responsibilities to contribute directly to some good or avoiding harm, like reducing one's carbon footprint. Second-order responsibilities, on the other hand, are those to make it more likely that someone else fulfils their first-order responsibilities. Caney lists different ways in which this can take place, namely incentivising, enforcing compliance or norm creation. Another form he mentions is enablement. The previous chapter added market shaping as a further way that such second-order responsibilities may be realised.

The previous chapter focused on the second-order responsibilities that states may have (and advocated market shaping to be a good strategy for realizing this responsibility). Nothing in the account of second-order responsibilities implies that they can only be carried out by state actors. Individual citizens may have a crucial role to play in bringing about institutions, such as markets, that will in turn enable them or incentivise others to fulfil first-order responsibilities. It is only because enough consumers bought the new — yet not fully developed — solar panels, that their production could be scaled up and prices could be reduced. Individuals also bear second-order responsibilities to bring about institutions that can fulfil this role.

Recall Cripps's (2013) distinction between promotional and direct duties in the context of climate change: "Promotional duties are duties to attempt to bring about the necessary collective action. Direct duties are duties to protect the interests at stake or mitigate the harm directly, oneself or in combination with a like-minded subset." In the context of markets, contributing to market shaping would be a way of realising one's promotional duties. It may not exactly fulfil Cripps's definition which requires to "bring about the necessary collective action", but it does so by conditioning the behaviour of others. Engaging in (newly shaped) green markets, in turn, would be a way towards realising one's direct duty, which is to mitigate the harm directly.

There is an important question about the distribution of these promotional duties or second-order responsibilities among different agents. One may ask whether the current proposal shifts the burden of action onto the shoulders of individuals. Are we disproportionately blaming individual consumption choices, while the decisions of multi-national corporations and states are perhaps less visible? Individuals are blamed to distract from the bigger responsibilities that these larger organisations face. It is important to note that this chapter is not intended to argue that individuals must face a greater share in the collective effort in the context of market shaping. If anything, the discussion of consumption and investment showed the limits of individuals' abilities in shaping markets. The aim of this chapter is merely to point out a strategy for individuals to make a difference in the context of climate mitigation. The fact that there is a way for individuals to make a difference in market shaping suggests that such individuals do have obligations as a result. However, this is not sufficient to assess the relative burden that individuals and collective organisations face. If anything, individual action is only likely to have an impact if it is complementary to the action of agents like the state and companies.

The extent to which individuals can be expected to realise promotional or second-order responsibilities in the context of market shaping depends on their personal circumstances. If they hold positions of power and responsibility, especially political ones, then we can expect them to realise obligations that are attached to these positions. But that goes beyond the analysis of obligations as citizens. Individuals as citizens (and not as office holders) can only have such an impact if they have resources, talents or connections required to make such a difference. Limitations in economic resources also seem to be the most important defeating reasoning for market shaping obligations. If individuals are barely able to sustain themselves, it would be too burdensome to ask them to pay premiums to help establish new markets. In addition, it depends on the political and economic efforts in a society whether an individual can contribute to the process of shaping markets. If there are few other actors, it may simply be impossible for individuals to gather support and act with others towards change. These factors need to be considered when determining the individual obligations in the context of climate change.[184]

6. The Clarity Condition

Held argued that in a random collection of individuals faced with a problem, there may be a collective obligation for that group to address the problem; and this collective obligation may be translated into the individual responsibility to form a collective for that purpose. For Held, it is a necessary condition for this translation of collective into individual obligation that a trajectory becomes clear that allows the mapping of roles to individuals. In the bystander case, there may be several competent adults close to the drowning child, but it might be unclear to all the adults involved how to collectivise and how their collectivising could ultimately lead to them rescuing the child.[185] Held (1970: 479) writes that "which action to take was not obvious to the reasonable member of the random collection; so […] an essential requirement for holding a random collection of individuals responsible for the non-performance of an action was missing." Let us refer to this as the *clarity condition* for individual obligation.

In the context of market shaping, we can interpret the clarity condition to have two aspects. First, there might be a question of coordination. There is no clear process for forming a decision procedure to form a collective agent. Second, there might be epistemic problems hindering a clear mapping of individual efforts. Individuals might

[184] A further question — which is not answered in this chapter — is whether shaping markets should be understood as a collective obligation. Isaacs (2011: 44) offers reasons for such obligations: "Collective moral obligation is an important normative concept, particularly in the face of large-scale global challenges such as world hunger and disease […]. The ticking time bombs require collective solutions, and the notion of collective obligation can play a key role in mobilizing groups of people to act effectively in response to mounting evidence that our industrialized way of life is destroying the planet".
[185] For Isaac, it is important to consider a putative group as the object of the collective obligation: "we may claim that the clarity condition, when met, generates a putative collective obligation, that is, an obligation that will apply to the group but, in the absence of the group forming, helps to shape and mediate the obligations of the individuals who are involved" (Isaacs 2011: 45).

know how a problem can in principle be addressed, but they are unaware of the strengths and beliefs of others and there is therefore a problem of coordinating the various efforts. The best course towards solving a common problem might not be known to many of the individuals and it is therefore unclear to them how their effort can contribute towards the common goal. Let us consider these two challenges for the case of market shaping.

As for the problem of coordination and strategy, there may be no organization to coordinate efforts. It is a serious problem if individuals' actions are not complemented by companies or governments. For example, it might be that green cars may indeed be the best strategy, but due to external factors, even buying lots of green cars will not help shape the market. For example, companies or governments focus on alternative strategies for shaping green markets and the effort of individuals and government is not coordinated. Given the lack of agency from policy, the efforts of individuals (and firms) might be in vain.

For the problem of coordination, Collins's responsiveness duties may fill the gap. Of course, consumers cannot always be required to look for the best market shaping innovation product. Instead, consumers may have a duty to be responsive to the actions of other agents, in this case the state. If there is significant and credible policy of the state to establish a new market, for example due to subsidies, then individuals may be required to act responsively. Adding their purchasing power to the demand might be one way to discharge this responsiveness duty. Mazzucato and Penna (2016) argue that public sector spending in innovation can encourage private finance to invest in the same market and "crowd in". It thereby creates a coordination effect. Subsidies may not only be understood as incentives, but also as policy signals as to what kind of consumption would be most helpful in order to advance the development of certain markets.

As for the epistemic problem, it may be argued that individuals simply do not have the required expertise to know which products are promising enough to help shape these markets. Some products might cause significant problems in their own right. For example, some new green cars may emit less greenhouse gas emissions, but their production may be very costly in terms of other environmental resources. How can individual consumers or investors be expected to be able to foresee which markets will best enable individuals to live lives that are compatible with solving societal challenges? Given the lack of epistemic clarity, it would be much to ask from consumers to pay a premium without a guarantee to contribute to climate alleviation.

The problem of the epistemic condition is harder to address. In an important way, state action will not solve the epistemic problem in the same way that it addresses the problem of coordination. To the extent that this is a merely epistemic problem, it cannot be solved. Maybe states and firms — having better recourse to predictive power about the implementability and suitability of new products in the future — can lead the way. There is also space for consumer non-governmental organisations. Nevertheless, in the case of innovation, there is with some necessity a leap into something new. Schumpeter had this in mind when he wrote that "the new is only the figment of our imagination" and mentioned "the impossibility of surveying exhaustively all the effects and counter-effects of the projected enterprise" (Schumpeter 1911: ch. 2). Beckert (2013: 221-222) expresses exactly this point when he writes:

> "Despite this unpredictability of the future, actors in the economy must form expectations, among other things, with regard to technological development, consumer preferences, prices, availability of raw materials, the strategies of competitors, the demand for labor, the trustworthiness of promises, the state of the natural environment, political regulations, and the interdependencies among these factors. On what basis are these expectations formed if they are not rational calculations of what will indeed be the case? What are expectations under conditions of uncertainty?".

In this context, Beckert's (2017) account of *imagined futures* is relevant. Creating the picture of a possible future is a key aspect of bringing about said future. Beckert talks of the need for fictions, which are "imgainaries of future situations that provide orientation in decision-making *despite* the uncertainty inherent in the situation." This problem motivates the need for entrepreneurial leadership. Some people may be able to speak credibly of future markets even if these markets are merely "the figment" of their imagination. But this role need not be restricted to individuals. By creating a convincing picture and therefore the expectation of such markets, sufficient action by private, business and political forces may be induced to bring about the market and ensure its adequate implementation. Beckert (2013: 231) also draws the connection to the entrepreneur "who 'pretends' the existence of the imagined new combinations in the future and structures his present behavior on the basis of these pretensions".

To conclude this section, public entrepreneurship might have to go beyond mere administrative action. Convincing leadership that creates public imaginaries of future markets may be required in order to create an action-guiding understanding of how individuals can contribute to the shaping of new markets.

7. Purchasing Power and Market Shaping

There is an important normative challenge to the idea that individuals may aim to shape markets to change the behaviour of other individuals. Waheed Hussain presents a powerful argument against what he calls *social change ethical consumerism*. This is

> "the practice of choosing to buy certain goods and services at least partly on the grounds that doing so will create an economic incentive for other agents to act in ways that will advance some moral, social, environmental, or other nonmarket agenda. The most important point is that the consumer uses her purchases to try and change the way that other people behave" (Hussain 2012b: 112).

For Hussain, there is a problem with this kind of practice: some people have more purchasing power than others and have therefore more leverage to engage in such social change ethical consumerism than others. Let us consider the relevance of this observation for individual obligation and market shaping.[186]

First, let us observe that market shaping contains more actions than just ethical consumerism. I allowed for the formation of interest groups, collaborating with companies and lobbying political actors to be counted as market shaping activities by individuals. It seems that the same challenges to social change ethical consumerism do not apply to these types of more political action with the aim of market shaping. It is not (as directly) determined by purchasing power as is the case for consumption.

Second, individual market shaping can also occur through private investment. It seems that the same considerations that led Hussain to worry about ethical

[186] Barry and MacDonald (2018) and Berkey (2021) are two recent responses to Hussain.

consumption can also be raised about ethical investment. After all, the extent to which someone can impact on development of new technologies through investment depends more directly on one's resource (as it does in the case of purchasing power). Thus, we must extend Hussain's worry to social change ethical investment.

Let us note that the key factor in Hussain's account is that social change ethical consumerism is done with the aim of changing the behaviour of others. Remember the argument from chapter 4 where I discussed the nature of behavioural change through the shaping and creation of new markets. Different types of market shaping will result in behavioural change in different ways. Market shaping that aims to eliminate certain markets in society may face the challenge of paternalism. However, in chapter 4, I argued that through the creation of new markets individuals may change their behaviour simply because new options have become available. In other words, no blocking of options, incentivizing or psychological mechanisms are needed to change behaviour. The behavioural change is the result of the unimpeded decision based on an improved situation in which new market options have become available. To the extent that Hussain finds that such social change ethical consumerism is dubious because of its dubious behavioural change mechanisms, new markets may well escape Hussain's challenge.

Hussain settles for the following view on the permissibility of ethical consumerism, which he calls the "proto-legislative account". According to this view, citizens may engage in purchasing decisions hoping to change the incentives structure that others will face in order to advance a social agenda when the following conditions are satisfied:

"(1) The exercise of bargaining power does not deprive anyone of their basic liberties.

(2) The exercise of bargaining power is directed at (significantly) advancing an agenda framed in terms of a reasonable conception of the common good.

(3) The formal democratic process has not already addressed the issue in question.

(4) The process that guides the exercise of bargaining power is appropriately representative and deliberative.

(5) The process that guides the exercise of bargaining power generates standards and arguments that can be the basis of future legislation.

(6) The overall effort aims to raise awareness of the issue and (if necessary) to put it on the formal legislative agenda" (Hussain 2012b: 126).

Let us consider each of these six points and enquire whether market shaping can fulfil them. As for (1) — regarding the deprivation of basic liberties — we must note that individual market shaping may of course take place with different purposes in mind. Markets may also be shaped to discriminate against certain minorities or actually to deprive some of basic libertis. In this chapter, I considered individuals' intentions to make other people act in ways that are climate neutral. Market shaping policies here are not intending to or actually resulting in the deprivation of basic liberties.

As for (2) — whether the exercise is aimed at advancing a controversial conception of the common good — we can respond that shaping green markets need not be justified by any controversial conceptions of the common good. It is possible to adduce considerations of justice for mitigating climate change.

As for (3) — concerning the absence of a formal democratic process — we should question the legitimacy of this condition. This condition seems to assume that political issues are never to be addressed by the state in connection with other individuals. This seems to be an unreasonable account of the relationship between policy decisions and individual decisions. Individuals can guide their political actions by political decisions, but nevertheless retain a significant amount of discretion in exercising their individual action.

The remaining three condition ((4) – (6)) seem to pose important constraints on how individual market shaping should be conducted, but they do not seem to constitute a substantial problem for the general idea.

Thus, considering Hussain's view on the legitimacy of social change ethical consumerism seems permissive enough to allow market shaping behaviour that aims to create markets to change other people's behaviour in a green way. However, it may pose important constraints on how this process should be conducted. Importantly, it seems that we identified an important role for the state and social movement in coordinating the private exercise of purchasing power.

8. Conclusion

Political action is primary in the shaping of markets; individuals only play a complementary role, both in terms of their impact and normatively (Shue 2005 discusses the primacy of political action in technological transformation). Individuals can collectivise and push for political action, coordinate and deliberate on how best to cooperate. Their purchasing power and investment power requires coordination from collective actors, such as the state. Besides, we discovered potent reasons for thinking that individuals should not abuse their purchasing power in the pursuit of changing others' behaviour.

This chapter touches quite a few philosophical debates, such as individual obligation and ethical consumerism. The contribution it makes is to make concrete how individuals can change an institution that is mediating the choices that individuals and institutions make that are most consequential in the effort of mitigating climate change. I found that there are several ways in which individuals can have an impact on market shaping and thus make a difference in the mitigation of climate change, compared to merely adjusting their own consumption behaviour.

Chapter VII: Conclusion

0. Abstract

This concluding chapter summarises the main results of the thesis and reflects on the consequences for our understanding of market, state and innovation. It also considers what methodical role the insights from economic literature played in the development of the philosophical arguments in the various chapters. Finally, open questions and avenues for further research are outlined.

1. Thesis Results

In this thesis, I tried to bring together the worlds of liberalism and economic innovation. The concrete proposal under investigation was that the state take an active role in innovation policy, steer and drive economic growth, create new markets and shape already existing markets. This view of the role of the state in the economy goes beyond mere regulation, incentives or framework setting, but may involve a great multitude of state measures, involving state-owned enterprises, investment banks or choosing private businesses to collaborate. The novelty in such an approach may often not lie in the type of organisations and the institutions advocated, but rather in the confidence of the public sector in such endeavours and in the rationale for which it is pursued. The rationale behind such ambitious innovation policy goes beyond narrow concerns of economic prosperity, but should be seen as serving the quest of grand challenges, most importantly climate change.

Liberalism as a tradition of understanding political legitimacy is characterised by the distinction between the individual citizen and more collective organisations such as society or the state. The individual is endowed with rights or interests that often act as constraints on what the state may legitimately do. In the economic realm, too, liberalism has often been understood as a doctrine of non-interference by the state in the business affairs of citizens. This is particularly true for classical liberals, such as Adam Smith or John Locke. Such a view on the boundaries of legitimate state action may seem to leave little space for a policy proposal that calls for an ambitious and active role of the state in innovation and thus shaping the economic institutions that individuals face in their everyday lives.[187]

Against this apparent contradiction, I argued that liberal views on the role and limits of the state are compatible with ambitious state entrepreneurship. However, views about the limits of state action need to be taken seriously. In the course of identifying common ground between liberal views of political legitimacy and innovation policy, we also found important boundaries to how such innovation policy should be carried out (without coming into conflict with liberal views). The final overall result of the thesis goes beyond mere compatibility: a liberal concern for the individual may actively require driving growth and generating new markets through innovation policy. The resulting synthesis between liberalism and innovation policy may open new avenues for political philosophers, innovation scholars and policy advocates.

I analysed innovation policy primarily through its economic consequences. In chapter 2, I understood innovation policy as growth policy. Chapter 3 interpreted it as the conscious involvement of the state in the evolution of existing markets (which I referred to as "market shaping"). Chapters 4 and 5 shifted the focus somewhat to the creation of new markets and thus state entrepreneurship. The role of individuals, which I discussed in chapter 6, is relevant for both market shaping and market creation.

In chapter 2, I engaged with the Rawlsian question of what a just basic structure of society may look like; which basic social and economic institutions are acceptable to individuals? In this effort of idealised systems-building, I considered the political economic implications of the difference principle. I followed critics of Rawls who argued that the difference principle requires continual economic growth. The main contribution of the chapter was to show that embracing economic growth in the name of the difference principle does not imply endorsing laissez-faire economic regimes. References to historical examples of long-term growth showed the crucial role of the state in bringing about innovation and ensuring that the resulting growth takes an inclusive direction. I should note that this chapter has a unique role in this thesis for two reasons. On the one hand, it focuses on the more coarse-grained notion of growth, as opposed to markets. On the other, its evaluative concern is restricted to economic

[187] On the other hand, high liberals, such as John Rawls or the proponents of the moral limits of markets, may be more inclined to "interventionism". Yet their understanding of the role of the state in the economy is restricted to regulation and they do not consider the idea that states may actively shape and create markets (see chapter 5).

prosperity; it thus does not reflect the rationale that innovation policy should be in the service of tackling climate change.

In chapter 3, I moved away from considering and comparing whole economic regimes (and the question whether growth and innovation should be part of them) to the epistemic evaluation of markets. Hayek's defense of a spontaneous market order (undisturbed by state commands) is that it is the best institutional arrangement to take advantage of knowledge dispersed among many agents; knowledge which the policy maker issuing commands would not possess. The goal of this chapter was to argue that the epistemic propensity of markets need not be impeded by state efforts to shape its evolution. State action may not be omniscient, but may contribute knowledge to the market which it would not reflect otherwise. The argument from spontaneous was therefore disentangled from libertarian views against state action in the economy. However, I also found that not any kind of market shaping by the state can preserve the unique epistemic role of the market. Market shaping must be open-ended and must not be a state privilege. Other market actors must be able to continue to contribute their knowledge to the market and thus continue to shape its evolution. While chapter 3 focused on the interaction between state and market, chapters 4 and 5 were concerned with the relationship between state and individual citizens as mediated by markets.

Chapter 4 advanced a set of core liberal concerns focusing on (broadly speaking) deontological notions against the idea that the state creates new markets. If the state creates new markets with the intention (and the result) of changing the behaviour of individual citizens, we must compare it with alternative mechanisms for behavioural change. Policies aiming for behavioural change are often criticised for somehow overstepping one or another boundary protecting the sphere of individual citizens. The chapter focuses on freedom, autonomy, property and paternalism and argues that market creation is possible without significantly violating these ideals. In order to demonstrate the relative softness of market creation as a mechanism for behavioural change, I compared it with other such mechanisms, namely coercion, incentive and nudge.

Chapter 5 presents the most ambitious argument going beyond the mere compatibility between liberalism and innovation policy. It argues that ideas about individual responsibility require the active creation of new markets. The chapter continues to focus on the creation of new markets, but changes the lens through which the relationship between state and individuals is seen. It maintains the idea that markets mediate between policy and individuals, but instead views citizens not just as passive objects whose behaviour can be changed, but rather as active agents whose plans can be positively enhanced by the creation of new markets. This argument shows why some markets should be available in a society facing a grand challenge, such as climate change.

Chapter 6 moves the focus from the value of markets, towards the process of establishing such markets. While chapter 5 argues that such new markets can give individuals the possibility of enacting their individual responsibility, chapter 6 argues that the process of shaping such markets itself is a process in which individuals can exercise their responsibility and thus make a significant difference in the context of climate change. If individuals contribute to the shaping of markets, they can change the market institutions that citizens will face in the future and can thereby make it more likely that those future citizens make green choices. Thus, market shaping is a way for individuals to have a dynamic impact through their actions on the market. Individuals can form collectives and act in concert with other actors, most importantly the state, in shaping markets. Individuals can do so in various roles, such as voters, consumers, investors or users.

2. Innovation: Politics First

In the introductory chapter (section 4), I introduced the idea that innovation should be left to the market as a default. I considered three possible responses to this challenge: The first is an economistic response that markets by themselves do not provide an optimal type or rate of innovation. Given such a market failure, there is a prima facie reason for the state to act. The second response focuses on the evaluative basis of such a market first view, namely the view of human wellbeing on which it is based. For example, it may be argued that individuals sometimes lack relevant information and thus do not make decisions which maximise their wellbeing. The third response was to reject the idea that state action in innovation must be justified by reference to a failure in the market. Political philosophical considerations in their own right are sufficiently pressing to move away from the primacy of the market as a default.

The introductory chapter only alludes to this third position, but does not supply arguments for such a politics first view of markets. However, the arguments presented in the subsequent chapters of this thesis jointly make a case for such a view. The primacy of the market is usually defended on one of the following grounds. First, markets as a default are argued to maximise economic growth in the long run. Such a systemic argument in favour of markets as default mechanism for innovation was rejected in chapter 2. Here I argued that historical cases of desirable economic growth showed that the state played a role that is not merely subsidiary to market forces. Second, market primacy may be defended on epistemic grounds. As shown in chapter 3, state action need not be understood as antagonistic to markets and their epistemic processes. The argument for the market as epistemic mechanism is not an argument for a merely subsidiary role of the state. Third, markets may be argued to uniquely preserve individual freedom and any interference with them would constitute a form of paternalism or restriction of freedom for individuals. Thus, such market interference always requires justification that can be weighed against the moral costs of interference. As demonstrated in chapter 4, state action shaping and creating markets need not impinge on such individual values. The reasoning in chapter 5 most forcefully supports the idea that innovation policy may pursue political goals which are very different from those expressed in market reasoning. Individual responsibility in the context of climate change is a normative consideration very different from what is usually adduced in defending markets. Thus, the argument that non-interference by the state is the default does not hold too.

Let us clarify this result. Defenders of the primacy of markets are often willing to accept that markets often fail and thus provide reason for state action. Such defenders might accept the type of systemic, epistemic or individualist arguments for particular cases of market failure and thus accept that the state take an active role in fixing these markets or supplying the goods in question through other allocative mechanisms. By contrast, the considerations of this thesis point to a more ambitious challenge. Instead of advancing such arguments for particular markets, these arguments point to a wholesale rejection of the market as default in the first place. That does not mean that markets can or should be abolished. Markets play a primary role in society in distributing goods and coordinating dispersed knowledge in society. What it does mean is that the justificatory primacy of market mechanisms in innovation and market formation is rejected. Hence, innovation policy need not be justified by reference to failures in the market.

The fact that innovation is an area of activity that should be guided by politics first does not mean it is only the state that is concerned with it. These political considerations also apply to other actors. Chapter 6 demonstrates that. Individuals may have responsibility to employ reasoning other than short-term economistic reasons when engaging with markets.

3. Economic Thinking in Political Philosophy

The key methodological theme of this thesis was that insights from institutional and evolutionary economics can help us in debates in political philosophy. In section 2 of the introductory chapter, it was announced that the variability of institutions and of the direction of growth in a market economy will form a crucial premise in the subsequent chapters. This "moving part" can expand our view of which economic arrangements are possible and thus help us consider which ones are desirable. Let us here look back and consider which concrete form this empirical premise played in the various chapters and what types of empirical and theoretical considerations supported it.

In chapter 2, I employed two insights from the literature on the social and political embeddedness of economic growth. The generation of economic growth is not the sole privilege of laissez-faire market mechanisms. States have in the past played a role in bringing about technological innovation. The most modest versions (funding for basic research and development) concerned the development of vitamin pills. More ambitious projects included the development of modern telecommunications technology, what Mazzucato (2013) calls the "entrepreneurial state". The role of the state opened the path for another variable, namely different kinds of growth. Growth may be inclusive, green, or it may be detrimental to societal and environmental concerns. The chapter highlighted the role of institutions such as the welfare state not just in enabling growth, but also in giving it a socially desirable direction. For example, the welfare states of the post-World War II era ensured that the newly created prosperity benefited the working class too. The idea that there are different organizational set-ups and directions of growth formed the core empirical premise in rejecting the idea that Rawls's difference principle supports laissez-faire market regimes.

Chapter 3 considered epistemic arguments against state commands in the economy. I introduced market shaping as a type of economic policy that aims to modify markets, but which does not simply consist in giving commands (as in the case of command socialism). There may even be variety between different types of market shaping, which formed the basis for my distinction between static and dynamic types of market shaping. I supported this idea of the state as an epistemic actor among others not with empirical evidence, but rather but by showing that there is conceptual space for the state to act on the market without disturbing the flow of information from other market actors. For the idea that innovation policy may be a process of discovery I cited Rodrik's (2004) work on industrial policy

Chapter 4 analysed the creation of new markets as an instance of entrepreneurship, carried out by the state. For the variety of entrepreneurship, I adduced Schumpeter's (1911) analysis of this concept. Schumpeter showed that the concepts of entrepreneurship and innovation encompass more than just new products, namely also the introduction of new production methods, industry organisation, new materials or the opening of new markets.

Chapter 5 (as well as chapter 3) relied on the great wealth of literature from economic sociology. These sociologists accept that markets are institutions that depend on and are shaped by social, political, cultural and economic factors (Polanyi 1944). The Ancient Greek myth of the foundation of Athens illustrated that whole markets — as opposed to individual transactions within them — should be subject to appraisal and may be endorsed. Different types of markets are possible and the state has scope to shape the nature of these markets. In this way, we could move beyond the question whether markets need to be blocked and consider what markets conducive to societal goals would look like. In this way, the relationship between state and individual need not be limited to that of restriction. By shaping or creating new markets, the state may enable individuals to pursue actions they were not able to pursue previously.

Chapter 6 also relies on the idea that markets are socially constructed, but in addition adduced reasons for believing that individual citizens sometimes can shape them. The literature on market shaping considers the role that individuals and businesses have played in market shaping. Market choices can be analysed through a long-term perspective. In this way, we could see the consequences of such choices not just in their immediate consequences, but also in the way that it shapes the choice environment of other people in the future (dynamic consequences). I used this understanding of the scope for individual agency to argue that this may be a way for individuals to have greater impact. Sometimes this may not merely be a possibility, but also a responsibility of individuals.

Perhaps the thesis can intensify philosophical engagement with ideas from institutional and evolutionary literature. It seems that stronger engagement with these traditions might lead to fruitful cross-fertilization, for example in debates about the future of work. This should not be seen as an attack on other schools of economic thought. Yet the dominance of neo-classical and Marxist economics has perhaps prevented philosophers from raising some important questions and providing some interesting answers.

4. Open Questions and Further Research

The scope of the thesis was wide and there remain open questions and avenues for further research. Innovation policy was advocated as a crucial and effective way towards solving societal grand challenges, but I acknowledged that changes in other policy fields are also necessary. Most importantly, I have left open the question how inclusive distribution can be ensured in the future. Chapter 2 cited the welfare state as a successful institutional arrangement in the post-World War II era. Which arrangements should play a similar role in the future? The call for a Universal Basic Income, for example, promises an unconditional income for all citizens. The proposal for innovation policy of this thesis seems compatible with such a measure. Yet there may also be other forms.

The addressee of the policy proposals defended in this thesis is the state, which is a diverse collection of organisations and actors. Establishing the ideal division of labour between these organisations may to a significant extent be a matter of empirical research and country-specific tradition. We may, additionally, raise more normative questions about what the rules for the division of labour may be. What are the consequences for our understanding of, for instance, state-owned enterprises? What are the values that should guide the collaborations between public and private sector companies?

The focus of the thesis was on the role of the state in innovation policy, but I highlighted throughout the need for other societal actors to play a complementary role, too. Many questions remain about how we should understand the type of responsibilities and normative limitations that these other societal actors face in changing economic institutions.

The first type of actor is the individual citizen. Chapter 6 engaged with the role that individuals can and should play in the process of market shaping. I had to largely bracket questions of feasibility. Many individuals will simply not have the time, resources, positions of power or abilities to actively push for different markets. What can we expect from individual citizens and to which extent should they prioritise the shaping of markets, as opposed to focusing on social or political change? If individuals invest in green growth, are the resulting profits justified? In other words, may individuals make money by fulfilling their climate-related responsibilities?

The focus on the individual citizen also brings us back to the question of democratic accountability, which I quickly noted in chapter 1. There I argued that we must assume a broad understanding of the state, since many state organisations (state-owned enterprises or investment banks) may form part of successful innovation policy. Those other parts of the state, those which are not immediately subject to elected governments, may have to exercise significant discretion in order to be effective agents. To which extent should we allow and welcome such discretion? Chapter 1 invoked Evans's (1995) concept of "embedded autonomy", as an ideal middle way between an autonomous state, which is nevertheless embedded in social and democratic forces. How can the state with its various parts be subject to democratic accountability without becoming a playing ball for short-sighted politics? The question of a balance between state autonomy and democratic accountability presents an obvious problem in the case of innovation policy because advocates of innovation policy openly acknowledge the need for different parts of the state to coordinate and to play an active role.

In addition to autonomy and accountability, the tension between autonomy and economic embeddedness also requires answers. States collaborate with private companies, but how can states avoid being captured by these interests? How can we ensure that the actions of the state are not used by some economic elites to further only their own interests? This is an important question of institutional design, as well as public alertness and a civil service ethos. There may also be a role for normative analysis. Perhaps a better understanding of the role and the legitimate goals of state involvement in such collaborations can also prevent the state from being captured in this way.

Besides the individual, there are other organisations in society that play a crucial role in innovation policy. Universities and other research institutions play a crucial role in society by creating new technologies and collaborating to make them fit for the market. The structure of funding for research and university entrepreneurship plays a decisive role in determining the direction of university research and the ability of universities to be a force in the shaping of economic change. Ideas such as the "entrepreneurial university" (Etzkowitz 2003) and "academic capitalism" (Slaughter & Leslie 1997) highlight that this economic role has been added to the agenda of universities, in addition to its more traditional functions of education and research. How does this new economic role interact with the older functions and to which extent are there tensions in operations and values? What kind of responsibility do universities have to society? How may universities collaborate with private businesses in entrepreneurship? Besides the state, universities seem to be another crucial actor in society bringing together visions for the future of society, with the capabilities to conduct research and make that research have an impact on economic change.

Private businesses are yet another type of actor for whom there are many open questions. While the responsibility of business was largely bracketed in this thesis, there is already ample research on Corporate Social Responsibility. An important further task will be to better understand the responsibility that businesses face in the context of economic change. We may, for instance, raise the question to which extent the need for making profits is compatible with their role in acting towards economic change.

Postscript: Domesticating Capitalism?

We have reached the end of our analysis of the normative grounds of innovation policy. The thesis progressed by embracing an idea, defending it with blazing guns, holding to it firmly, even if it leads to unexpected places. To tackle some of the hindrances of future human flourishing — climate change first of all — we must reconsider the role of state, market and citizen in economic change. We must conceive of a different kind of capitalism.

Schumpeter was a theorist of capitalism, arguing that its wild, dynamic nature is its core characteristic; a characteristic that has been lamented by Mill, Rawls and Schumpeter himself. The proposal for innovation policy as public entrepreneurship embraces this dynamic nature, recognizing its creative and destructive power, to harness it for the challenges our societies are facing. Can we domesticate the fire of capitalism? Will we always need to fuel it? May the fire escape one day and spread beyond control?

John M. Keynes (1930) dreamed of a world in which the "economic problem" has been solved, where we have the material basis to work only a few hours per week. The demands on our imagination are even higher. Currently, we may only imagine a world in which the most existential problems have been solved: the climate crisis, global and domestic justice, our exploitative relationship to other beings on the planet, the social and economic consequences of the current pandemic. Maybe such a world — a world we leave to our grandchildren — will not anymore be in need for such heavy machinery as the active steering of the crude forces of capitalism. Maybe such a world will advance not through politics, technology and economy, but — as Keynes envisioned it — through love, art and philosophy.

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